

International Union of Crystallography

Report of Executive Committee for 1974

Personal Notes

Dr Barrie Dawson died suddenly on 20 February. He was a member of the Union's *ad interim* Commission on Charge, Spin and Momentum Densities and was the original Chairman for one of the three topics of the Conference on Diffraction Studies of Real Atoms and Real Crystals, which was held in Melbourne, Australia in August. He was internationally renowned for his introduction of the concept of anti-symmetry to describe non-centrosymmetric atomic charge and vibrational attributes, and his development of a generalized atomic scattering function.

Meetings

The Union sponsored or co-sponsored the following meetings held in 1974: Fourth International Conference on Crystal Growth, Tokyo, Japan, 24–29 March; Second International Spring School on Crystal Growth, Mount Fuji District, Japan, 31 March – 7 April; Conference on Anomalous Scattering, Madrid, Spain, 22–26 April; International Discussion Meeting on Studies of Lattice Distortions and Local Atomic Arrangements by X-ray, Neutron and Electron Diffraction, Jülich, B.R.D., 29 April – 3 May; Symposium on Intra- and Intermolecular Forces, Pennsylvania State University, U.S.A., 14–16 August; International Crystallography Conference on Diffraction Studies of Real Atoms and Real Crystals, Melbourne, Australia, 19–23 August; Second European Crystallographic Meeting, Keszthely, Hungary, 26–29 August.

The Executive Committee met in Manchester, England, 2–5 July. The main items dealt with were: (1) the audited accounts for 1973 and the estimates for the General Fund; (2) the proposed unit contribution for 1976–78, (3) many matters concerning the Union's journals, including size, subscription rates, methods of publication and delays in invoicing; (4) the publication of several volumes of *Structure Reports*; (5) proposals for a new series of *International Crystallographic Tables*; (6) revised proposals for a Fifth Edition of the *World Directory of Crystallographers*; (7) reprinting *Symmetry Aspects of M. C. Escher's Periodic Drawings*; (8) a review of the work of the Union's Commissions; (9) an application from Bangladesh for membership of the Union; (10) plans for the Tenth General Assembly and (11) sponsorship of meetings.

The presence of the Programme Committee for the Tenth Congress in Manchester at the same time gave the Executive Committee the opportunity to discuss the plans of the Congress with Professor A. Vos, Chairman of the Programme Committee, and Dr H. M. Rietveld, Secretary and Treasurer of the Organizing Committee.

Resignations and Appointments

The appointment of Dr E. N. Maslen as a member of the *ad interim* Commission on Charge, Spin and Momentum

Densities was approved. Dr R. D. Heidenreich resigned as a Co-editor of the *Journal of Applied Crystallography*.

Publications

In 1974, Volume 30 of *Acta Crystallographica* was published; Section A consisted of 874 pages and Section B 2938 pages, excluding 44 pages of joint indexes. Volume 7 of the *Journal of Applied Crystallography* was published and consisted of 651 pages, including the indexes (13 pages) which were distributed with the last issue for the year.

As a result of the publication of an ever-increasing number of detailed crystal analyses, it has become necessary, from the volume for 1965, to publish *Structure Reports* in two parts: *A. Metals and Inorganic Compounds* and *B. Organic Compounds* (including organometallic compounds). Five volumes were published in 1974, namely Volumes 30B, 31B, 32B, 33B and 35B, covering the literature on organic compounds for 1965–68 and 1970. Volume IV of *International Tables for X-ray Crystallography*, consisting of revised and supplementary tables to Volumes II and III, and Volume 5 (Bibliography 1972–73) in the *Molecular Structures and Dimensions* series were also published.

