Acta Cryst. (1978). A**34**, 1031–1046

International Union of Crystallography

Report of Executive Committee for 1977

Meetings

The Union sponsored or co-sponsored the following meetings held in 1977: Bat-Sheva Seminar on Electron Density Mapping in Molecules and Crystals, Rehovoth, Israel, 18–28 April; Third International Summer School on Crystal Growth, University of New Hampshire, USA, 10–15 July; Fifth International Conference on Crystal Growth, Boston, USA, 17–22 July; Fourth European Crystallographic Meeting, Oxford, UK, 30 August–3 September; Summer School on Teaching Crystallography for Today's Sciences, Erice, Italy, 5–15 September; Fourth International Conference on Ferroelectricity, Leningrad, USSR, 18–23 September; International Conference to mark the 50th Anniversary of the Discovery of Electron Diffraction, London, UK, 19-23 September; Fourth International Conference on Small-Angle Scattering, Gatlinburg, USA, 3–7 October.

Six of the non-publishing Commissions of the Union were able to hold meetings during the year, these meetings being attended by most of their members and being held at relevant scientific meetings. In almost every case these meetings were able to be held at no extra financial cost to the Union.

The Executive Committee met at Zvenigorod, near Moscow, 10–13 August, where the Programme Committee for the Eleventh Congress of Crystallography also met 8–10 August. The most important items of business dealt with by the Executive Committee were (1) prospective new members of the Union; (2) sponsorship of meetings; (3) discussion of the arrangements for the Eleventh General Assembly and Congress with the Programme Committee; (4) approval of the audited accounts for 1976; (5) subscription rates for 1978 and other matters concerning the Union's journals, including the appointment of new Editors, the publication of the Congress Abstracts and changes in copyright laws; (6) possible new formats for *Structure Reports*; (7) the new volume on direct space of *International Tables for Crystallography*, (8) the General Fund estimates and the reappraisal of level of the unit contribution for 1979–1981; (9) appointment of a new Chairman of the Commission on Electron Diffraction; (10) the report of the Sub-committee on the Statutes and By-Laws; (11) Union representation on other bodies; (12) the proposed site for the Twelfth General Assembly and Congress; (13) the work of ICSU; (14) suggestions received from the National Committees for membership of the Executive Committee and the Commissions.

Resignations and Appointments

The Executive Committee appointed S. C. Abrahams to succeed A. J. C. Wilson who retired as Editor of *Acta Crystallographica* and Chairman of the Commission on Journals on 31 December 1977, having held these offices since 1960. J. Wyart and H. Lipson also retired as Co-editors of the journal at the end of 1977. Professor Wyart has been a Co-editor since the journal was founded in 1948 and Professor Lipson was first appointed in 1956. The Executive Committee approved the appointment of M. M. Woolfson and J. Protas as Co-editors of *Acta Crystallographica.*

K. Kuchitsu was appointed to succeed K. Molière, who resigned as Chairman of the Commission on Electron Diffraction. W. B. Yelon was appointed to succeed B. Klar, who resigned as a member of the Commission on Neutron Diffraction. Dr Yelon also took over the editorship of the *Neutron Diffraction Newsletter.*

Publications

Volume 33 of *Acta Crystallographica* and Volume 10 of the *Journal of Applied Crystallography* were published in 1977. *Structure Reports* Volume 41A (covering the metals and inorganic ompounds for 1975) and Volume 40B (covering the organic compounds for 1974) were published in May. A supplement for the years 1974 and 1975 to the metals and inorganic compounds part of the 60-*Year Structure Index* was published at the same time, and was distributed with copies of Volume 41A. Volume 8 (*Bibliography* 1975–76) and *Guide to the Literature* 1935–76 – *Organic and Organometallic Crystal Structures*, both in the *Molecular Dimensions and Structures* series, were also published. Volume I of *International Tables for X-ray Crystallography* was reprinted. A fifth edition of the *World Directory of Crystallographers* was published in August.

Adhering Bodies

The latest list of Adhering Bodies of the Union and names and addresses of the Secretaries of National Committees is given in Table 1. The replacement of the Akademiet for de Tekniske Videnskaber by the Royal Danish Academy of Sciences and Letters was approved by the Executive Committee and will be presented for acceptance by the General Assembly in August 1978. A full list of memberships of National Committees is given in Annex IV to the report of the Tenth General Assembly and Congress [*Acta Cryst.* (1976), A**32**, 744–745]. The following changes, in addition to those listed in the report for 1976 [*Acta Cryst.* (1977), A**33**, 1028], to the memberships of committees had been communicated to the Executive Secretary by 1 July 1978:

Argentina: E. E. Galloni has succeeded S. Baggio as Chairman and M. R. de Benyacar has succeeded M. Ipohorski.

Brazil: R. Rodrigues da Silva (Chairman), S. Caticha Ellis, Y. P. Mascarenhas, E. Távora Filho, J. V. Valarelli.

Finland: K. Kurki-Suonio (Chairman), V. Hovi, V. Lindroos, A. Pajunen, Th. Sahama, P. Suortti, L. Tahvonen.

Germany, Fed. Rep.: H. Schulz, U. Bonse, W. Bronger, W. Eysel, K. Fischer, K.-J. Range.

Italy: A. Coda (Chairman), M. Brunori, E. Cannillo, G. Filippini, C. Giacovazzo, F. Menzinger, G. Rigault, A. Ripamonti, A. Vaciago.

New Zealand: W. T. Robinson (Chairman), P. M. Black, A. G. Freeman, S. Rumball, J. M. Waters, P. P. Williams.
South Africa: G. Gafner (Chairman), J. F. De Wet, M. J. Laing, L. R. Nassimbeni, P. le R. Malherbe, J. A. Pretorius.
Spain: S. Garcia Blanco (Chairman), F. Arrese Serrano, M. Font-Altaba, R. Marquez Delgado, S. Martínez Carrera, J. Rodríguez Martínez.
USA: M. H. Mueller (Chairman), S. C. Abrahams, R. F. Bryan, C. N. Caughlan, J. R. Clark, J. B. Cohen, P. Coppens, J. M. Cowley, J. P. Glusker, C. K. Johnson, Q. C. Johnson, J. Karle, R. E. Marsh, R. E. Newnham, M. G. Rossmann, D. P. Shoemaker, D. K. Smith, H. Steinfink, R. A. Young.

