Acta Cryst. (1979). A35, 1068–1083

International Union of Crystallography

Report of the Executive Committee for 1978

Personal Notes

Professor Dr Fritz H. Laves died on 12 August 1978. He was a member of the Union's Executive Committee between 1957 and 1963 and served as a Vice-President between 1969 and 1972. He also represented the Union on the IUPAP Commission on the Solid State for several years. An obituary has been published [*Acta Cryst.* (1979), A35, 343].

Eleventh General Assembly and Congress

By invitation of the Polish Academy of Sciences, the Eleventh General Assembly and International Congress of Crystallography were held at the Palace of Culture and Science, Warsaw, Poland, 3–12 August 1978. A report, including a detailed report of the proceedings of the General Assembly, has been published in this journal [*Acta Cryst.* (1979), A35, 1021–1067] and will be sent to the National Committees for Crystallography.

The meetings were attended by approximately 1516 scientists of whom 319 were from Poland and the remainder from 37 other countries. Professor N. V. Belov presented the Congress Discourse, entitled *Historical Aspects of the Derivation of the* 230 *Space Groups*, at the Opening Ceremony. There were six General Lectures. Approximately 1200 contributed papers were presented at poster sessions held in the afternoons, whilst four or five parallel sessions were held in the mornings for oral presentation of invited papers, for panel discussions or for open meetings organized by the Union's Commissions. All the abstracts submitted were included in the Congress book of Collected Abstracts, which was reproduced as a Supplement to *Acta Crystallographica*, Section A. Exhibitions of commercial and non-commercial crystallographic equipment, crystallographic books, data, photographs and drawings were held. An extensive programme of excursions and social events was arranged. The Congress was organized excellently under the direction of Professor J. Auleytner and Dr T. Warmiński, Chairman and Secretary of the Organizing Committee, and Professor K. Łukaszewicz, Chairman of the Programme Committee.

The General Assembly met on the evenings of 3, 4 and 8 August and the morning of 12 August. The Academy of Scientific Research and Technology of the Arab Republic of Egypt and the Academia Sinica of the People's Republic of China were accepted as Adhering Bodies of the Union in Categories I and IV respectively. A change in Category of Adherence, from I to III, was accepted for the Conselho Nacional de Pesquisas of Brazil, and the Danish Academy of Sciences and Letters was accepted as the new Adhering Body in Denmark. The report of the sub-committee set up in 1975 to scrutinize the Union's Statutes and By-Laws was discussed and several amendments were approved. The main changes allowed the Union to accept Scientific Associates and Regional Associates. The International Organization for Crystal Growth was accepted as a Scientific Associate and the European Crystallographic Committee was accepted as a Regional Associate. Other changes concerned the presentation of nominations for new members of the Executive Committee and the Commissions, the election of members of the Executive Committee and the timetable for determining the date and place of General Assemblies.

The Assembly received the triennial financial report and the reports of the Executive Committee, the Commissions and the Union representatives on other bodies since the Tenth General Assembly in 1975. It was agreed that the Union should become a member of the ICSU Committee on Space Research (COSPAR) and the ICSU Scientific Committee on Problems of the Environment (SCOPE). New Officers of the Union, Chairmen and members of Commissions and Union representatives were elected, the full list of the people elected being given in Annex III to the published report of the General Assembly [*Acta Cryst.* (1979), A35, 1021–1067]. The Assembly set the unit contribution for the years 1979–1981 inclusive at US $300.

The General Assembly was pleased to accept an invitation from the National Research Council of Canada to hold the Twelfth General Assembly and Congress at Carleton University, Ottawa, in August 1981, and an invitation from the Arbeitsgemeinschaft für Kristallographie to hold the Thirteenth General Assembly and Congress in Hamburg in August 1984.

The Executive Committee met for several days before, and most days during the Congress, mainly to deal with matters directly related to the business of the General Assembly and the work of the Commissions.

Other Meetings

In addition to its own Congress, the Union sponsored the following meetings which were held during 1978: International Symposium on Biomolecular Structure, Conformation, Function and Evolution, Madras, India, 4–7 January; Fifth International Symposium on the Organic Solid State, Waltham, Massachusetts, USA, 13–16 June; Fourth International Conference on Vapour Growth and Epitaxy, Nagoya, Japan, 9–13 July; International Summer School on Crystallographic Computing, Twente, The Netherlands, 24 July–1 August; Conference on Diffraction Line Profile Analysis, Cracow, Poland, 14–15 August; Summer School on Diffraction Studies of Non-Crystalline Substances, Pécs, Hungary, 14–18 August; Sixth International Symposium on Boron and Borides, Druzhba, Bulgaria, 9–12 October.

Executive Committee

The membership of the Executive Committee, including the new members elected by the General Assembly, is as follows: President: Professor N. Kato (Japan); Vice-President: Professor A. J. C. Wilson (UK); General Secretary and Treasurer: Professor S. E. Rasmussen (Denmark); Immediate Past President: Professor A. Magnéli (Sweden); Ordinary Members: Dr F. R. Ahmed (Canada), Professor E. F. Bertaut (France), Professor J. Karle (USA), Professor H. Neels (German Democratic Republic), Professor S. Ramaseshan (India) and Dr V. I. Simonov (USSR). Dr J. N. King continues as Executive Secretary.

Union Office

Susan Wallis resigned as an Editorial Assistant during the year, and Helen Miller and Susan Lowe were appointed as Editorial Assistants.

With the increase in the size of the technical editing staff in recent years, it has become necessary to obtain larger premises in Chester for the Union office. At the beginning of 1979 the Union secretariat and the technical editing staff moved to 5 Abbey Square, Chester CH1 2HU, England. The telephone number, cable address and telex address remain unchanged.

Publications

Volume 34 of *Acta Crystallographica* and Volume 11 of the *Journal of Applied Crystallography* were published in 1978, as were *Structure Reports* Volume 41B and Volume 42A. A supplement for the years 1974 and 1975 to the organic compounds part of the 60-*Year Structure Index* was distributed with Volume 41B. Unfortunately, delays at the publishers affected the distribution of these volumes of *Structure Reports* and Volume 9 (*Bibliography* 1976–77) of *Molecular Structures and Dimensions*.

Adhering Bodies

The latest list of Adhering Bodies of the Union, the memberships of the National Committees for Crystallography and the names and addresses of their secretaries are included in Annex IV to the report of the Eleventh General Assembly and Congress [*Acta Cryst.* (1979), A**35**, 1021–1067].

Work of the Commissions

Commission on Journals

Volume 34 of *Acta Crystallographica* and Volume 11 of the *Journal of Applied Crystallography* (*JAC*) were produced in 1978. The total number of papers and pages in *Acta* A has remained approximately constant in the last three years, see Table 1, whereas the number of papers in *Acta* B has continued to rise steadily. By increasing the average amount of information on a page, it has been possible to accommodate the larger number of papers on fewer printed pages. Production costs are largely based on the total number of pages printed. For the first time, the number of regular articles in *Acta* B is less than the combined number of short structural papers and short communications. The largest number of pages ever printed in *JAC* appeared in Volume 11, although about half were papers presented at the Gatlinburg Small-Angle Scattering Conference, all of which were dealt with by R. A. Young.