Adhering Bodies

The latest list of Adhering Bodies of the Union and names and addresses of the Secretaries of the National Committees is given in Table 1. A full list of memberships of National Committees is given in Annex IV to the Report of the Ninth General Assembly and International Congress of Crystallography [*Acta Cryst.* (1973). A29, 771–772]. In addition to the changes to the committees for Finland and France recorded in the Executive Committee Report for 1973 [*Acta Cryst.* (1974). A30, 857], the following changes had been communicated to the Executive Secretary by 1 April 1975:

- Argentina: New membership: S. Baggio (Chairman), Maria E. J. de Abeledo, L. N. Becka, Dora Bedlivy, M. A. R. de Benyacar, A. Bonfiglioli, M. Butschowski, E. E. Galloni, M. Ipohorski, A. Podjarny.
- Australia: New membership: T. M. Sabine (Chairman), H. C. Freeman, E. O. Hall, C. H. L. Kennard, E. N. Maslen, A. F. Moodie, E. W. Radoslovich, R. L. Segall.
- Austria: A. Preisinger has succeeded J. Zemann as Chairman and Secretary.
- Brazil: New membership: R. Rodrigues da Silva (Chairman), S. Caticha-Ellis, Y. P. Mascarenhas, E. Távora, J. V. Valarelli.
- U.S.A. New membership: J. Karle (Chairman), D. H. Templeton (Vice-Chairman), S. C. Abrahams, R. D. Burbank, W. R. Busing, C. N. Coughlan, J. M. Cowley, J. P. Glusker, J. A. Ibers, G. A. Jeffrey, C. K. Johnson, I. L. Karle, W. L. Kehl, E. C. Lingafelter, M. H. Mueller, H. M. Ondik, D. P. Shoemaker, H. Steinfink.

Table 1. *Adhering Bodies*

<i>Country</i>	<i>Category*</i>	<i>Adhering Body</i>	<i>Secretary of National Committee</i>
Argentina	I	Consejo Nacional de Investigaciones Cientificas y Técnicas	M. IPOHORSKI, Departamento de Metalurgia, Comisión Nacional de Energía Atómica, Avenida del Libertador 8250, Buenos Aires
Australia	III	Australian Academy of Science	The Executive Secretary, Australian Academy of Science, P.O. Box 216, Civic Square, Canberra, A.C.T. 2608
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	G. JACOBS, Rijksuniversiteit te Gent, Faculteit der Wetenschappen, Laboratorium voor Kristalkunde, Krijgslaan 271, B-9000 Gent
Brazil	I	Conselho Nacional de Pesquisas	R. RODRIGUES DA SILVA, Avenida Beira Mar, 2363 (Peidade), 50000 Recife
B.R.D. (Federal Republic of Germany)	IV	Arbeitsgemeinschaft Kristallographie	H. WONDRAUSCHEK, Institut für Kristallographie der Universität, Kaiserstrasse 12, 75 Karlsruhe 1
Canada	III	National Research Council	L. D. CALVERT, Division of Chemistry, 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
D.D.R. (German Democratic Republic)	II	Vereinigung für Kristallographie in der G.G.W. der D.D.R.	H. PEIBST, Deutsche Akademie der Wissenschaften zu Berlin, Mohrenstrasse 40/41, DDR-108 Berlin
Denmark	I	Akademiet for de Tekniske Videnskaber	I. KJØLLER LARSEN, The Royal Danish School of Pharmacy, Chemical Laboratory C, Universitetsparken 2, 2100 Copenhagen Ø
Finland	I	Suomalainen Tiedekatemia	P. PAALASSALO, Wihuri Physical Laboratory, University of Turku, 20500 Turku 50
France	IV	Académie des Sciences (Institut de France)	J. F. PETROFF, Association Française de Cristallographie, 9 Quai Saint Bernard, Tour 26, Paris 5e
Hungary	I	Magyar Tudományos Akadémia	L. ZSOLDOS, Institute of Solid State Physics, Eötvös University, Múzeum krt. 6-8, 1088 Budapest
India	I	Indian National Science Academy	R. CHIDAMBARAM, Scientific Officer, (E) Nuclear Physics Division, Bhabha Atomic Research Centre, Trombay, Bombay-85
Israel	I	Israel Academy of Sciences and Humanities	MICHAL HAREL, The Weizmann Institute of Science, Rehovot
Italy	III	Consiglio Nazionale delle Ricerche	M. MAMMI, Istituto di Chimica Organica, Università di Padova, Via Marzolo 1, 35100 Padova
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	W. T. ROBINSON, Chemistry Department, University of Canterbury, Private Bag, Christchurch
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, Polska Akademia Nauk, Plac Katedralny 1, Wrocław
South Africa	I	South African Council for Scientific and Industrial Research	G. GAFNER, National Physical Research Laboratory, P.O. Box 395, Pretoria
Spain	III	Consejo Superior de Investigaciones Cientificas	S. GARCÍA-BLANCO, Instituto de Química Física 'Rocasolano', Consejo Superior de Investigaciones Cientificas, Serrano 119, Madrid 6
Sweden	II	Kungliga Vetenskapsakademien	S. ABRAHAMSSON, Crystallography Group, University of Göteborg, Medicinareg. 9, S-400 33 Göteborg 33
Switzerland	II	Schweizerische Gesellschaft für Kristallographie	J. D. DUNITZ, Laboratorium für Organische Chemie der ETH, Universitätsstrasse 6/8, CH-8006 Zürich
U.K.	V	The Royal Society	Sir DAVID MARTIN, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG

Table 1 (cont.)

Country	Category*	Adhering Body	Secretary of National Committee
U.S.A.	V	National Academy of Sciences – National Research Council	W. R. BUSING, Oak Ridge National Laboratory, P.O. Box X, Oak Ridge, Tennessee 37830, U.S.A.
USSR	V	Akademija Nauk S.S.S.R.	V. I. SIMONOV, Institute of Crystallography, Leninsky prospekt 59, Moscow B-333
Yugoslavia	I	Jugoslavenska Akademija Znanosti i Umjetnosti	B. KAMENAR, Laboratory of General and Inorganic Chem- istry, Faculty of Science, Ulica Soc. Revolucije 8, 41000 Zagreb

* Adherence to the Union 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.

Work of the Commissions

Commission on Journals

During 1974 the Commission on Journals produced Volume 30 of *Acta Crystallographica* and Volume 7 of the *Journal of Applied Crystallography*. The staff of the Technical Editor's office had no difficulty in keeping up with the papers accepted for publication, but there were some delays at the printers (not as serious as in 1973), and a change to electronic data processing of accounts caused unfortunate and often severe delays in filling subscription orders [see *Acta Cryst.* (1974). A30, 872]. The number of papers submitted for publication continues to increase, and this is reflected in the increase of the number of pages in Section A of *Acta Crystallographica* and in the *Journal of Applied Crystallography*. The Executive Committee limited the size of Section B to approximately 2900 pages, in order to minimize increases to subscription rates. By encouraging authors to compress their style and to make greater use of the sec-

tion 'Short Structural Papers', the Editors have been able to avoid any consequent substantial increase in publication times, though a few papers that might otherwise have appeared in December 1974 were held over till January 1975. An analysis of the contents of the journals for the last six years is given in Table 2.

The second cumulative decennial index to *Acta Crystallographica* (Volumes 11–23, 1958–1967, pp. ii + 146) has now been published. All issues of the journal that appeared before the division into Sections A and B in 1968 can now be searched *via* only two indexes. The second index is considerably larger than the first (pp. 57), and it is planned to issue the cumulative indexes on a quinquennial basis in future.

The Commission has continued its investigation of new production methods. Conventional hot-type composition is expensive, and the promised day of fully computerized type-setting for scientific publications has not yet arrived. In the meantime, two alternatives that do produce some savings are typewriter composition and the use of film-

Table 2. Survey of the contents of the Union journals
Acta Crystallographica

Vol.	Year	Number of pages*	Articles		Short Communications		Short Structural Papers	
			Number	Average length	Number	Average length	Number	Average length
A25} †	1969	1027} 3699	120} 475	6·1} 6·9	25} 99	1·2} 1·8	–	–
B25}		2672}	355}	7·1}	74}	2·0}	–	–
A26}	1970	702} 2840	112} 413	6·0} 6·6	32} 86	1·7} 1·7	–	–
B26}		2138}	301}	6·8}	54}	1·8}	–	–
A27}	1971	700} 3194	103} 480	6·3} 6·4	24} 91	1·4} 1·3	–	–
B27}		2494}	367}	6·6}	67}	1·3}	–	–
A28} ‡	1972	985} 4661	107} 691	5·9} 6·0	35} 110	1·2} 1·4	–	–
B28}		3676}	584}	6·1}	75}	1·5}	4	2·6
A29}	1973	774} 3758	118} 575	6·0} 5·9	26} 82	1·3} 1·4	–	–
B29}		2984}	457}	5·8}	56}	1·5}	74	2·3
A30}	1974	874} 3812	135} 605	6·0} 5·6	37} 69	1·2} 1·2	–	–
B30}		2938}	470}	5·4}	32}	1·3}	131	2·6