Table 1. *Adhering Bodies*

Country	*Category**	*Adhering Body*	*Secretary of National Committee*
Argentina	I	Consejo Nacional de Investigaciones Científicas y Técnicas	M. A. R. DE BENYACAR, Division Fisica del Solido, Comision Nacional de Energia Atomica, Av. del Libertador 8250, 1429 Buenos Aires
Australia	III	Australian Academy of Science	The Executive Secretary, Australian Academy of Science, P.O. Box 783, Canberra City, A.C.T. 2601
Austria	I	Österreichische Akademie der Wissenschaften	A. PREISINGER, Institut für Mineralogie und Kristallographie der Universität Wien, Dr-Karl-Lueger-Ring 1, A1010 Vienna
Belgium	II	Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique	P. PIRET, Laboratoire de Chimie Physique et de Cristallographie, Université de Louvain, 1 place Louis Pasteur, 1348 Louvain-la-Neuve
Brazil	I	Conselho Nacional de Pesquisas	S. CATICHA ELLIS, DESCM, Instituto de Física, Universidade Estadual de Campinas, Campinas, São Paulo 13100
Canada	III	National Research Council	A. W. HANSON, Division of Biological Sciences, National Research Council of Canada, Ottawa, Ontario K1A 0R6
Chile	I	National Committee for Crystallography	I. GARAYCOCHEA-WITTKE, Departamento de Física, Universidad de Chile, Casilla 5487, Santiago
Czechoslovakia	I	Československá Akademie Věd	A. LÍNEK, Institute of Solid State Physics, Československá Akademie Věd, Cukrovarnická 10, Prague 6
Denmark	I	Royal Danish Academy of Sciences and Letters	I. KJØLLER LARSEN, The Royal Danish School of Pharmacy, Chemical Laboratory C, Universitetsparken 2, 2100 Copenhagen Ø
Finland	I	Suomalainen Tiedeakatemia	L. TAHVONEN, Department of Physics, University of Helsinki, Siltavuorenpenger 20 D, 00170 Helsinki 17
France	IV	Académie des Sciences (Institut de France)	J. F. PETROFF, Association Française de Cristallographie, 4 place Jussieu, Tour 26, 75230 Paris CEDEX 05
German Democratic Republic	II	Vereinigung für Kristallographie in der G.G.W. der D.D.R.	H. PEIBST, Zentralinstitut für Elektronenphysik, Deutsche Akademie der Wissenschaften der D.D.R., Mohrenstrasse 40/41, DDR-108 Berlin
Germany, Federal Republic of	IV	Arbeitsgemeinschaft Kristallographie	H. SCHULZ, Max-Planck-Institut für Festkörperforschung, Büsnauer Strasse 171, 7 Stuttgart 80
Hungary	I	Magyar Tudományos Akadémia	L. ZSOLDOS, Research Institute for Technical Physics, Hungarian Academy of Sciences, PO Box 76, H-1325 Budapest
India	I	Indian National Science Academy	R. CHIDAMBARAM, Nuclear Physics Section, Bhabha Atomic Research Centre, Trombay, Bombay 400 085
Israel	I	Israel Academy of Sciences and Humanities	Z. SHAKKED, Department of Structural Chemistry, The Weizmann Institute of Science, Rehovot
Italy	III	Consiglio Nazionale delle Ricerche	G. FILIPPINI, Istituto di Chimica Fisica, Università di Milano, Via Golgi 19, Milano
Japan	IV	Science Council of Japan	Y. SAITO, The Institute for Solid State Physics, University of Tokyo, Roppongi 7, Minato-ku, Tokyo 106
Netherlands	III	Stichting voor Fundamenteel Onderzoek der Materie met Röntgen- en Elektronenstralen	The Executive Secretary, FOMRE, Laan van Meerdervoort 53d, 's-Gravenhage
New Zealand	I	The Royal Society of New Zealand	J. M. WATERS, Chemistry Department, University of Auckland, Private Bag, Auckland
Norway	I	Det Norske Videnskaps-Akademi	CHR. RØMMING, Department of Chemistry, University of Oslo, P.O. Box 1033, Blindern, Oslo 3
Poland	I	Polska Akademia Nauk	A. PIETRASZKO, Instytut Niskich Temperatur i Badań Strukturalnych, Polskiej Akademii Nauk, Plac Katedralny 1, 50–950 Wrocław
South Africa	I	South African Council for Scientific and Industrial Research	P. LE R. MALHERBE, International Relations Division, CSIR, P.O. Box 395, Pretoria 0001
Spain	III	Consejo Superior de Investigaciones Científicas	S. MARTÍNEZ CARRERA, Instituto de Química Física 'Rocasolano', Consejo Superior de Investigaciones Científicas, Serrano 119, Madrid 6

Table 1 (*cont.*)

Country	*Category**	*Adhering Body*	*Secretary of National Committee*
Sweden	II	Kungliga Vetenskapsakademien	S. ABRAHAMSSON, Department of Structural Chemistry, University of Göteborg, Medicinareg. 9, S-400 33 Göteborg 33
Switzerland	II	Schweizerische Gesellschaft für Kristallographie	W. H. MEIER, Institut für Kristallographie und Petrographie. Sonneggstrasse 5, CH-8006 Zürich
UK	V	The Royal Society	The Executive Secretary, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG
USA	V	National Academy of Sciences – National Research Council	J. P. GLUSKER, The Institute for Cancer Research, 7701 Burholme Avenue, Fox Chase, Philadelphia, PA 19111
USSR	V	Akademija Nauk S.S.S.R.	V. I. SIMONOV, Institute of Crystallography, Leninsky prospekt 59, Moscow 117333
Yugoslavia	I	Jugoslavenska Akademija Znanosti i Umjetnosti	B. KAMENAR, Laboratory of General and Inorganic Chemistry, Faculty of Science, Ulica Soc. Revolucije 8, 41 000 Zagreb

* Adherence to the Unions is in one of five Categories I–V, with corresponding voting powers and contributions as set out in Statutes 3·6, 5·5 and 9·4.

Table 2. *Survey of the contents of the Union journals*

Acta Crystallographica

Vol.	Year	Number of pages*	Articles: Number	Articles: Average length	Short Structural Papers: Number	Short Structural Papers: Average length	Short Communications: Number	Short Communications: Average length
A28 †	1972	985	107	5·9	–	–	35	1·2
B 28		3676 / 4661	584 / 691	6·1 / 6·0	4	2·6	75 / 110	1·5 / 1·4
A29	1973	774	118	6·0	–	–	26	1·3
B 29		2984 / 3758	457 / 575	5·8 / 5·9	74	2·3	56 / 82	1·5 / 1·4
A30	1974	874	135	6·0	–	–	37	1·2
B 30		2938 / 3812	470 / 605	5·4 / 5·6	131	2·6	32 / 69	1·3 / 1·2
A31 ‡	1975	1218	140	6·1	–	–	31	1·4
B 31		2944 / 4162	446 / 586	5·2 / 5·4	230	2·4	38 / 69	1·3 / 1·3
A32	1976	1038	152	6·0	–	–	36	1·1
B 32		3360 / 4398	535 / 687	5·0 / 5·2	260	2·5	28 / 64	1·1 / 1·1
A33	1977	1046	181	5·6	–	–	20	1·5
B 33		3974 / 5020	548 / 729	5·2 / 5·3	409	2·6	34 / 54	1·4 / 1·4

Journal of Applied Crystallography

Vol.	Year	Number of pages*	Articles: Number	Articles: Average length	Short Communications: Number	Short Communications: Average length	Crystal Data: Number	Crystal Data: Average length
5	1972	448	69	4·9	27	1·6	12	1·2
6	1973	502	62	5·5	18	1·3	13	1·7
7§	1974	638	103	5·4	10	1·5	18	1·4
8‖	1975	698	98	5·8	17	1·7	25	1·5
9	1976	514	71	5·8	19	1·6	25	1·6
10	1977	510	76	5·5	14	1·8	22	1·3

* Excluding indexes.

† Volume A28 includes 303 pages of abstracts communicated to the Kyoto Congress.

‡ Volume A31 includes 338 pages of abstracts communicated to the Amsterdam Congress.

§ Volume 7 includes 144 pages of papers and abstracts presented at the Third International Conference on Small-Angle Scattering, Grenoble, 1973.

‖ Volume 8 includes 149 pages of papers and abstracts presented at the International Discussion Meeting on Studies of Lattice Distortions and Local Atomic Arrangements by X-ray, Neutron and Electron Diffraction, Jülich, 1974.

Work of the Commissions

Commission on Journals

During 1977 the Commission on Journals produced Volume 33 of *Acta Crystallographica* and Volume 10 of the *Journal of Applied Crystallography*. The number of papers submitted for publication continues to increase: 1323 were accepted and sent to the Technical Editor during 1977; the corresponding number for 1976 was 1246 and for 1970 it was 717. The number of pages published in *Acta* A was 1046, in *Acta* B 3974, and in the *Journal of Applied Crystallography* 510, plus, in each case, indexes. The total

number of pages is substantially greater than in any previous year (even years in which Congress abstracts were published). This is only partly accounted for by clearance of the backlog of *Acta* B papers that accumulated while the size of that journal was restricted for financial reasons. An analysis of the contents of the journals for the last six years is given in Table 2.

From January 1978 *Acta* A as well as *Acta* B will be produced in England; the production of the *Journal of Applied Crystallography* remains in Denmark.

J. Wyart, H. Lipson and A. J. C. Wilson have resigned from the Editorial Board with effect from 31 December 1977, having served 30 years, 22 years and 18 years respectively. They are succeeded by J. Protas (Co-editor), M. M. Woolfson (Co-editor) and S. C. Abrahams (Editor). An appreciation of their services will appear in *Acta Crystallographica* [(1978), A**34**, 158–159]. A revised Notes for Authors has been prepared and will be published [*Acta Cryst.* (1978), A**34**, 143–157].