The average elapsed time in months between the published date of acceptance and the nominal publication date, for the years 1977 and 1978, was 5·2 and 5·3 for *Acta* A, 6·7 and 5·5 for *Acta* B and 5·2 and 5·5 for *JAC* full articles. For short communications it was 5·4 and 4·4 for *Acta* A, 4·6 and 3·6 for *Acta* B and 4·7 and 5·1 for *JAC*, with 4·5 and 4·4 for short structural papers in *Acta* B. The sharp decrease in the time required to publish full articles in *Acta* B and short communications in both sections of *Acta* is particularly notable and is due to an increased level of interaction between the technical staff in Chester and the printers in Colchester.

Papers have been informally grouped together as inorganic, organometallic or organic in *Acta* B34 as a means of enhancing the ease with which readers may locate papers of interest to them. The Index to *Acta* A and B has been expanded, for the same reason, to include chemical name, inorganic formula and organic formula indexes in addition to the usual subject and author indexes.

A very productive series of meetings was held by the Commission in Warsaw, 1–3 August 1978. A penultimate revision of the *Handbook for Co-editors* led to a full review of IUCr editorial standards and publishing policies. The first edition of the *Handbook for Co-editors* was printed and distributed late in 1978. The cost benefits and enhanced production capabilities of a fully computerized in-house composition facility were considered: a working party was subsequently established to recommend further action to the Executive Committee.

Journal boundaries will be more clearly defined following the contemplated launching of a new section of *Acta*. Section A will contain the foundations of and new developments in crystallography, including crystal physics. Section B will contain methods of structure solution and biological, chemical, metallurgical and mineralogical crystallography. Section C will contain crystal structure determinations. *JAC* will continue to be devoted to the applications of crystallographic knowledge and techniques and to its instrumentation.

It was recommended that the Union join the Copyright Clearance Center and that the journals carry a copyright notice on the first page of each article for which the Union holds copyright. A copying fee of $1.00 per article should be paid. All structural papers will be checked by Co-editors for internal consistency between the quoted bond lengths, bond angles and torsion angles and those computed directly from the given atomic coordinates, symmetry and lattice constants. Restrictions on stereofigures were drawn up [*Acta Cryst.* (1978), B**34**, 3846]. Other actions were taken on anisotropic thermal parameters, estimated standard deviations and SI units [*Acta Cryst.* (1979), A**35**, 508]. The views of all Sub-Editors of the Fifth Edition of the *World Directory of Crystallographers* on the dissemination of crystallographic information and how it might be improved in their region are being sought.

H. Bärnighausen, Z. G. Pinsker, S. Takagi, P. M. de Wolff and R. A. Young resigned from the Editorial Board with effect from 31 August 1978. Y. Saito, H. Schulz and G. A. Sim were appointed Co-editors of *Acta*, and M. Hart succeeded R. A. Young as Editor of *JAC*. An appreciation of Professor Young's services will appear in *JAC* [*J. Appl. Cryst.* (1979), **12**, 428].

Table 1. *Survey of the contents of the Union journals*

Acta Crystallographica

Vol.	Year	Number of pages*		Number of papers		Full Articles: Number		Full Articles: Average length		Short Structural Papers: Number	Short Structural Papers: Average length	Short Communications: Number		Short Communications: Average length	
A29	1973	774	3758	144	731	118	575	6·0	5·9	–	–	26	82	1·3	1·4
B29		2984		587		457		5·8		74	2·3	56		1·5	
A30	1974	874	3812	172	805	135	605	6·0	5·6	–	–	37	69	1·2	1·2
B30		2938		633		470		5·4		131	2·6	32		1·3	
A31†	1975	880	3824	171	885	140	586	6·1	5·4	–	–	31	69	1·4	1·3
B31		2944		714		446		5·2		230	2·4	38		1·3	
A32	1976	1038	4398	188	1011	152	687	6·0	5·2	–	–	36	64	1·1	1·1
B32		3360		823		535		5·0		260	2·5	28		1·1	
A33	1977	1046	5020	201	1192	181	729	5·6	5·3	–	–	20	54	1·5	1·4
B33		3974		991		548		5·2		409	2·6	34		1·4	
A34†	1978	1048	4896	189	1229	158	668	6·0	5·2	–	–	31	71	1·3	1·1
B34		3848		1040		510		5·0		490	2·5	40		1·0	

Journal of Applied Crystallography

Vol.	Year	Number of pages*‡	Number of papers‡	Full Articles§: Number	Full Articles§: Average length	Short Communications: Number	Short Communications: Average length	Crystal Data: Number	Crystal Data: Average length
6	1973	502	105	62	5·5	18	1·3	13	1·7
7‡	1974	638	183	81	5·1	10	1·5	18	1·4
8‡	1975	698	201	80	5·6	17	1·7	25	1·5
9	1976	514	136	71	6·2	19	1·6	25	1·6
10	1977	510	134	76	5·5	14	1·8	22	1·3
11‡	1978	720	167	47	5·5	11	1·6	20	1·2

* Excluding indexes.

† Volume A31 includes, in addition, 338 pages of abstracts communicated to the Amsterdam Congress and Volume A34 includes, in addition, 431 pages of abstracts communicated to the Warsaw Congress.

‡ Volume 7 includes 144 pages of 21 papers and 37 abstracts presented at the Third International Conference on Small-Angle Scattering, Grenoble, 1973. Volume 8 includes 149 pages of 18 papers and 50 abstracts presented at the International Discussion Meeting on Studies of Lattice Distortion and Local Atomic Arrangements, Julich, 1974. Volume 11 includes 363 pages of 4 review papers, 50 contributed papers and 17 extended abstracts presented at the Fourth International Conference on Small-Angle Scattering, Gatlinburg, 1977. The columns giving the number of pages and the number of papers in each volume include all these papers and abstracts, but the columns giving the number and average length of Full Articles do not include the conference papers.

§ Excluding Lead Articles and Conference papers.

Commission on Structure Reports

Volume 41B (Organic Compounds for 1975, 1324 pages in two parts) and Volume 42A (Metals and Inorganic Compounds for 1976, 491 pages) were published in 1978. Volume 41B was accompanied by a supplement to the 60-*Year Structure Index*, Part B (for 1974 and 1975); it is not intended that supplements to the index appear at regular intervals, and the next supplement will likely be in 1980 as part of the ten-year index. Unfortunately a delay at the publishers resulted in many subscribers not receiving their copies of these volumes until many months after they were actually ready for distribution.

The following volumes are with the printer and should appear in mid-1979: (1) Volume 42B (Organic Compounds for 1976, 1131 pages in two parts); (2) Volume 43A (Metals and Inorganic Compounds for 1977, 393 pages). The reduction in size of these volumes relative to those of the previous year results from the implementation of minor changes in format to increase the information density, as previously recommended by the Commission; it does not reflect any reduction in the number of reports. The number of reports is in fact fairly constant in the Metals and Inorganic Sections (about 500 inorganic reports per year, for example), but continues to increase in the Organic Section (about 1850 reports in Volume 42B). Co-editorial work is proceeding on Volumes 43B, 44A and 44B. Volume 36 (Ten-Year Index, 1961–1970) is still not complete.