Journal of Applied Crystallography

Vol.	Year	Number of pages*	Articles		Short Communications		Crystal Data	
			Number	Average length	Number	Average length	Number	Average length
2	1969	312	50	5·4	11	1·4	3	1·4
3	1970	552	79	6·1	26	1·8	2	1·1
4	1971	534	74	5·6	23	1·7	8	1·2
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

* Excluding indexes.

† Volume A25 includes 295 pages of abstracts communicated to the Stony Brook Congress and 276 pages of papers and discussion at the Cambridge Intensity Meeting, 1968.

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

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

setters which use photographic methods under tape control to produce a master for offset printing. The printers have installed a tape-controlled film-setter, and it is expected that this will begin to be used, on an experimental basis, for the *Journal of Applied Crystallography* in the course of 1975.

The Institute for Scientific Information, which publishes the *Science Citation Index*, has made a number of studies of the citation of papers and journals. Those published in the issues of *Current Contents* for 6 March and 11 September 1974 are of particular interest to crystallographers. The first study lists the hundred 'chemical' articles most frequently cited by authors in 'chemical' (excluding biochemical) journals in the course of 1972. The order is:

<i>Journal of Chemical Physics</i>	(22%)
<i>Journal of the American Chemical Society</i>	(19%)
<i>Acta Crystallographica</i>	(15%)

No other journal accounted for more than 6%. Since *Acta Crystallographica* is by no means outstanding by number of pages it would seem that it publishes a higher proportion of 'significant' papers than most journals do. Its position in the 'physics' citation order is not as well established. The data are older (1969) and are analysed in a different fashion; its rank varies from tenth to seventeenth, depending on the criterion adopted (*Physics Today*, May 1974, pp. 40–41; *Current Contents*, 2 October 1974).

Commission on Structure Reports

Five volumes were published in 1974. This remarkable progress represents the culmination of several years of intensive work by the General Editors and Co-Editors, which resulted in the publication of Volumes 30*B*, 31*B*, 32*B*, 33*B* and 35*B* (organic and organometallic compounds for the years 1965–1968 and 1970). Manuscripts for all other volumes up to and including the 1973 volumes are now in hand, and should appear in 1975. Manuscripts for the 1974 volumes are expected to be completed by the summer of 1975, and these volumes should appear early in 1976. The next annual report should therefore be able to state that the backlog has been overcome.

The General Editor has received a few comments on the appearance of the photo-offset volumes, which so far are favourable. Some subscribers have cancelled their orders for the *B* volumes, and are taking only the *A* volumes; this is only to be expected if their interests are solely in metal and inorganic structures.

Commission on International Tables

1. Present Edition

In October 1974, Volume IV of *International Tables for X-ray Crystallography* 'Revised and Supplementary Tables to Volumes II and III' was published. It contains 366 pages. The volume was edited by J. A. Ibers and the late W. C. Hamilton. It includes revised values for atomic scattering factors, X-ray wavelengths and atomic absorption coefficients. This information originally formed about 20% of the contents of Volume III. In addition, Volume IV contains new material on several topics of great importance to structural crystallographers, including diffractometer calculations, analysis of thermal motion in crystals, and some aspects of direct methods for phase determination.

2. Pilot Issue of Series A (Symmetry Tables)

In view of the many other publishing activities in this

field, the Commission has decided that Part 5 of the Pilot Issue, on *Generalized Symmetry*, will not be published. N.F.M. Henry is continuing work on the English translation of the introduction to the book by V. A. Koptsik, *Shubnikov Groups* (Moscow, 1966).