Commission on Structure Reports

Volume 40B (Organic Compounds for 1974) and Volume 41A (Metals and Inorganic Compounds for 1975) were published in 1977. Volume 41A included a supplement to the 60-*Year Structure Index*, Part A (for 1974 and 1975). The following volumes are with the printer and should appear in mid-1978: (1) Volume 41B (Organic Compounds for 1975, about 1400 pages in two parts); (2) Volume 42A (Metals and Inorganic Compounds for 1976, 491 pages). Co-editorial work is proceeding on Volumes 42B, 43A and 43B.

A report was prepared in July 1977 on the present state of *Structure Reports*. Problems arise chiefly from the increasing production costs, and the consequent decrease in the number of copies sold. The report included various proposals for modifications of editorial, production and sales methods. So far the consensus is that the information density of each page should be increased by minor changes in format, which should not decrease the quality or scientific content of the reports. Distribution of book review copies is under way, and a letter is planned to subscribers to the Union's journals and to other potential subscribers to *Structure Reports*.

Commission on International Tables

Extensive work on the completion and checking of the data for the volume on direct space for the new edition of *International Tables for Crystallography* continued throughout the year. The new data on sub- and supergroups were received early in 1977. In May a booklet containing computer-produced examples for 23 space groups was issued. At the same time a complete line-printer output for all 230 space groups was distributed by D. S. Fokkema. It forms the basis for checking the data. The Executive Committee gave its general approval of the new volume at its meeting in August, and confirmed the 1951 General Assembly decision on the two settings for the monoclinic system.

Seven Commission members met in Aachen in December. Decisions were made on a number of unresolved problems, including the extension of the sub- and supergroup data, the symbols for symmetry operations, and the treatment of monoclinic space groups. A table of contents was compiled for the introduction to the new volume. These decisions are now being put into effect and a final line-printer output for all 230 space groups is being prepared. D. S. Fokkema's employment with the Union terminated on 30 March 1977. He is, however, still assisting on an hourly basis until the computer work is completed. In August A. Vos kindly agreed to act as secretary to the Commission, in order to relieve the Chairman of some of the administrative burden.

A limited reprint of Volume 1 of the present edition of *International Tables for X-ray Crystallography* was made in 1977.

Commission on Charge, Spin and Momentum Densities

1. *Sagamore* V. The proceedings of the Sagamore V Conference, which was held in Kiljava, Finland, and was sponsored by IUCr and IUPAP, were collected by the local chairman Professor Kurki-Suonio and appeared as *Physica Scripta* (1977), **15**, No. 2.

2. *Electron and Spin Densities.* A workshop on electron density mapping, sponsored by the Commission and the Union, was organized in Rehovot, Israel, in April by F. Hirshfeld. Jane Brown and the Commission Chairman organized a workshop on magnetic structures and spin densities in October, under the sponsorship of the Institut Laue–Langevin, Grenoble, where the neutron diffraction data are being collected for the Commission project on oxalic acid dihydrate, which was initiated by E. N. Maslen.

3. *Compton effect.* The *Compton Scattering* monograph, edited by B. G. Williams and published by McGraw-Hill, has finally appeared. V. H. Smith has continued to receive data for his survey of form-factor and Compton-profile calculations.

4. *Further events.* In view of the success of the Summer School held at Warwick University in 1975 and the workshops held in 1977, the following activities have been planned: (*a*) Gordon Research Conference on Electron Distributions and Chemical Bonding (Plymouth, New Hampshire, USA, 12–16 June 1978) organized by V. H. Smith and P. Coppens (Commission members); (*b*) Summer School on Electronic and Magnetic Distributions in Molecules and Crystals (Arles, France, 16–31 August 1978), recommended by the Commission and organized by P. Becker. The dates and location for the Sagamore VI Conference have been fixed as 19–25 August 1979, Mont Tremblant, Canada.

Commission on Crystal Growth

The Commission met at the occasion of the International Congress of Crystal Growth, in July 1977. It proposed that two sessions at the IUCr Congress in Warsaw be devoted to the topic of crystal growth, one on growth defects, their genesis and their influence on crystal growth, and the other one on the characterization of growth defects.

The Commission has suggested that a summer school on growth defects be organized in 1979 just before the Second European Crystal Growth Conference, which is to be held in Lancaster, England, in September 1979. This suggestion has been taken up by a group of British colleagues who are organizing an International Summer School on the Characterization of Crystal Growth Defects by X-ray Methods, to be held in Durham, England, 31 August–8 September 1979.

Contacts between the Union and the ICSU Committee on Space Research (COSPAR) were discussed by the Commission and it was suggested that the Union should become a permanent member of this organization. E. Kaldis represen-

ted the Union at the meeting of COSPAR in Tel Aviv in June 1977.

The problem of the standardization of nomenclature on crystal growth is a complex one. Although everyone agrees on its potential interest, the Commission is doubtful as to the means to achieve this goal and feels that IUPAC and IOCG might be in a better position to do this than the Commission. Contacts have been made with these organizations, which have designated Y. Jeannin, H. S. Peiser and R. L. Parker as their representatives in this matter. As a first step, Dr Parker has written, at the suggestion of the Commission, to the editors of a number of journals, asking them whether they would be willing to enforce a standardization of terms, should this be achieved.

Commission on Crystallographic Apparatus

All matters were attended to through correspondence and at a Commission meeting held in conjunction with the Fourth European Crystallographic Meeting in Oxford, England. The meeting was attended by all but one Commission member and by several consultants.

1. *Accuracy of Intensities Determined Microdensitometrically* (S. Abrahamsson, P. Kierkegaard, G. Lundgren). A series of carefully prepared precession photographs have been measured by a number of laboratories throughout the world. The data are now being processed and will be analysed in terms of several parameters, such as film factors, scale factors and intensity distributions. The final report will include an analysis of the correlations and statistics between the various microdensitometers and techniques. A comparison with diffractometer measurements of the same material will also be made.

2. *Small-Angle Scattering* (R. W. Hendricks). (*a*) Inter-Congress Meeting. Over 200 people attended this meeting, which was held in October in Gatlinburg, Tennessee, USA. Many of the 125 papers presented at this meeting will be published in the October 1978 issue of the *Journal of Applied Crystallography*. (*b*) Absolute Intensities in Small-angle X-ray Scattering. The final report has been completed on a project in which measurements made on standard glassy carbon and polystyrene samples by seven laboratories in six countries were compared. The report will be published shortly [*J. Appl. Cryst.* (1978), **11**, 196–205].

3. *Powder Diffraction* (L. D. Jennings and P. Suortti). (*a*) Accuracy of Structure Factors from X-ray Powder Intensity Measurements. The final report on this project has been published [*Acta Cryst.* (1977), A**33**, 1012–1027]. (*b*) Inter-Congress Meeting on Accuracy in Powder Diffraction. The Commission is one of the co-sponsors of a meeting on this topic to be held in June 1979.

4. *Anomalous Scattering Factor Survey* (S. Hosoya). A survey of specialists in the area of experimental measurements of anomalous scattering factors revealed that these techniques have not yet been developed to a point where an international comparative project would be feasible.

5. *Index of Crystallographic Supplies* (R. Rudman). A Supplement to the Third Edition of the *Index* has been prepared and will be published [*J. Appl. Cryst.* (1978), **11**, 65–72].

6. *X-Ray Radiation Safety* (M. Colapietro and S. Martinez Carrera). (*a*) Safety Standards. A survey of current national and international standards is in progress. The purpose of this survey is eventually to evolve an internationally acceptable set of standards which will be compatible with the needs of the researcher. (*b*) Safety Bibliography. A bibliography of papers dealing with safety shutters and devices, radiation survey techniques, and medical aspects of radiation accidents is being prepared.

7. *Polarization Ratio Survey* (L. D. Jennings). A survey of the measured polarization ratios of monochromatized X-ray beams is being conducted as part of a broader attempt to focus attention on the necessity of proper measurement of these ratios.