Commission on International Tables

Extensive work on the volume on direct space (now called Volume A) for the new edition of *International Tables for Crystallography* continued throughout the year. The extended sub- and supergroup data were received in the spring of 1978. After implementing all data into the program, several rounds of data checking were carried out during the year, particularly during the Warsaw Congress in August. In December D. S. Fokkema obtained the complete print-out of the 17 plane groups and the 230 space groups. At the same time the corrections and extensions of the space-group diagrams were completed.

Work on the Introduction also continued during 1978. In this Introduction a two-level approach is used; a theoretical chapter on space-group symmetry is followed by sections on special aspects of symmetry and by a guide to the space-

group tables which are intended for practical use. The major part of the Introduction is presently available in draft form.

The Commission held three meetings in 1978, one in Aachen in May, one during the Warsaw Congress in August and the third in Aachen in November. These meetings were devoted to data checking, lay-out problems and especially to discussion of the Introduction.

At the Warsaw Congress a new Commission was formed, consisting of ten members who are engaged in completing Volume A of the new edition. The Chairman agreed to continue in office until 31 December 1978.

Commission on Charge, Spin and Momentum Densities

A new Commission was elected in Warsaw upon the occasion of the Eleventh Congress; E. F. Bertaut was succeeded as Chairman by K. V. J. Kurki-Suonio. During the Congress the Commission held an open meeting entitled 'Past and Future Projects', which was attended by approximately one hundred participants. E. N. Maslen reported on progress in the principal current project, which is the study of charge density in α-oxalic acid dihydrate. Other projects, such as the calculation of charge densities from correlated wave-functions and the establishment of a 'data bank' of electron density results, were selected for initial study. Japan was tentatively chosen as the site for Sagamore VII in 1982.

Commission on Crystal Growth

Two meetings of the Commission were held in Warsaw, one under the previous Chairman, A. Authier, and the other under the new Chairman, E. Kaldis. P. Krishna was elected Secretary of the Commission, whilst the only new member elected was A. R. Lang, who succeeded N. Kato.

The Commission started some new projects in 1978 and expanded its activities in materials research relevant to crystallography and crystal growth. It is hoped that in due time the Executive Committee and the General Assembly will agree to a corresponding change of the name of the Commission to reflect this involvement in materials research. The new activities of the Commission in this direction are: (*a*) The organization of an open session at the Fifth European Crystallographic Meeting in Copenhagen in August 1979, (*b*) The organization of a spring school on 'New Crystallographic Perspectives in Materials Science', in collaboration with the Commission on Crystallographic Teaching, to be held in Erice, Italy, in April 1980 at the Ettore Majorana Centre, (*c*) The organization of an open meeting at the Twelfth Congress in 1981, on recent highlights in materials research and crystal growth. It is also proposed to hold a school in India on 'Materials Science and Crystallography'.

A joint committee of the IUCr, IUPAC and IOCG has been established to consider the standardization of nomenclature in crystal growth. J. Bohm, H. Klapper and I. Sunagawa have been appointed to this committee to represent the Commission on Crystal Growth and the IUCr.

Commission on Crystallographic Apparatus

The Commission met twice during the Warsaw Congress, whilst the various projects of the Commission were also dealt with by correspondence during the year. The Commission appointed the following people as consultants: D. C. Creagh, W. H. de Camp, M. Elder, L. D. Jennings, P. Kierkegaard, G. Lundgren, O. S. Mills, S. Szarras.

1. *Microdensitometer Project* (S. Abrahamsson, P. Kierkegaard, G. Lundgren). The project was discussed at an open meeting at Warsaw and a draft first report was distributed to the Commission. A revised version is in preparation. A second report will deal with a comparison with diffractometer measurements of the same crystal.

2. *Survey of Film Characteristics* (M. Elder and O. S. Mills). The project has been somewhat delayed due to the uncertainty of future availability of X-ray film. A preliminary survey has, however, been made and now exists in draft form. The Commission has tried to encourage various manufacturers to provide film for single-crystal work to replace Ilford Industrial G film.

3. *X-ray Attenuation Project* (D. C. Creagh). A project committee has been formed and a number of laboratories have been invited to participate. The project is still in the formative stage.

4. *Radiation safety standards* (M. Colapietro). A survey of recommended radiation safety procedures is in progress. The aim is to try to formulate a set of international standards which will comply with legal requirements as well as with the needs of scientists.

5. *Radiation Safety Bibliography* (S. Martínez-Carrera). A bibliography of publications dealing with safety devices, radiation techniques and medical aspects of radiation accidents has been prepared. The Commission has recommended some minor additions to the draft presented in Warsaw.

6. *Computerized Bibliography on Small-Angle Scattering* (R. W. Hendricks). A computer-based bibliography test system was demonstrated at the Fourth International Conference on Small-Angle Scattering of X-rays and Neutrons. A full-scale implementation is now contemplated.

7. *Polarization Ratio Survey* (L. D. Jennings). The survey of the measured polarization ratios of monochromatized X-ray beams is continuing. An announcement has been published [*Acta Cryst.* (1978), A**34**, 159–160].

8. *Meetings*. (*a*) Two open commission meetings were held during the Eleventh Congress. One was concerned with crystallographic and diffraction applications of synchotron radiation and was organized by R. W. Hendricks and S. Hosoya. The other was concerned with the microdensitometer project and was organized by S. Abrahamsson. (*b*) The Commission is supporting the Inter-Congress Symposium on Accuracy in Powder Diffraction, to be held in Washington DC, 11–15 June 1979. (*c*) A Meeting on Radiation Safety is being planned by W. de Camp in connection with the Sixth European Crystallographic Meeting.

Commission on Crystallographic Computing

The open meeting organized by the Commission at the Eleventh Congress was very well attended. The Commission also sponsored an International School in Crystallographic Computing at Twente, The Netherlands, 24 July–1 August 1978, which was attended by 103 scientists from 23 countries. The programme included tutorial sessions and workshops concerned with program systems on large computers and minicomputers, automatic data collection, molecular interactions, multidetectors and microcomputers.

Much of the credit for organizing the school must be given to H. Schenk, who chaired the local and scientific organizing committees. The proceedings of the school are available in book form from Delft University Press under the title *Computing in Crystallography.*

Through much of 1978 the planning of a similar school, to be held in Bangalore, India, 4–14 January 1980, has been a prime concern. It is hoped that this school will assist scientists in developing areas to benefit from recent developments in crystallography.

Commission on Crystallographic Data

The Eleventh Congress provided an opportunity for the Commission to review its current work and to make future plans. Two closed meetings were held and two open meetings – the latter consisted of invited contributions on the topics 'Crystallographic Data Systems' and 'Powder Data'. Some of the projects discussed at the closed meetings are summarized below:

1. *Bibliography of Mathematical Crystallography.* The typescript provided by W. Nowacki has been extensively checked by Commission members with respect to the English, German and Russian citations. The material is now almost complete and the production of the bibliography as a monograph should get under way fairly soon.