3. Computer Production of the New Edition of International Tables for Crystallography, Volume B

Programs were completed by D. S. Fokkema for the determination of names and locations of symmetry operations and for the determination of the symmetries of special projections, giving also the new origin and the unit cell of the projection plane group. With this, all the programs for the generation of data for the new Volume B are finished. These programs were tested on the sample space groups of the Pilot Issue.

The general typesetting procedures were completed for all the data to be included in the new tables, though some modifications will still be necessary. The output of these procedures was tested on the photo-typesetting machine. It is expected that two or three more tests will be needed before a final page lay-out is achieved.

A production system was prepared which provides for the input of data not produced by computer and for the storage of intermediate results on indexed sequential files. This system allows the final production of the typesetting tape to be done in two stages; the generation of crystallographic data, and the production of codes for the type-setting machine. Space groups in which errors occur can be re-run separately in both stages. Work on the new diagrams of the symmetry elements of each space group is in progress. It is intended to have a draft of the computer-produced data for all space groups available at the Tenth Congress in August 1975 for inspection by the crystallographers present.

Commission on Crystal Growth

The Commission held a meeting on 26 March 1974, during the Fourth International Conference on Crystal Growth (ICCG-4) at Tokyo. One of the main points of discussion was the position of this Commission with respect to the International Organization for Crystal Growth (IOCG). As long as the IOCG does not create Commissions for specific purposes, there is still a task for the Commission with respect to activities like standardization and registration.

The main activities in which several members of the Commission were involved in 1974 were two scientific meetings held in Japan in 1974 and co-sponsored by the Union. The first meeting was ICCG-4, which was held at Tokyo, 24–29 March, and was attended by about 750 scientists. The meeting was very well organized and it was also quite successful from the scientific point of view. The Proceedings, edited by K. A. Jackson, N. Kato and J. B. Mullin, have been published as Volumes 24/25 of the *Journal of Crystal Growth*. The second meeting was the Second International Spring School on Crystal Growth, (ISSCG-2), held at Lake Kawaguchi, near Mt. Fuji, from 31 March to 7 April. The school was attended by 209 participants, of whom 75 were from overseas. Here also the organization was excellent and the level of the lectures was, on the whole, higher than for the previous school. In addition to the 30 lectures, time was available for discussions on special topics by small groups.

As to other activities, efforts will be made to arrive at a standardization of symbols for use in crystal growth research and at a compilation of films on crystal growth.

Commission on Crystallographic Apparatus

The Commission met 18–19 April in Madrid, Spain with S. C. Abrahams, M. Colapietro, S. Hosoya, S. Ramaseshan, P. Suortti, R. W. Hendricks, J. L. Amoros (for M. Font-Altaba) and F. Sibiende (for M. Foex) present. All other matters during the year were dealt with by correspondence. The principal items of business were as follows:

1. *Inter-Congress Conference on Anomalous Scattering, Madrid, Spain 22–26 April 1974.* (S. Ramaseshan, Program Chairman; M. Font-Altaba, Local Chairman; S. C. Abrahams, Chairman). A total of thirty-three papers were presented, covering the theoretical calculation and the experimental determination of dispersion corrections, novel applications of anomalous scattering, absolute configuration and tensorial properties, accurate intensity measurement, effects of dispersion on atomic parameters, use of anomalous scattering in protein structure analysis, and structure determination using neutron anomalous scattering. Eighty-seven scientists from 19 countries participated, with 13 accompanying members. Provision of meeting space and a generous subvention by the Consejo Superior de Investigaciones Científicas is gratefully acknowledged.

Anomalous Scattering, the proceedings of the Madrid Conference, is being compiled by S. Ramaseshan and S. C. Abrahams as co-editors. Referees, drawn from the participants, were assigned to each paper and discussion leaders were appointed who would also present a narrative account of each discussion in the book. The technical editor is D. W. Penfold. The approximately 550-page hard-cover book is expected to be published by Munksgaard in the summer of 1975, price 200 Danish kroner.