8. *Crystal Extinction.* A series of papers based on the Open Commission Meeting held at the Amsterdam Congress in 1975 has been published [*Acta Cryst.* (1977), A**33**, 232–249].

9. *Meetings.* (*a*) A discussion of current Commission projects was the subject of an Open Meeting presented at the Fourth European Crystallographic Meeting in August 1977. (*b*) The Commission is organizing sessions on microdensitometry and on synchrotron radiation at the Eleventh Congress in Warsaw in August 1978.

10. *Consultants.* Two new consultants were appointed during 1977. S. Szarras will act as the local chairman of the Commission-sponsored exhibit of non-commercial apparatus at the Eleventh Congress. S. Martinez Carrera will prepare the bibliography on radiation safety.

11. *New Projects.* The following projects are currently being organized: (*a*) comparative measurements of absorption coefficients; (*b*) survey of X-ray film characteristics; and (*c*) a computerized bibliography on small-angle scattering.

Commission on Crystallographic Computing

The Commission held an inter-Congress meeting during the Fourth European Crystallographic Meeting at Oxford, England. It organized an open meeting which was devoted to new advances in the field of crystallographic data processing. At the business meeting of the Commission, the members and consultants present decided to support the organization of a computing school in Twente, the Netherlands, just before the Warsaw Congress. The chairman of the school's organizing committee, H. Schenk, attended the meeting and was appointed a consultant of the Commission. The organization of a computing school in the Far East was also discussed with K. Venkatesan, the chairman of the local organizing committee. Professor Venkatesan was also appointed a consultant to the Commission. The school will be held in Bangalore, India, in January 1980, and a preliminary scientific programme has been prepared. Some progress has also been made on the bank of trial structures; it is hoped that the data will be available shortly.

Commission on Crystallographic Data

A meeting of several Commission members was held in Oxford in September 1977 on the occasion of the Fourth European Crystallographic Meeting. This afforded an opportunity to review activities for the year.

1. A document prepared by I. D. Brown, setting out guidelines for editors of non-IUCr journals, has been revised in the light of extensive comments from Commission members and others. The new draft will be recirculated in advance of the Eleventh Congress.

2. There has been considerable discussion of the editorial aspects of the proposed *Bibliography of Mathematical*

Crystallography and W. Nowacki is now preparing the typescript. It has been agreed that the Commission would provide assistance in checking the references for English, German and Russian publications.

3. A formal request has been made by I. D. Brown and R. Shirley that the Commissions on Crystallographic Data and Computing should set up, at Warsaw, a small working party to propose a standard computer data exchange format. This working party should report at the Twelfth Congress.

4. Work is in hand on the establishment of an inorganic data base and G. Bergerhoff has submitted proposals concerning the contents of the data base.

5. Discussions have been initiated with D. W. Penfold and S. C. Abrahams on the feasibility of computerizing the indexes for *Acta Crystallographica.*

6. For the Eleventh Congress in Warsaw the following arrangements have been made: (*a*) two closed business sessions; (*b*) two open Commission meetings with invited speakers. One open session is entitled 'Crystallographic Data Systems' and involves co-operation with the JCPDS. The other open session is entitled 'Powder Data' and is not restricted to the files of the JCPDS.

Commission on Crystallographic Nomenclature

The Commission has not met during the year, but some matters have been discussed by correspondence. It has been decided to hold a meeting of the retiring and new members of the Commission during the Eleventh Congress. As is fully reported elsewhere, the Joint Committee on Nomenclature of the International Mineralogical Association and the IUCr has completed its work and has been dissolved.

Commission on Crystallographic Studies at Controlled Pressures and Temperatures

Results from nine laboratories have been obtained on a study of the reproducibility of the transition of ZnS from the semiconductor to conductor state which occurs at approximately 150 kbar. The results are presently being analysed and will be reported at the Warsaw meeting. Planning continues on the inter-Congress meeting on Accuracy in Powder Diffraction to be held in June 1979 at the National Bureau of Standards in Washington, DC. This meeting is being held in conjunction with the Commission on Crystallographic Apparatus.

Commission on Crystallographic Teaching

This year has seen the successful climax to a great deal of hard work in which all the members and consultants were involved, in the production of a set of pamphlets on various aspects of the teaching of crystallography and their use at the summer school held in Erice in September.

During the early part of the year a great deal of correspondence, telephoning and occasional meetings were necessary in planning the activities of the Commission. An open meeting was held at the Fourth European Crystallographic Meeting. Unfortunately only a few members of the Commission were able to be present, as many of them found it impossible to attend both this meeting and the summer school. However, about 200 people were present at the open meeting. S. C. Wallwork gave an interesting talk which was followed by a good deal of discussion and one or two further prepared contributions. The theme of the session was twofold. The first part was concerned with the problems of teaching crystallography to non-crystallographers and the second concerned possible ways of assisting non-crystallographers to understand crystallographic papers. The discussion was wide-ranging but useful, and raised many questions to be carried forward to the summer school.

The summer school took place in Erice, Sicily, 5–16 September 1977. Twelve pamphlets were printed in time for the school and a number have been promised since. Nearly 90 active members were present, representing 36 different countries. The bringing together of representatives of so many different countries, for the common purpose of discussing how to improve the teaching of crystallography at all levels, was extremely worth while. In the event all aspects of the course, lecture sessions, exhibitions, experimental seminars, social activities and the accommodation and catering, were of an excellent standard. All those present will remember all aspects of the school for many years to come. Particular thanks must be recorded to the Director of the Course, A. Authier, and to the indefatigable local organizer, L. Riva di Sanseverino. Thanks of course are also due to Professor Zichichi, director of the school, and the many industrial organizations and firms (as well as the IUCr) which made financial contributions in support of the school.

A meeting of the Commission was held during the summer school at which eight of the ten Commission members were present, together with two consultants.

The main concerns of the Commission for the future are the preparations for the Commission meetings during the Warsaw Congress and the follow-up to the summer school through the publication of pamphlets.

Commission on Electron Diffraction

A conference to commemorate the 50th anniversary of the discovery of electron diffraction was held at Imperial College, London, in September. It was organized by the Institute of Physics, in collaboration with the Royal Microscopical Society and the Chemical Society (Faraday Division), and was sponsored by the IUCr and the Royal Society. Several members representing HEED and LEED took an active part in the planning and in the scientific programme, which gave a good coverage of contemporary topics in these fields of electron diffraction.

During this conference the Commission members present and a couple of others interested in Commission affairs held an informal meeting. The main topic for consideration was how best to implement the suggestion, made in the Commission report for 1976, that the HEED and LEED subgroups should become more active in the distribution of information. The sponsorship of projects aimed at establishing the reliability of various procedures, pointing out weaknesses in available data and encouraging further measurements, is being considered among the HEED subgroup.

The Commission members representing gas-phase electron diffraction started "Gas Electron Diffraction Information Service" [see the Commission report for 1976, *Acta Cryst.* (1977), A**33**, 1032]. The first issue of 24 typed pages was compiled and distributed by B. Starck (Sektion für Strukturdokumentation der Universität Ulm, Federal Republic of Germany) to researchers using gas electron diffraction techniques. It gives references on the geometrical structures of 143 free molecules determined by gas electron diffraction and references to 22 other works, based on recent publications from about 20 laboratories. It is intended to

continue this project, with lists being distributed about twice a year.

Commission on Neutron Diffraction

The *Neutron Diffraction Newsletter*, which is distributed by the Commission, is now becoming a useful tool for communication within the neutron diffraction community. Two issues came out in 1977, of which the last one contained a revised list of coherent neutron scattering amplitudes prepared by G. E. Bacon. Everyone working in the field of neutron diffraction is invited to send in their contributions. These can, for instance, be notes about recent developments in equipment and technique, or announcements about meetings, schools, courses, *etc.*

A report of the subcommittee on spectrometer intercomparison entitled *Intercomparison of Neutron Powder Diffraction Instruments* was published in *J. Appl. Cryst.* [(1977), **10**, 497–501]. This investigation was carried out by comparing diagrams obtained on standard Al_2O_3 powder samples, and using flux measurements on irradiated gold foils. Data from 21 instruments in 17 countries were included.