2. *Indexing of Crystallographic Publications.* Commission members felt that there was considerable room for improvement in the indexing of crystallographic publications, especially with regard to the secondary literature and data directories. A working group was appointed to study the problems.

3. *Inorganic Structural Data Bank.* The Commission was pleased to hear the progress report of this activity in Bonn. A file structure/format has been defined, and data input and software development are in hand.

4. *Data Deposition.* The data deposition scheme operated by the (British) Chemical Society in conjunction with the Cambridge Data Centre is now firmly established. It will be extended to cover inorganic data in collaboration with the Bonn Centre; the organic journal *Tetrahedron* is going to participate.

5. *Chemical/Crystallographic Identifiers.* Whereas the Chemical Abstracts Service Registry system affords an excellent method for attaching unique identifiers to organic substances, there are a number of problems in applying this scheme to metals and inorganic compounds. It was suggested that convenient descriptors might be designed which combined chemical formula information with crystallographic information – the latter might involve, for example, Pearson codes, reduced cell parameters, *etc.*

6. *Recommendations to Editors.* The document which had been prepared for distribution to editors of non-IUCr journals was reviewed again in the light of the new set of *Notes for Authors* (for IUCr journals). Since some discrepancies existed between these two documents it was agreed that another revision should be made to bring the recommendations into line with the Union's policies.

7. *Standard Data Exchange Format.* A working group was established with members chosen from this Commission and the Commission on Crystallographic Computing, to draw up a computer format suitable for the exchange of files of single crystal and powder data. A first draft was prepared and the considerable feedback has resulted in the distribution of a revised draft proposal.

Commission on Crystallographic Nomenclature

A full meeting of the Commission was held in Warsaw on 5 August 1978. Proposals for effectively handling nomenclature problems arising in specific fields of crystallography were discussed. An important part of the new arrangement, as agreed by the Executive Committee, is the appointment of *ad hoc* committees to consider particular areas in crystallography in which there is important nomenclature disagreement. The report by the *ad hoc* committee will be reviewed both by the Executive Committee and the Commission. Following final acceptance, all nomenclature decisions will be disseminated promptly, and will remain accessible to all crystallographers. The decisions will be binding on all IUCr publications. The first *ad hoc* committee, on the nomenclature of disordered, modulated and polytype structures, is being appointed. A joint committee of the IUCr, IUPAC and IOCG on the Standardization of Nomenclature in Crystal Growth has been formed.

Commission on Crystallographic Studies at Controlled Pressures and Temperatures

The Commission organized an open meeting on applications of the diamond anvil cell in crystallography during the Eleventh Congress. This technique has recently become very important for studies at high pressures and, in some cases, high temperatures. The Commission, together with the Commission on Crystallographic Apparatus, is involved in the organization of the Inter-Congress Symposium on Accuracy in Powder Diffraction, to be held in Washington DC, 11–15 June 1979.

Commission on Crystallographic Teaching

The Commission met twice during the Eleventh Congress. A. Authier was elected Chairman. A vote of thanks was unanimously sent to the retiring Chairman, C. A. Taylor, for his dedicated work on the Commission during the last 12 years.

A summer school will be held in Erice, Italy in April 1980, on 'New Crystallographic Perspectives in Materials Science', and organized jointly by the Commissions on Crystal Growth and on Crystallographic Teaching. The programme committee is A. Authier, M. Hart, E. Kaldis and L. Riva di Sanseverino. Attendance of participants from developing countries will be encouraged.

It was proposed to hold further summer schools along the lines of the 1977 Erice Summer School on 'Teaching Crystallography for Today's Sciences', but organized on a regional basis in developing areas. Two sub-committees were set up, one consisting of P. Krishna, R. Srinivasan and Chattar Singh for Asia and the other consisting of S. Caticha Ellis, A. Craievich and O. Wittke for Latin-America. They will submit proposals for programmes and schedules specially adapted to their specific areas.

The pamphlet programme continues to be a major activity of the Commission. C. A. Taylor agreed to act as Editor for the pamphlets and to remain on the Commission as a Consultant. Contact has been made with the University College Cardiff Press for the publication of the pamphlets, and financial support has been obtained from Unesco.

Finally, a comparison of syllabi on the teaching of crystallography in various countries and at various levels is being undertaken.

Commission on Electron Diffraction

The Commission organized two open meetings during the Eleventh Congress, one on LEED, HEED and electron microscopy (R. Feder, J. M. Cowley, S. Amelinckx, A. F. Moodie) and the other on HEED (Z. G. Pinsker, D. K. Saldin). The meetings were well attended and generated lively discussion. A closed meeting was also held during the Congress.

The current projects of the Commission include the following items:

1. *Space Group Project.* The aim of the project, which was started in 1975, is to produce a concise report, suitable for a Commission publication, on the subject of space-group determination by HEED. A call for information on this subject and a progress report were sent by P. Goodman to Commission members and other interested individuals in May 1978. The three laboratories (in Bristol, Melbourne and Sendai) which are known to be developing space-group determination methods are now in correspondence with each other. The final report is expected to contain a general introduction, details of the procedure, and various examples illustrating the scope and limitations of the method. The time for completion will depend upon the rate of accumulation of data on various crystal classes by the participating laboratories.

2. *Structure Factor Project* (P. Goodman and C. J. Humphreys). This is a long-term project aimed at providing a means of communication among laboratories using HEED, and between the Commission and other interested Commissions. The guidelines are (1) to establish standards in structure factor measurements, (2) to investigate the magnitude and causes of error, (3) to determine accurately the bonding electron distributions for the crystalline materials selected, and (4) to make measurements over a range of temperatures in order to study the variations of bonding electron distribution and the Debye temperature. More than ten laboratories are actively taking part in the project. Close communication exists with members of the Commission on Charge, Spin and Momentum Densities. The present list of substances for study is Si, Ge, GaAs, TiO_2, Cu and Al. Two other substances are being added to the list. Circulation of a regular newsletter is now being considered, in order to allow a quick assessment of the available information to be made by any interested party and to give a reliable summary of progress.

3. *Gas Electron Diffraction Information Service Project.* This project was started in 1977 for the purpose of rapid distribution of information on newly completed work in the field [see the Commission reports for 1976 and 1977: *Acta Cryst.* (1977), A**33**, 1032; (1978), A**34**, 1036]. The second issue was organized by K. Hedberg, and was compiled and distributed in June 1978 by B. Starck to researchers using GED techniques. This issue contained references on the geometrical structures of 117 free molecules determined by GED and on 27 related works.

Detailed plans are being made by P. Goodman and others for the preparation and publication of a volume commemorating the fiftieth anniversary of electron diffraction.

Commission on Neutron Diffraction

The Commission met at the Eleventh Congress and reviewed current activities. The *Neutron Diffraction Newsletter* edited by W. B. Yelon appeared twice during 1978 and continues to provide a useful medium for informal communication in this field. All neutron diffractionists are encouraged to send in contributions about instrumentation and techniques, computer programs, meetings, etc. A compilation of coherent neutron scattering amplitudes has been maintained and up-dated as appropriate by G. E. Bacon. A rather more ambitious compilation, including incoherent and absorption cross sections, will be attempted in the next three-year period in collaboration with T. M. Sabine and W. B. Yelon. Work on a bibliography of recent neutron scattering literature was started by S. Hoshino and collaborators at the Japanese Atomic Energy Research Institute, and will continue during this period. The *Magnetic Structure Data Sheets* edited by D. E. Cox now contain about 260 entries for different compounds and have expanded into a second volume. A new project involving a compilation of diffractometers and software was agreed upon at the Commission meeting and will be undertaken by M. S. Lehmann and H. Dachs.

A highlight of 1978 was the satellite Conference on Diffraction Profile Analysis and Open Meeting of the Commission held immediately after the Eleventh Congress in Cracow on 14–15 August, in conjunction with the University of Mining and Metallurgy, the Jagellonian University and the Institute of Nuclear Physics in that city. About 40 invited and contributed papers were presented, including a number on neutron and X-ray profile refinement techniques. Among the latter was a report on the neutron diffraction intercomparison project started under the auspices of the Commission and being coordinated by A. W. Hewat, A. F. Andresen and T. M. Sabine. This is aimed at an assessment of the reliability of profile refinement, of whether the error estimates are realistic, and of the compromises between resolution, wavelength and intensity. The preliminary results on standard samples of Al_2O_3 indicate very good agreement among the various groups participating.

Sub-Committee on the Union Calendar

The Sub-Committee receives and considers requests for Union sponsorship and nominal financial support, and makes recommendations to the Executive Committee. Acting on the recommendations made by the Sub-Committee, during 1978 the Executive Committee approved sponsorship of, and usually financial support to, the following meetings:

1. Fifth International Symposium on the Organic Solid State (Waltham, USA, 13–16 June 1978).
2. Conference on Diffraction Line Profile Analysis (Cracow, Poland, 14–15 August 1978).
3. Sixth International Symposium on Boron and Borides (Druzhba, Bulgaria, 9–12 October 1978).
4. Inter-Congress Meeting on Modulated Structures (Hawaii, USA, 22–25 March 1979).
5. Inter-Congress Symposium on Accuracy in Powder Diffraction (Washington DC, USA, 11–15 June 1979).
6. Fifth European Crystallographic Meeting (Copenhagen, Denmark, 13–17 August 1979).

7. Sagamore VI Conference on Charge, Spin and Momentum Densities (Mont Tremblant, Canada, 19–25 August 1979).

8. Winter School on Crystallographic Computing (Bangalore, India, 4–14 January 1980).

Other meetings held in 1978 which received Union support are listed at the beginning of the Report of the Executive Committee, under the heading *Other Meetings*. Organizers of meetings wishing to seek Union sponsorship should write, as early as possible, to the Chairman of the Sub-Committee, Dr J. Karle, Code 6030, Naval Research Laboratory, Washington DC 20375, USA. Unfortunately, severe limitation of the funds available to the Union necessitates strict restraint in the provision of financial support.

Representatives on Other Bodies

Abstracting Board of the International Council of Scientific Unions

The Abstracting Board, in cooperation with the Bureau National de l'Information Scientifique et Technique, held a seminar on 'The On-Line Revolution in Information' in Paris at Unesco, 6–7 July 1978. The principal contributions have been published by the Board (photolithography from typescript, pp. ii + 86). The Board has also published the long-awaited *International Serials Catalogue*, a list, with approved abbreviations, codens and ISSNs, of all the journals covered by the major abstracting services of the world.

The annual meetings of the Board were held in Toulon, 8–14 July 1978. Four new members were elected: The Royal Society, as national member for the United Kingdom; ESRIN, the information service of the European Space Agency, as a member service; The US Department of Energy, as a member service; and INIS, a nuclear science information service based in Austria, as a member service. Among problems receiving attention were copyright, relations with POGSI (the ICSU Policy Group on Scientific Information) and relations with the General Information Programme of Unesco. It was decided to move the offices of the Board to the building occupied by ICSU on the boulevard de Montmorency. The accommodation would not be as ample as that previously occupied, but it was estimated that the cost would be reduced by over $10 000 per year, and the Board would benefit from closer association with ICSU.

Mme Jeanne Poyen, the General Secretary for many years, resigned towards the end of 1978, and Mlle Marthe Orfus has been appointed as her successor.

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

The Sixth International Conference and Eleventh General Assembly of CODATA were held in May 1978 at Santa Flavia, Sicily. Some 180 participants took part in the Conference, which featured special sessions on the prediction of natural disasters and the prevention of man-made hazards.

In the General Assembly 16 countries and 15 Unions are now represented. The scientific work of CODATA is, in the main, carried out by ten Task Groups and three Advisory Panels. Some of these activities are summarized below:

1. A book entitled *Data Handling for Science and Technology. An Overview and Sourcebook* has been prepared. The book has ten chapters contributed by various authors and each chapter has a very extensive set of references. North-Holland have agreed to publish it and the projected publication date is early summer 1979.

2. The World Data Referral Centre, located at the CODATA office, has made good progress and substantial work has been done setting up the master file with associated indexes. Output from this activity includes the preparation of lists of data sources, under headings such as centres, books, people.

3. The Task Group on Accessibility and Dissemination of Data has initiated a proposal to study the copyright problems associated with the processing of data. Steps have been taken to establish a working party for this purpose.

4. The Task Group on Computer Use has been concerned with a study of exchange formats suitable for numeric data and the report of this work, when it becomes available, should be examined carefully by the people concerned in the related IUCr project.

5. The following issues of the *CODATA Bulletin* appeared in 1978:

No. 26 *International Training Courses in the Handling of Experimental Data.*
No. 27 *Abstracts – Sixth International CODATA Conference.*
No. 28 *CODATA Recommended Key Values for Thermodynamics.* 1977.
No. 29 *Selected Papers on Natural and Man-Made Hazards and Related Questions from the Sixth International CODATA Conference.*
No. 30 *Guide for the Presentation in the Primary Literature of Physical Property Correlations and Estimation Procedures.*

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

The Committee has decided to publish a newsletter about the teaching activities of the various Unions. The first two numbers have already been published and they include an account of the activities of the IUCr. The main activities of the Committee are concerned with university learning strategies, integrated science, a survey of the problems raised by the training of technicians, and a comparison of post-graduate education in various disciplines and in various countries. The Committee relies very much on the member Unions to help in the transmission of information.

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

COSTED continues to provide financial support to help scientists from developing countries attend scientific meetings or schools. However, the Union representative on COSTED has not received any direct information on the activities of this body.

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

The role of the Commission and its relationship to other Commissions dealing with branches of solid-state physics (magnetism, semiconductors and low-temperature physics) were the topics of considerable discussion during 1978. The

proposal of the IUPAP Executive for amalgamation of these Commissions was discussed but not accepted at the IUPAP General Assembly in Stockholm in September 1978. It was suggested at the Assembly that the Commission should attempt to define a more definite role for itself and should stimulate and organize a general conference, possibly in 1980, covering the areas of its interests within solid state physics.