A new batch of *Magnetic Structure Data Sheets* containing 49 entries has been sent out by the editor, D. E. Cox. The number of entries has now become so large that provision for supplying a second binder is being made.

In connection with the Eleventh Congress, a Conference on Diffraction Profile Analysis and an Open Meeting of the Commission on Neutron Diffraction will be held in Cracow, Poland, 14–15 August 1978. This is being organized by the Commission, in co-operation with the University of Mining and Metallurgy, Cracow. Emphasis will be put on a thorough discussion of the profile-analysis structure-refinement method as applied both to neutron and X-ray data. However, other topics like the X–N technique, neutrons and biology, pulsed neutron sources, monochromators and detectors will also be treated. There will be invited lectures, contributed papers and reports on the projects of the Commission.

Sub-Committee on the Union Calendar

This Sub-Committee receives and considers requests for Union sponsorship and nominal financial support, and makes recommendations to the Executive Committee. The Union has endorsed the guidelines adopted by ICSU in 1974, regarding the free circulation of scientists and the sponsorship of meetings.

Acting on recommendations made by the Sub-Committee, during 1977 the Executive Committee approved sponsorship of, and usually financial support to, the following meetings:

1. Fourth International Conference on Ferroelectricity (Leningrad, USSR, 18–23 September 1977).
2. International Symposium on Biomolecular Structure, Conformation, Function and Evolution (Madras, India, 4–7 January 1978).
3. Fourth International Conference on Vapour Growth and Epitaxy (Nagoya, Japan, 9–13 July 1978).
4. International Summer School on Crystallographic Computing (Twente, The Netherlands, 24 July–1 August 1978).
5. Summer School on Diffraction Studies of Non-Crystalline Substances (Pecs, Hungary, 14–18 August 1978).

Other meetings held in 1977 which received Union support are listed at the beginning of the Report of the Executive Committee, under the heading *Meetings*. Organizers of meetings wishing to seek Union sponsorship should write, as early as possible, to the Chairman of the Sub-Committee, Dr F. R. Ahmed, Division of Biological Sciences, National Research Council of Canada, Ottawa, Canada K1A 0R6. Unfortunately, severe limitation of the funds available to the Union necessitates strict restraint in the provision of financial support.

IMA–IUCr Joint Committee on Nomenclature

The final report of this committee, which was set up in 1970 to consider nomenclature problems that were common to the disciplines of mineralogy and crystallography, has been published [*Acta Cryst.* (1977), A**33**, 681–684 and *American Mineralogist* (1977), **62**, 411–415; it has also been published in *Bulletin de la Société française de Minéralogie et de Cristallographie*, *Canadian Mineralogist* and *Zapiski Vsesoyuznogo Mineralogicheskogo Obshchestva*]. The nomenclature recommendations given in the report included definitions of polytypism, topotaxy, syntaxy, and epitaxy, certain criteria for mineral names, preferred format for chemical formulae, and preferred symbols for crystallographic axes and repeat distances. Two recommended systems of structural symbols to be used to differentiate polytypes were presented.

Since the committee has now completed its work, it has been dissolved.

Representatives on Other Bodies

Abstracting Board of the International Council of Scientific Unions

At the invitation of the Zoological Record, the Abstracting Board held a General Assembly and associated committee meetings at York, England, 20–24 June 1977. The technical sessions on the afternoons of 21 and 22 June were concerned with bibliographic matters and document access, including the proposed publication of an *ICSU AB Serials Directory*, containing full details of all journals covered by the Members Services of the Board with bibliographic details, codens, and ISSN's. During the three sessions of the General Assembly three new Member Services were elected: the British Library, the Laboratoire Central des Ponts et Chaussées, and the Institute for Scientific Information (ISI). The first two, being not-for-profit organizations, were elected unanimously without discussion. The third, a somewhat controversial commercial enterprise, aroused considerable discussion but was eventually accepted by a substantial majority. It is, in fact, the first fully commercial service to be accepted into membership. Another first was the election as President of a representative of a Member Service, M. S. Day of the [US] National Library of Medicine. An entirely revised set of Statutes and By-Laws was adopted.

An invitation to hold the next meeting in France in July 1978 was accepted.

Committee on Data for Science and Technology (CODATA) of the International Council of Scientific Unions

1. *Sourcebook for Data Handling.* This reference book, edited by S. A. Rossmassler and D. G. Watson, is now in the final stages. About twelve authors have contributed chapters

and it is expected that the final version will be ready for publication during the summer of 1978.

2. *Directory of Data Sources.* The first chapter of this directory, concerned with crystallography, has been published as *CODATA Bulletin* No. 24. It was edited by D. G. Watson and provides information on 16 centres and 138 publications.

3. *World Data Referral Centre.* The Centre is now operational at the CODATA office and is managed by C. de Hennezel. File structures have been designed with appropriate indexing schemes and work is under way to build up these files as rapidly as possible.

4. *Training of Data Disseminators.* The Task Group on the Accessibility and Dissemination of Data has formulated proposals for the organization of training courses aimed at various categories of data disseminators. It is anticipated that one or more of these courses may be offered in the near future as part of a larger course in information handling.

Committee on the Teaching of Science of the International Council of Scientific Unions

During the year the Union representative attended one meeting of officers in Paris in May and the remainder of the business was conducted by correspondence. Since that meeting he has been acting chairman of the committee during the period of secondment of the chairman (A. Baez) to Algeria.

The main activities during the year were:

1. The completion and preparation for publication of a series of pamphlets under a Unesco contract on *Teaching and Learning Strategies in University Education.* The eleven pamphlets in this series should be available by the middle of 1978.

2. The preparation for a small invited conference on the problem of the teaching of mathematics in relation to the other sciences, which is scheduled for September 1978. A good deal of planning and writing of working papers has been already accomplished.

3. Some share of the preparation for the conference 'Integrated Science Education, World Wide' at Nijmegen in April 1978. This is purely a conference of the International Council of Associations of Science Education (ICASE), which was sponsored by the ICSU Committee on Science Teaching, but it will be followed by a full-scale meeting of the whole ICSU committee. The Union representative has been asked to present a paper at the end of the conference, summarizing the proceedings.

Committee on Science and Technology in Developing Countries (COSTED) of the International Council of Scientific Unions

A. Authier succeeded A. Guinier as Union representative on this committee in September 1977. The representatives of the international scientific unions normally take part in the work of COSTED only by correspondence. COSTED has provided financial support to help scientists from developing countries attend scientific meetings or schools, including the Summer School on Teaching Crystallography for Today's Sciences, held in Erice, Italy, in September 1977 and the Eleventh Congress in Warsaw. It is also hoped that COSTED will be able to provide some travel fellowships for the 1980 School on Crystallographic Computing, to be held in Bangalore, India. However, problems have been experienced because COSTED considers that meetings on crystallography, except for those concerned with teaching, do not necessarily fit into the objectives of COSTED, since the subjects are not ones which help development in these countries in a direct way.

Details of the Travel Fellowships offered by COSTED may be obtained from the Scientific Secretary, COSTED Secretariat, Indian Institute of Science, Bangalore, 560012, India.

Commission on the Solid State of International Union of Pure and Applied Physics

Applications for sponsorship of nine conferences were received by the Solid State Commission. Of these four were received late and of the remaining five only three were approved for sponsorship by the IUPAP Executive Committee. These were the International Conference on Luminescence at Paris, 17–21 July 1978, the Conference on Ion Beam Modification of Materials at Budapest, 4–8 September 1978 and the Fourth International Thin Films Congress at Loughborough, 11–15 September 1978. Correspondence during the year consolidated the Commission attitudes on relationships with other Commissions, on the criteria for sponsorship of conferences, on publicity for the activities of the Commission and on possibilities in relationship to physical reference data.

Conference Committee of the European Physical Society

The Union representative attended two meetings of the Conference Committee last year and informed the Committee about the data and locations of the crystallographic conferences and schools, trying to avoid clashes in dates for the meetings which might be of interest to both physicists and crystallographers.