The newly elected Chairman of the Commission is P. Nozieres and the new Secretary is H. Ehrenreich. A. Linek succeeded J. M. Cowley as IUCr representative on this body at the Eleventh General Assembly.

Conference Committee of the European Physical Society

The Union representative kept the Committee informed about the details of crystallographic meetings, so as to avoid clashes in dates for meetings which might be of interest to both physicists and crystallographers. He attended both meetings of the Committee held in 1978, which were mainly concerned with the approval of high-level open conferences for European physicists. The Committee also investigated different ways to facilitate the organization of conferences.

International Organization for Crystal Growth

The International Organization for Crystal Growth was accepted as a Scientific Associate of the Union at the Eleventh IUCr General Assembly. Following suggestions by D. T. J. Hurle, closer collaboration is envisaged between the IOCG and the Union's Commission on Crystal Growth, with the expansion of the activities of the Commission into the field of materials science.

ICSU Committee on Space Research (COSPAR)

The Union became a full member of COSPAR in 1978, following the decision of the Eleventh IUCr General Assembly, and E. Kaldis was elected as the Union representative on this body. Dr Kaldis was previously Union representative on the COSPAR Working Group on Materials Science in Space.

At the COSPAR meeting in Innsbruck, earlier in 1978, the Working Group on Materials Science in Space held several open sessions with an interesting scientific programme. The involvement of the international scientific Unions in the work of COSPAR is encouraging work of a high scientific standard. At this meeting it was again shown that materials research under microgravity conditions raised many very interesting questions. However, extensive investigations are still necessary before practical applications can be developed.

Scientific Committee on Problems of the Environment (SCOPE)

The Eleventh IUCr General Assembly decided that the Union should become a full member of SCOPE, and P. Kierkegaard was elected as Union representative on this body.

Coordinating Committee for the Moon and Planets

It was decided not to continue Union representation on this body for the time being.

International Council of Scientific Unions

Professor A. Magnéli represented the Union at the meetings of the ICSU General Assembly and General Committee held in Athens in September 1978. The Executive Secretary also attended the General Assembly.

The General Assembly (1) accepted the Royal Irish Academy as a National Member; (2) increased the contributions from National Members by 10% for 1980 and empowered the General Committee to increase the contribution by a further amount in 1981, up to 10%; (3) endorsed the proposal of Unesco for an International Year of Science; (4) invited the Unions to contribute to SCOPE's programme in relation to the biogeochemical cycling of carbon, nitrogen, sulphur and other appropriate elements; (5) decided to review the role and status of Scientific Associates; (6) resolved to establish a study group on the scientific aspects of nuclear waste disposal; (7) initiated steps to consider ways of adapting the organizational structure of ICSU to meet the changing patterns and needs of science; (8) changed the Special Committee on Solar-Terrestrial Physics into a Scientific Committee; (9) resolved to create an interdisciplinary Inter-Union Commission on the Application of Science to Agriculture, Forestry and Aquaculture; (10) supported the preparation of a document on 'Science, Technology and Development: Views from Scientists in the Developing World'; (11) invited renewed efforts to welcome scientists from the People's Republic of China into ICSU; (12) invited the Unions and the National Members to take into account the needs of scientists in developing countries concerning scientific information. The proposal to introduce a $5 tax on participants at Union-sponsored meetings was not accepted. The General Assembly also received reports of the scientific activities of the Unions and other international organizations.

Finances

The audited accounts for the year 1978 are given at the end of this Report. For comparison, the figures for 1977 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 1978 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 $62 718. 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 1978.

The General Fund account shows a profit of $12 033 as compared with a profit of $13 606 in 1977. The administrative expenses were $44 169 in 1978 as compared with $35 862 in 1977. Of this amount, $14 129 was charged to the publications of the Union. $21 067 was spent in connection with the General Assembly and Congress, consisting of $7680 for travel grants, $324 for Commission

expenses, $1924 for incidental expenses and $11 139 for the Executive Committee meeting at the General Assembly. A further $4555 was spent on supporting other scientific meetings and $2163 was required for travel expenses of Union representatives on other bodies. The Commissions received an additional $422 to cover non-routine expenses. The Union received a total of $7000 from the Unesco subvention to ICSU, whilst the subscriptions from Adhering Bodies increased to $32 560 with the acceptance of new members by the Eleventh General Assembly. A further $451 was received from sales of the Proceedings of the Madrid Conference on Anomalous Scattering.

No investments were purchased in 1978 and the income from investments was $25 267 as compared with $26 182 in 1977, whilst the interest on banking accounts remained almost constant at $4583. A profit of $1704 arose from the redemption of Dfl 16 000 and $12 000 of investments during 1978.

The President's Fund account received $1280 in donations during 1978, whilst a travel grant of $333 was paid from the fund.

The *Acta Crystallographica* account for 1978 shows a profit of $75 778 as compared with a profit of $55 184 in 1977. The subscription rates were increased by about 5% in 1978.

The number of paid subscriptions to both sections of the journals dropped from 1561 in 1977 to 1503 in 1978, including 178 personal subscriptions in 1977 and 168 in 1978. There were also 248 paid subscriptions to Section A and 108 paid subscriptions to Section B in 1978, compared with 225 and 123 respectively in 1977. 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; 87% and 13% respectively for 1978. The technical editing costs for *Acta Crystallographica* were $63 726 in 1978 as compared with $47 861 in 1977, but still form only a small part of the overall production costs. The increase in costs is attributable to the increase in the technical editing staff, the overall salary increases as a result of increases in the cost of living in the UK, the additional expenses incurred in preparation for the move to larger premises in Chester and an increase in the value of sterling with respect to the US dollar. 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 $5903 as compared with a profit of $11 962 in 1977. It was necessary to increase the subscription rates by about 13% for 1978, but the size of the journal was increased considerably, as a result of the publication in the October 1978 issue of 363 pages of review papers, contributed papers and extended abstracts presented at the Fourth International Conference on Small-Angle Scattering, which was held in Gatlinburg, USA, in October 1977. The number of paid subscriptions increased slightly from 1169 in 1977 to 1178 in 1978, including 110 personal subscriptions in 1977 and 106 in 1978.

The *Structure Reports* account shows a profit of $2835 as compared with a profit of $18 834 in 1977. Publishing expenses and editorial expenses in 1978 were $44 576 and $30 559 respectively.

The *International Tables* account shows a profit of $8037 as compared with a deficit of $14 040 for 1977. This profit is the result of a generous donation of $10 985 from the French Ministry of Scientific and Industrial Research towards the cost of the new volume on direct space. No publication expenses were incurred in 1978 in connection with the present series of *International Tables*, and the net sales income from this series was $12 804. The expenses for the new volume on direct space were $12 077, whilst additional editorial expenses of $3712 were incurred, mainly in connection with the new volume.

$63 was received from the sale of five copies of *Fifty Years of X-ray Diffraction*. $815 was received from the sale of 65 copies of *Symmetry Aspects of M.C. Escher's Periodic Drawings*, as well as $674 royalties for 1123 copies of the North American edition of this book sold by Harry Abrams Inc. in 1977. The sale of 29 copies of Volume I and 15 copies of Volume II of *Early Papers on Diffraction of X-rays by Crystals* yielded $474, reducing the deficit on this fund account to $7561.

The *Molecular Structures and Dimensions* account shows no profit for 1978, because this account was charged with a contribution of $3324 towards the salary expenses incurred by the Crystallographic Data Centre in the production of volumes prepared in 1978. 375 copies of the *Guide to the Literature* were sold in 1978, as well as some copies of the volumes in the bibliographic series published in previous years. Delays at the publishers prevented the distribution of Volume 9 to subscribers until early in 1979.

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 $13 618, 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 1978 the Union held investments in government bonds with a total maturity value of £30 000, plus Dfl 221 000, plus $53 000, plus DM 200 000, plus Swiss F 68 000.

The total of $193 292 with the Banks at the end of the year was represented by Dfl 72 076 and $2688 with the Amsterdam–Rotterdam Bank, $1995 with the Citibank, $50 865 with the Bankers Trust Company, £14 961 with the National Westminster Bank, Swiss F 127 614 with the Union Bank of Switzerland and Dkr 258 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 1978. 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 $572 459 to $742 736, after including a profit of $62 718 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. (1979). A**35**, 1077–1083

International Union of Crystallography

Balance Sheet as at 31st December 1978

	US Dollars 1978				1977
	As at 31 December 1977	Profit on fluctuations in rates of exchange	Excess of income over expenditure for the year	Balance at 31 December 1978	
FUND ACCOUNTS					
General Fund	112,753	10,710	12,033	135,496	*112,753*
President's Fund	2,543	299	947	3,789	*2,543*
Acta Crystallographica	280,118	30,499	75,778	386,395	*280,118*
Journal of Applied Crystallography	59,073	5,568	5,903	70,544	*59,073*
Structure Reports	112,826	9,912	2,835	125,573	*112,826*
International Tables	(52,133)	–	8,037	(44,096)	*(52,133)*
General Publications	52,008	4,457	–	56,465	*52,008*
Fifty Years of X-ray Diffraction	2,197	194	63	2,454	*2,197*
Escher Drawings	7,476	768	1,489	9,733	*7,476*
Early Papers	(8,035)	–	474	(7,561)	*(8,035)*
Molecular Structures and Dimensions	3,633	311	–	3,944	*3,633*
	$572,459	$62,718	$107,755	742,736	*572,459*
				$742,736	*$572,459*

	US Dollars 1978		1977
CURRENT ASSETS			
Cash at Banks			
Current Accounts	91,831		*56,540*
Deposit and Savings Account	101,461	193,292	*81,251* *137,791*
Cash with Union Officials		1,962	*2,967*
Debtors		279,045	*178,595*
Subscriptions from Adhering Bodies, due for 1977 to 1979		(160)	*1,820*
		474,139	*321,173*
Deduct Creditors		68,920	*65,370*
NET CURRENT ASSETS		405,219	*255,803*
FIXED ASSETS			
Investments on 31 December 1978			
At market value	345,050		*332,941*
Less appreciation in value	13,618		*17,746*
At cost	331,432		*315,195*
Office Equipment at cost, less depreciation	6,085		*1,461*
TOTAL FIXED ASSETS		337,517	*316,656*
		$742,736	*$572,459*

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 on pages 1077–1083 which have been prepared under the historical cost convention.

In our opinion these acounts give, under the accounting convention stated above, a true and fair view of the state of the Union's affairs at 31 December 1978 and of the results for the year ended on that date.

Manchester, England
15 May 1979

Signed: MANN JUDD

Chartered Accountants

General Fund Account for the year ended 31 December 1978

	US Dollars 1978		1977	
Subscription to ICSU (2½% of subscriptions received from Adhering Bodies in 1977)		718		*725*
Subscription to ICSU Abstracting Board		360		*300*
Subscription to ICSU Committee on the Teaching of Science		300		*300*
Administration Expenses:				
General Secretary and Treasurer: Honorarium and Secretarial Assistance	1,925		*1,984*	
Audit and Accountancy Charges	2,772		*2,000*	
Taxation Services	783		–	
Legal Fees	558		*406*	
Postages, Stationery, Printing and Sundries	956		*753*	
Travelling Expenses	628		*627*	
Bank Charges and Differences on Exchange	(442)		*1,311*	
Executive Secretary's Office: Salary and Expenses	36,002		*28,424*	
Depreciation of Office Equipment	987	44,169	*357*	*35,862*
Eleventh General Assembly and Congress:				
Executive Committee	11,139		–	
Travel Grants	7,680		–	
Expenses of Commissions	324		–	
Incidental Expenses	1,924		–	
Meeting of the Programme Committee	–		*6,727*	
Office Equipment	–	21,067	*1,634*	*8,361*
Transfer to President's Fund		–		*303*
Meeting of the Executive Committee		–		*8,729*
Travel Expenses of IUCr Representatives on Other Bodies		2,163		*1,761*
Expenses of Commissions		422		*3,000*
Sponsorship of Meetings		4,555		*4,500*
World Directory of Crystallographers; 5th Edition: Honorarium and Publishers Costs		–		*6,680*
Excess of Income over Expenditure carried to Balance Sheet		12,033		*13,606*
		$85,787		*$84,127*

	US Dollars 1978		1977	
Grant received from Unesco Subvention to ICSU		7,000		*4,000*
Subscriptions from Adhering Bodies		32,560		*29,040*
Interest on Investments		25,267		*26,182*
Interest on Banking Accounts		4,583		*4,379*
Profit on Redemption of Investments		1,704		*1,445*
Sale of *World Directory of Crystallographers:* 5th Edition		37		*6,969*
Sales of the Proceedings of the Madrid Conference on Anomalous Scattering		451		*902*
Net Sale of Sundry Publications (Bibliographies, *Book List, List of Computer Programs* and *Index of Crystallographic Supplies*)		56		*46*
Amount charged to Journals and Publications:				
Acta Crystallographica	10,230		*8,100*	
Journal of Applied Crystallography	3,410		*2,700*	
Molecular Structures and Dimensions	489	14,129	*364*	*11,164*
		$85,787		*$84,127*

The attached notes form an integral part of these accounts.