The activities of the Committee were followed, in particular the rules for labelling the EPS conferences, the results of questionnaires, the possibility of granting financial support for younger scientists for attending the EPS conferences, *etc.* This information has been passed on to the IUCr Calendar Sub-committee and also to the IUCr Executive Committee.

International Organization for Crystal Growth

Relations between the Union and the International Organization for Crystal Growth are good. The IOCG appointed C. S. Sahagian as its *ex officio* representative on the Union's Commission on Crystal Growth, and he has taken part in two inter-Congress Commission meetings. He will now be replaced by D. T. J. Hurle. It is highly desirable that the procedure of the official association of the IOCG with the Union should be completed. Joint discussions have taken place regarding the problem of standardization of nomenclature in the field of crystal growth, the IOCG being represented in these discussions by R. L. Parker.

Working Group on Materials Science in Space of the ICSU Committee on Space Research (COSPAR)

At the 1976 COSPAR meeting a new division was formed, the Working Group 8 (WG8) with field of activities 'Materials Science in Space'. Following the suggestions of the IUCr Executive Committee this field was envisaged in its widest form, containing several aspects of pure chemistry and physics.

The first scientific meeting of WG8 was held at the 20th COSPAR Meeting in Tel Aviv in June 1977. The general impression was that the scientific standard had improved, compared with the 1976 symposium. The reason is that some of the best scientists in this field have now been made members of the Working Group. However, the field suffers at present from the lack of new experimental investigations n space. The European Spacelab carried by the American shuttle will start in 1981, and the ballistic rocket experiments SPAR and TEXUS, as well as the Russian ones, will start by the end of this year. Hence the contributions presented at the meeting were theoretical papers or suggestions for new experiments. At the meeting the Union representative again emphasized the need to investigate fundamental effects before starting on applications.

Coordinating Committee for the Moon and Planets

This committee met twice during 1977, on 12 January in Paris and on 22 July in London. At this first meeting S. K. Runcorn discussed the need for new links to be established between various disciplines in the field of planetary studies. Professor de Jager supported this and pointed out that many new people are entering these areas of study and that the various Unions and the inter-Union bodies they support should be represented in the International Solar System Program (ISSP).

At the second meeting Professor Runcorn outlined the aims of the ISSP. Also discussed at length by the participants at the London meeting were the complex relationships and coordination between the many groups, unions, and committees involved with planetary research. A possible role for the IUCr remains obscure.

International Council of Scientific Unions

Professor Dorothy Hodgkin, Immediate Past President, represented the Union at the meeting of the ICSU General Committee held in Budapest, 8–9 September.

It was agreed to ask National Members to increase their contributions to ICSU by 10% from 1979 and to invite the Unions to consider instituting a $5 tax on participants at Union-sponsored meetings, 50% of the tax being retained by the Union and 50% being transmitted to ICSU. The National Council for Scientific Research and Development, Malaysia, was accepted as a National Associate, whilst the application from the National Academy of Science, Bolivia, was to be considered by postal vote. Much of the meeting was concerned with reports of the scientific activities of the Unions and other international organizations. Many interesting problems were raised, particularly in environmental research. It was proposed that ICSU undertake a survey of the management of radioactive wastes.

Finances

The audited accounts for the year 1977 are given at the end of this Report. For comparison, the figures for 1976 are provided in italics. Negative quantities are indicated by parentheses.

The Unesco rates of exchange, as issued by the ICSU secretariat, have been used in the preparation of these accounts. As a consequence of the many fluctuations in exchange rates during the year, the following procedure has been adopted for the accounts. Assets and liabilities in currencies other than US dollars at 31 December 1977 have been translated into US dollars in the Balance Sheet at the rate operative at that date. For the Income and Expenditure Accounts, transactions have been translated into US dollars by applying the rates of exchange appropriate to the individual dates of these transactions. As a consequence of the fluctuations in exchange rates, a profit has arisen on the assets of the Union, in terms of US dollars, amounting to $11 767. This profit has been divided amongst the nine Fund Accounts with credit balances, in direct proportion to the balances on these accounts at 31 December 1977.

The General Fund account shows a profit of $13 606 as compared with a profit of $19 914 in 1976. The administrative expenses were $35 862 in 1977 as compared with $31 447 in 1976. $11 164 of this amount was charged to the publications of the Union. $4500 was spent on supporting scientific meetings, $3000 was allocated to assist a Commission meeting and a further $1761 was required for travel expenses of Union representatives on other bodies. The expenses of the Programme Committee for the Eleventh Congress, which met in August, were $8361 and the Executive Committee meeting cost $8729. The fifth edition of the *World Directory of Crystallographers* was published in 1977 at a cost of $6680. Income from sales in the year was $6969. A further $902 was received from sales of the Proceedings of the Madrid Conference on Anomalous Scattering, reducing the net deficit on this publication to $2237. The income from subscriptions remained at $29 040 and the grants from the Unesco subvention dropped from $5000 to $4000.

It was possible to purchase some more investments (Dfl 50 000, DM 50 000 and Swiss F 50 000), to compensate for the continued redemption of investments held by the Union. Hence the income from investments rose to $26 182 from $16 254 in 1976. A profit of $1445 was made on the redemption of Dfl 33 000 and $12 000 of investments during 1977. With the purchase of new investments the interest on banking accounts dropped to $4379 as compared with $5323 in 1976.

The President's Fund account, which had been suggested by Professor Hodgkin in 1975, was established in 1977 and donations received in the year totalled $2496, including $303 transferred from the General Fund account. No payments were made from the fund during 1977.

The *Acta Crystallographica* account for 1977 shows a profit of $55 184 as compared with a profit of $29 362 in 1976. The subscription rates were increased by about 11% for 1977. The number of paid subscriptions to both sections of the journal dropped from 1643 in 1976 to 1561 in 1977, both figures including 178 personal subscriptions. There were also 225 subscribers to Section A and 123 subscribers to Section B in 1977, compared with 205 and 116 in 1976. As in previous years, the total cost of the technical editing office has been divided between the *Acta Crystallographica* and the *Journal of Applied Crystallography* accounts in percentages based on the number of text pages published during the year; 91% and 9% respectively for 1977. The technical editing costs for *Acta Crystallographica* were $47 861 in 1977 as compared with $39 069 in 1976, but still form only a small part of the overall production costs. The journals accounts have also been charged with administrative expenses, as in previous years and as shown in the General Fund.

The *Journal of Applied Crystallography* account shows a profit of $11 962 as compared with a profit of $10 645 in 1976. It was necessary to increase the subscription rates by about 11% for 1977. The number of paid subscriptions dropped slightly from 1185 in 1976 to 1169 in 1977, both figures including 110 personal subscriptions.

The *Structure Reports* account shows a profit of $18 834 as compared with a profit of $60 634 in 1976. The large profit in 1976 was the result of publishing five annual volumes and the cumulative indexes in that year, whilst most of the editorial expenses for these volumes had already been paid in previous years. Editorial expenses of $28 864 and publication expenses of $38 294 were incurred in 1977.

The *International Tables* account shows a deficit of $14 040 as compared with a deficit of $8117 in 1976. Because the new volume on direct space was not ready for publication, Volume I of the present series was reprinted again, at a cost of $12 641. During 1977 the number of copies sold were 295, 211, 226 and 315 for Volumes I, II, III and IV respectively. The expenses for the new volume on direct space were $9032.

$108 was received from the sale of 10 copies of *Fifty Years of X-ray Diffraction*. Whilst only $1164 was received from the sale of 105 copies of the reprint of *Symmetry Aspects of M. C. Escher's Periodic Drawings*, the Union also received royalties of $3097 for 5162 copies of the North American edition sold by Harry Abrams Inc. in 1976. The sale of five copies of both volumes of *Early Papers on Diffraction of X-rays by Crystals* yielded $92, reducing the deficit on this fund account to $8035.

The *Molecular Structures and Dimensions* account shows no profit for 1977, because this account was charged with a contribution of $3763 towards the salary expenses incurred by the Crystallographic Data Centre in the production of Volume 8, which was published in 1977. 453 copies of the volume were sold in 1977, as well as some copies of the earlier volumes.