President's Fund Account for the year ended 31 December 1978

	US Dollars 1978	1977
Travel Grant	333	–
Excess of Income over Expenditure carried to Balance Sheet	947	*2,496*
	$1,280	*$2,496*

	US Dollars 1978	1977
Donations received	1,280	*2,496*
	$1,280	*$2,496*

Acta Crystallographica Account for the year ended 31 December 1978

Publication Expenses:				
Printing and Binding Volume 34 (*1977 Volume 33*)	273,593		*245,101*	
Distribution and Postage	32,451		*19,749*	
Airfreight Costs	11,270		*9,976*	
	317,314		*274,826*	
Printing Index to Volume 33 (*1977 Volume 32*)	6,396		*4,503*	
Printing *Acta* Supplement S4 to Volume A34	5,605		–	
Printing Index to Volumes 24–28	–	329,315	*11,146*	*290,475*
Editorial Expenses:				
Editorial Honoraria	12,723		*12,526*	
Secretarial Assistance	2,358		*3,291*	
Postages, Telephone and Office Sundries	5,099		*3,999*	
Travelling Expenses	423		*911*	
Technical Editing:				
Salaries and Expenses	63,726		*47,861*	
Depreciation of Office Equipment	708	85,037	*183*	*68,771*
Administration Expenses		10,230		*8,100*
Excess of Income over Expenditure carried to Balance Sheet		75,778		*55,184*
		$500,360		*$422,530*

Subscriptions to Volume 34 (*1977 Volume 33*)	519,053		*445,606*	
Sale of Back Numbers and Single Copies	26,998		*15,167*	
Airfreight Charges to Subscribers	8,887		*7,113*	
Copyright Donation	–		*100*	
Royalties	27		*19*	
	554,965		*468,005*	
Less Publisher's Commission on Sales	54,605	500,360	*46,077*	*421,928*
Income from Advertisements	–		*708*	
Less Advertising Agent's Commission and Expenses	–	–	*106*	*602*
		$500,360		*$422,530*

The attached notes form an integral part of these accounts.

Journal of Applied Crystallography Account for the year ended 31 December 1978

	US Dollars 1978		1977	
Publication Expenses:				
Printing and Binding Volume 11 (*1977 Volume 10*)	71,153		*38,308*	
Less Contribution received towards cost of printing Gatlinburg Conference Papers	10,000		–	
	61,153		*38,308*	
Distribution and Postage	3,035		*2,673*	
Airfreight Costs	2,614		*1,995*	
	66,802		*42,976*	
Printing *Acta* Supplement S4 to Volume A34	1,869	68,671	–	*42,976*
Editorial Expenses:				
Editorial Honoraria	2,643		*1,965*	
Secretarial Assistance	1,650		*1,550*	
Postages, Telephone and Office Sundries	85		*106*	
Travelling Expenses	560		*44*	
Technical Editing:				
Salaries and Expenses	9,522		*4,733*	
Depreciation of Office Equipment	106	14,566	*18*	*8,416*
Administration Expenses		3,410		*2,700*
Excess of Income over Expenditure carried to Balance Sheet		5,903		*11,962*
		$92,550		*$66,054*

	US Dollars 1978		1977	
Subscriptions to Volume 11 (*1977 Volume 10*)	98,035		*71,134*	
Sale of Back Numbers and Single Copies	4,182		*2,047*	
Airfreight Charges to Subscribers	2,030		*1,453*	
Royalties	9		*2*	
	104,256		*74,636*	
Less Publisher's Commission on Sales	12,753	91,503	*9,148*	*65,488*
Income from Advertisements	1,232		*666*	
Less Advertising Agent's Commission and Expenses	185	1,047	*100*	*566*
		$92,500		*$66,054*

The attached notes form an integral part of these accounts.

Structure Reports Account for the year ended 31 December 1978

	US Dollars 1978		1977	
Publication Expenses:				
Printing and Binding Volumes 41B, 42A and Supplement to Cumulative Index (*1977 Volumes 40B and 41A*)	41,937		*31,994*	
Binding extra copies of earlier Volumes	–		*2,540*	
Typing of Manuscripts	2,639	44,576	*3,760*	*38,294*
Editorial Expenses:				
Salary and Honoraria: Editors, Abstractors and Assistants	30,295		*28,670*	
Office and Travelling Expenses	100		*17*	
Depreciation of Office Equipment	164	30,559	*177*	*28,864*
Excess of Income over Expenditure carried to Balance Sheet		2,835		*18,834*
		$77,970		*$85,992*

	US Dollars 1978		1977	
Sale of Copies of				
Volumes 41B and 42A	81,986		–	
Earlier Volumes and Indexes	12,535		*104,240*	
	94,521		*104,240*	
Less Publisher's Commission on Sales	16,551	77,970	*18,248*	*85,992*
		$77,970		*$85,992*

International Tables Account for the year ended 31 December 1978

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	972		*510*	
Travelling	2,740	3,712	*1,041*	*1,551*
Computer Trial Project:				
Salary	10,799		*8,578*	
Travelling and Miscellaneous Expenses	1,278	12,077	*454*	*9,032*
Excess of Income over Expenditure carried to Balance Sheet		8,037		*(14,040)*
		$23,826		*$11,609*

Sale of Copies of Volumes I, II, III and IV	17,919		*15,394*	
Less Publisher's Commission on Sales	5,115	12,804	*3,785*	*11,609*
Donation		10,985		–
Sale of Copies of NBS Monograph		37		–
		$23,826		*$11,609*

The attached notes form an integral part of these accounts.

Fifty Years of X-ray Diffraction Account for the year ended 31 December 1978

	US Dollars 1978		1977	
Excess of Income over Expenditure carried to Balance Sheet		63		*108*
		$63		*$108*

	US Dollars 1978		1977	
Sale of Copies	79		*135*	
Less Publisher's Commission on Sales	16	63	*27*	*108*
		$63		*$108*

Escher Drawings Account for the year ended 31 December 1978

Excess of Income over Expenditure carried to Balance Sheet	1,489	*4,261*
	$1,489	*$4,261*

Sale of Copies	1,019		*1,455*	
Less Publisher's Commission on Sales	204	815	*291*	*1,164*
Royalties		674		*3,097*
		$1,489		*$4,261*

Early Papers Account for the year ended 31 December 1978

Excess of Income over Expenditure carried to Balance Sheet	474	*92*
	$474	*$92*

Sale of Copies of Volumes I and II	593		*115*	
Less Publisher's Commission on Sales	119	474	*23*	*92*
		$474		*$92*

Molecular Structures and Dimensions Account for the year ended 31 December 1978

Publication Expenses:				
Printing and Binding Volume 9 (*1977 Volume 8*)	9,957		*8,954*	
Printing and Binding *Guide to Literature*	9,950		–	
Carriage and Miscellaneous Expenses	786		*712*	
Salaries	3,324	24,017	*3,763*	*13,429*
Administration Expenses		978		*727*
		$24,995		*$14,156*

Sale of Copies of				
Volumes 1–8	5,339		*15,973*	
Volume A1	963		*1,186*	
Guide to Literature	23,995		–	
	30,297		*17,159*	
Less Publisher's Commission on Sales	5,302	24,995	*3,003*	*14,156*
		$24,995		*$14,156*

The attached notes form an integral part of these accounts.

Notes on the Accounts for the year ended 31 December 1978

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 1978 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:

	1978	*1977*
Netherlands Guilders	2.08	*2.40*
Danish Crowns	5.32	*6.10*
Pounds Sterling	0.511	*0.55*
Swiss Francs	1.73	*2.17*
German Marks	1.92	*2.20*

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 1978.

(*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	987
Acta Crystallographica	708
Journal of Applied Crystallography	106
Structure Reports	164
	$1,965

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 1978.