As on previous Balance Sheets, the investments have been valued according to their quotations at the end of the year. Their appreciation in value, together amounting to $17 746, has not been entered in the General Fund but has again been included in the assets on the Balance Sheet, to avoid annual fluctuations in value influencing the General Fund Account. At the end of 1976 the Union held investments in government bonds with a total maturity value of Dfl 237 000, plus $65 000, plus DM 200 000, plus Swiss F 68 000.

The total of $137 791 with the Banks at the end of the year was represented by Dfl 117 573 and $535 with the Amsterdam–Rotterdam Bank, $10 372 with the First National City Bank, £22 794 with the National Westminster Bank, Swiss F 78 421 with the Union Bank of Switzerland and Dkr 1912 with the Handelsbanken i Aarhus. The amounts shown in the Balance Sheet for debtors and creditors relate to sums, principally on the publishing accounts, due at 31 December 1977. Where appropriate, these amounts have now been settled.

The Balance Sheet shows that the assets of the Union, expressed in US dollars, have increased during the year, from $468 189 to $572 459, after including a profit of $11 767 resulting from fluctuations in rates of exchange but excluding stocks of unsold publications. This level of assets is necessary if a satisfactory financial backing is to be maintained for the Union's large and costly publication activities.

Acta Cryst (1978). A**34**, 1041–1046

International Union of Crystallography

Balance Sheet as at 31 December 1977

	US Dollars 1977				1976
	As at 31 December 1976	Profit on fluctuations in rates of exchange	Excess of income over expenditure for the year	Balance at 31 December 1977	
FUND ACCOUNTS					
General Fund	97,050	2,097	13,606	112,753	*97,050*
President's Fund	–	47	2,496	2,543	–
Acta Crystallographica	219,724	5,210	55,184	280,118	*219,724*
Journal of Applied Crystallography	46,012	1,099	11,962	59,073	*46,012*
Structure Reports	91,893	2,099	18,834	112,826	*91,893*
International Tables	(38,093)	–	(14,040)	(52,133)	*(38,093)*
General Publications	51,041	967	–	52,008	*51,041*
Fifty Years of X-Ray Diffraction	2,048	41	108	2,197	*2,048*
Escher Drawings	3,076	139	4,261	7,476	*3,076*
Early Papers	(8,127)	–	92	(8,035)	*(8,127)*
Molecular Structures and Dimensions	3,565	68	–	3,633	*3,565*
	$468,189	$11,767	$92,503	572,459	*468,189*

	US Dollars 1977		1976	
CURRENT ASSETS				
Cash at Banks				
Current Accounts	56,540		*29,962*	
Deposit and Savings Accounts	81,251	137,791	*131,185*	*161,147*
Cash with Union Officials		2,967		*2,621*
Debtors		178,595		*129,934*
Subscriptions from Adhering Bodies, due from 1975 to 1977		1,820		*1,420*
		321,173		*295,122*
Deduct Creditors		65,370		*94,800*
NET CURRENT ASSETS		255,803		*200,322*
FIXED ASSETS				
Investments on 31 December 1977				
At market value	332,941		*252,875*	
(Appreciation)/Depreciation in value	(17,746)		*13,900*	
At cost	315,195		*266,775*	
Office Equipment at cost, less depreciation	1,461		*1,092*	
TOTAL FIXED ASSETS		316,656		*267,867*
		$572,459		*$468,189*

The attached notes form an integral part of these accounts.

Report of the Auditors to the International Union of Crystallography

We have examined the accounts set out in Schedules 1 to 7 which have been prepared under the historical cost convention.

In our opinion these accounts give, under the accounting convention stated above, a true and fair view of the state of the Union's affairs at 31 December 1977 and of the results for the year ended on that date.

Manchester, England
2 June 1978

Signed: MANN JUDD

Chartered Accountants

General Fund Account for the year ended 31 December 1977

	US Dollars 1977		1976	
Subscription to ICSU (2½% of subscriptions received from Adhering Bodies in 1976)		725		*525*
Subscription to ICSU Abstracting Board		300		*300*
Subscription to ICSU Committee on the Teaching of Science		300		*300*
Administration Expenses:				
General Secretary and Treasurer:				
Honorarium and Secretarial Assistance	1,984		*1,377*	
Audit and Accountancy Charges	2,000		*1,650*	
Taxation Services	–		*265*	
Legal Fees	406		*1,195*	
Postages, Stationery, Printing and Sundries	753		*178*	
Travelling Expenses	627		*786*	
Bank Charges and Differences on Exchange	1,311		*363*	
Executive Secretary's Office:				
Salary and Expenses	28,424		*25,456*	
Depreciation of Office Equipment	357	35,862	*177*	*31,447*
Tenth General Assembly and Congress:				
Publication of Report		–		*4,423*
Eleventh General Assembly and Congress:				
Meeting of the Programme Committee	6,727		–	
Office Equipment	1,634	8,361	–	–
Transfer to President's Fund		303		–
Meeting of the Executive Committee		8,729		*7,220*
Travel Expenses of IUCr Representatives on Other Bodies		1,761		*2,704*
Expenses of Commissions		3,000		*1,000*
Sponsorship of Meetings		4,500		*834*
World Directory of Crystallographers; 5th Edition: Publication Costs and Honorarium		6,680		–
Excess of Income over Expenditure carried to Balance Sheet		13,606		*19,914*
		$84,127		*$68,667*

	US Dollars 1977		1976	
Grant received from Unesco Subvention to ICSU		4,000		*5,000*
Subscriptions from Adhering Bodies		29,040		*29,040*
Interest on Investments		26,182		*16,254*
Interest on Banking Accounts		4,379		*5,323*
Profit on Redemption of Investments		1,445		*718*
Sale of *World Directory of Crystallographers*; 5th Edition		6,969		–
Sale of the Proceedings of the Madrid Conference on Anomalous Scattering		902		*2,457*
Sale of Sundry Publications (Bibliographies, *Book List, List of Computer Programs* and *Index of Crystallographic Supplies*)		46		*78*
Amount charged to Journals and Publications:				
Acta Crystallographica	8,100		*7,168*	
Journal of Applied Crystallography	2,700		*2,389*	
Molecular Structures and Dimensions	364	11,164	*240*	*9,797*
		$84,127		*$68,667*

President's Fund Account for the year ended 31 December 1977

Excess of Income over Expenditure carried to Balance Sheet		2,496		–
		$2,496		–
Donations received		2,496		–
		$2,496		–

The attached notes from an integral part of these accounts.

Acta Crystallographica Account for the year ended 31 December 1977

	US Dollars 1977		1976	
Publication Expenses:				
Printing and Binding Volume 33 (*1976 Volume 32*)	245,101		*303,120*	
Distribution and Postage	19,749		*14,905*	
Airfreight Costs	9,976		*8,847*	
	274,826		*326,872*	
Printing Index to Volume 32 (*1976 Volume 31*)	4,503		*3,697*	
Printing Index to Volumes 24–28	11,146	290,475	–	*330,569*
Editorial Expenses:				
Editorial Honoraria	12,526		*10,550*	
Secretarial Assistance	3,291		*2,379*	
Postages, Telephone and Office Sundries	3,999		*3,530*	
Travelling Expenses	911		*867*	
Technical Editing:				
Salaries and expenses	47,861		*39,069*	
Depreciation of Office Equipment	183	68,771	*169*	*56,564*
Administration Expenses		8,100		*7,168*
Excess of Income over Expenditure carried to Balance Sheet		55,184		*29,362*
		$422,530		*$423,663*

	US Dollars 1977		1976	
Subscriptions to Volume 33 (*1976 Volume 32*)	445,606		*436,372*	
Sale of Back Numbers and Single Copies	15,167		*9,978*	
Sales of Index to Volumes 11–23	–		*14,282*	
Airfreight Charges to Subscribers	7,113		*7,898*	
Copyright Donation	100		–	
Royalties	19		*24*	
	468,005		*468,554*	
Less Publisher's Commission on Sales	46,077	421,928	*46,063*	*422,491*
Income from Advertisements	708		*1,379*	
Less Advertising Agent's Commission and Expenses	106	602	*207*	*1,172*
		$422,530		*$423,663*

Journal of Applied Crystallography Account for the year ended 31 December 1977

Publication Expenses:				
Printing and Binding Volume 10 (*1976 Volume 9*)	38,308		*37,159*	
Distribution and Postage	2,673		*2,545*	
Airfreight Costs	1,995	42,976	*1,769*	*41,473*
Editorial Expenses:				
Editorial Honoraria	1,965		*2,083*	
Secretarial Assistance	1,550		*1,500*	
Postage, Telephone and Office Sundries	106		*41*	
Travelling Expenses	44		*86*	
Technical Editing:				
Salaries and Expenses	4,733		*4,829*	
Depreciation of Office Equipment	18	8,416	*21*	*8,560*
Administration Expenses		2,700		*2,389*
Excess of Income over Expenditure carried to Balance Sheet		11,962		*10,645*
		$66,054		*$63,067*

Subscriptions to Volume 10 (*1976 Volume 9*)	71,134		*67,079*	
Sale of Back Numbers and Single Copies	2,047		*2,922*	
Airfreight Charges to Subscribers	1,453		*1,547*	
Royalties	2		*5*	
	74,636		*71,553*	
Less Publisher's Commission on Sales	9,148	65,488	*8,750*	*62,803*
Income from Advertisements	666		*311*	
Less Advertising Agent's Commission and Expenses	100	566	*47*	*264*
		$66,054		*$63,067*

The attached notes form an integral part of these accounts.

Structure Reports Account for the year ended 31 December 1977

	US Dollars 1977		1976	
Publication Expenses:				
Printing and Binding Volumes 40B and 41A (*1976 Volumes 34B, 37B–39B, 40A and Cumulative Indexes*)	31,994		*85,283*	
Binding extra copies of earlier Volumes	2,540		–	
Typing of Manuscripts	3,760	38,294	*4,625*	*89,908*
Editorial Expenses:				
Salary and Honoraria: Editors, Abstractors and Assistants	28,670		*33,794*	
Office and Travelling Expenses	17		*61*	
Depreciation of Office Equipment	177	28,864	*177*	*34,032*
Excess of Income over Expenditure carried to Balance Sheet		18,834		*60,634*
		$85,992		$*184,574*

	US Dollars 1977		1976	
Sale of Copies of				
Volumes 40B and 41A	78,392		–	
Earlier Volumes	19,377		*173,687*	
Cumulative Indexes	5,633		*46,969*	
Ten-Year Sets	838		*3,151*	
	104,240		*223,807*	
Less Publisher's Commission on Sales	18,248	85,992	*39,233*	*184,574*
		$85,992		$*184,574*

International Tables Account for the year ended 31 December 1977

Publication Expenses:				
Reprinting Volume I	12,641		–	
Artwork for Volume on Direct Space	267		–	
Binding additional copies of earlier volumes	2,158	15,066	–	–
Editorial Expenses:				
Secretarial Assistance and Postages	510		*480*	
Travelling	1,041	1,551	–	*480*
Computer Trial Project:				
Salary	8,578		*17,174*	
Travelling and Miscellaneous Expenses	454	9,032	*537*	*17,711*
		$25,649		$*18,191*

Sale of Copies of Volumes, I, II, III and IV	15,394		*15,176*	
Less Publisher's Commission on Sales	3,785	11,609	*5,107*	*10,069*
Sale of Copies of NBS Monograph		–		*5*
Excess of Expenditure over Income carried to Balance Sheet		14,040		*8,117*
		$25,649		$*18,191*

The attached notes form an integral part of these accounts.

Fifty Years of X-ray Diffraction Account for the year ended 31 December 1977

	US Dollars 1977	US Dollars *1976*
Excess of Income over Expenditure carried to Balance Sheet	108	*85*
	$108	$85

		US Dollars 1977	US Dollars *1976*
Sale of Copies	135		*103*	
Less Publisher's Commission on Sales	27	108	*18*	*85*
		$108		$85

Escher Drawings Account for the year ended 31 December 1977

	US Dollars 1977	US Dollars *1976*
Publication Expenses:		
Cost of Reprinting New Edition	–	*4,432*
Excess of Income over Expenditure carried to Balance Sheet	4,261	*(2,451)*
	$4,261	$*1,981*

		US Dollars 1977	US Dollars *1976*
Sale of Copies	1,455		*2,401*	
Less Publisher's Commission on Sales	291	1,164	*420*	*1,981*
Royalties		3,097		–
		$4,261		$*1,981*

Early Papers Account for the year ended 31 December 1977

	US Dollars 1977	US Dollars *1976*
Excess of Income over Expenditure carried to Balance Sheet	92	*226*
	$92	$*226*

		US Dollars 1977	US Dollars *1976*
Sale of Copies of Volumes I and II	115		*274*	
Less Publisher's Commission on Sales	23	92	*48*	*226*
		$92		$*226*

Molecular Structures and Dimensions Account for the year ended 31 December 1977

		US Dollars 1977		US Dollars *1976*
Publication Expenses:				
Printing and Binding Volume 8 (*1976 Volume 7*)	8,954		*5,323*	
Carriage and Miscellaneous Expenses	712		*463*	
Salaries	3,763	13,429	–	*5,786*
Administration Expenses		727		*570*
Excess of Income over Expenditure for the year:				
University of Cambridge	–		*10,258*	
IUCr *carried to Balance Sheet*	–	–	*540*	*10,798*
		$14,156		$*17,154*

		US Dollars 1977		US Dollars *1976*
Sale of Copies of				
Volumes 1–7	4,176		*7,344*	
Volume 8	11,797		*10,881*	
Volume A1	1,186		*2,567*	
	17,159		*20,792*	
Less Publisher's Commission on Sales	3,003	14,156	*3,638*	*17,154*
		$14,156		$*17,154*

The attached notes form an integral part of these accounts.

Notes on the Accounts for the year ended 31 December 1977

1. Accounting Policies

(*a*) *Rates of Exchange*

Unesco rates of exchange as issued by the ICSU Secretariat have been used in the preparation of these accounts.

Assets and liabilities in currencies other than US Dollars at 31 December 1977 have been translated into US Dollars in the Balance Sheet at the rates operative on that date. These are as follows compared with the US Dollar:

	1977	*1976*
Netherlands Guilders	2.40	*2.51*
Danish Crowns	6.10	*5.87*
Pounds Sterling	0.55	*0.606*
Swiss Francs	2.17	*2.44*
German Marks	2.20	*2.39*

In each of the Income and Expenditure Accounts, transactions in currencies other than US Dollars have been translated into US Dollars by applying the standard rates of exchange appropriate to the individual dates of these transactions.

Profits and losses arising from the fluctuations in rates of exchange during the year have been divided between the nine Fund Accounts with credit balances in direct proportion to those balances at 31 December 1977.

(*b*) *Stocks of Unsold Copies of Union Publications*

The value of these stocks has not been taken into account for Balance Sheet purposes. Publication, editorial and administrative expenses of the publications have been charged in the accounts as revenue expenditure as and when incurred.

(*c*) *Depreciation*

(i) Investments have been included in the Balance Sheet at market value. From this has been deducted appreciation calculated as the difference between cost and market value. This brings the Investments back to cost and prevents the fluctuation in values from influencing the General Fund Account.

(ii) Office Equipment is depreciated by applying the straight line method of depreciation over a five-year period.

Depreciation for the year has been charged to the various Fund Accounts as follows:

	$
General Fund	357
Acta Crystallographica	183
Journal of Applied Crystallography	18
Structure Reports	177
	$735

These policies are consistent with those adopted in previous years.

2. Taxation

As an association incorporated in Switzerland, the Union is exempt from Swiss Federal and Geneva Cantonal Tax. Under the terms of the United Kingdom/Switzerland Double Taxation Agreement of 30 September 1954, as supplemented by amending protocols of 14 June 1966 and 2 August 1974 (whilst present circumstances obtain) all income arising within the United Kingdom will not be subject to United Kingdom Tax.

3. Subscriptions

Subscriptions from Adhering Bodies as shown by the General Fund Account represent total subscriptions due for the year 1977.