2. *Phase II of the Single-Crystal Radiation Damage Project* (R. Rudman and S. C. Abrahams). Funding of Phase II, by sources such as the U.S. National Science Foundation, is expected to be accomplished best by direct support of individual investigators who are selected by the Commission. Three crystallographers have been invited to submit research proposals which will be coordinated in a single request for specific support.
3. *Powder Intensity Project* (P. Suortti and L. D. Jennings). A review of the status of accurate powder intensity measurements is in course of preparation. Most of the measurements on a nickel standard sample have been completed and an analysis of the results, accompanied by a critical appraisal of the measuring procedures, is being prepared for presentation at the Tenth Congress and for subsequent publication. L. D. Jennings has been elected a Consultant to the Commission.
4. *Small-Angle Scattering Absolute Intensity Project* (R. W. Hendricks). Absolute intensity measurements on standard samples of glassy carbon and polystyrene have been received from seven laboratories in six countries. Computer processing of the raw data is complete, and a statistical intercomparison of the results is now in progress. A final report is being prepared for presentation at the Tenth Congress.
5. *Project on the Accuracy of Intensities Determined Microdensitometrically* (S. Abrahamsson). The growing importance and use of microdensitometry for measuring integrated intensities has led to the activation of a project, comparable to that using diffractometer measure-

ments [*Acta Cryst.* (1970). **A26**, 1–24] under the direction of S. Abrahamsson.

6. *Radiation Safety* (R. Rudman and M. Colapietro). A survey is being undertaken of recommended radiation safety procedures, detectors, calibration, and related matters, in response to the increasing development of legal and quasi-legal standards in this area.
7. *Open Commission Meetings at the Tenth Congress.* Two sessions will be organized solely by the Commission; namely 'Novel Crystallographic Measurements by use of Solid-State and Position-Sensitive Detectors' and 'Small-Angle Scattering Measurements by X-ray and Neutron Diffraction'. There will also be a session on 'Extinction Corrections, Theory and Experimental Measurement', organized jointly with the *ad interim* Commission on Charge, Spin and Momentum Densities, and one on 'Single-Crystal Diffraction Measurements at Controlled Pressures and Temperatures', organized jointly with the Commission on Crystallographic Studies at Controlled Pressures and Temperatures.
8. *Congress Exhibits of Non-Commercial Equipment and Visual Aspects of Crystallography* (H. van Koningsveld and R. Rudman). Both exhibits will again be sponsored by the Commission.
9. *Nomenclature Standardization in Small-Angle Scattering* (R. W. Hendricks). An international *ad hoc* committee has been appointed to consider inconsistencies in current nomenclature, especially between varying notations used in high-angle and low-angle scattering and between X-ray and neutron small-angle scattering. A preliminary report will be presented at the Tenth Congress, at the Open Meeting of the Commission on Crystallographic Nomenclature.
10. *Phase II of the Single-Crystal Intensity Measurement Project* (A. McL. Mathieson). A report on this project has been delayed, but is expected to be completed next year.

Commission on Crystallographic Computing

Planning of the 1975 International Summer School on Crystallographic Computing was the major activity of the Commission during 1974. The selection of topics, topic organizers, invited lecturers, and contributors was finalized. The first circular was printed and distributed as widely as possible. Over 300 crystallographers expressed interest in participating, although the school will have to be limited to about 200 participants. Munksgaard (Copenhagen) have agreed to publish the Proceedings of the school in book form, similar to that published after the previous school held in Ottawa in 1969.

The Commission also made preliminary plans for the Open Commission Meeting at the Tenth Congress in Amsterdam.

In view of the disappointingly poor response to the proposed further *Supplement to the World List of Crystallographic Computer Programs*, the publication of the Supplement was postponed indefinitely.

Commission on Crystallographic Data

Discussions have taken place, by correspondence, with the Chairmen of the Commission on Journals, Crystallographic Computing, *Structure Reports* and *International Tables* as well as with the Chairman of the Working Party on Information Services, with a view to holding an Open Meeting at the Tenth Congress. It has been decided to hold

an Open Meeting, entitled 'Crystallographic Information Services', with invited speakers. The Commission also intends to hold an Open Meeting on 'Powder Data'.

A document by I. D. Brown, describing a 'standard' computer file format for the storage of inorganic structural data, has been circulated, to establish whether the Commission should study this project in detail with a view to preparing a report for publication.

Commission on Crystallographic Nomenclature

The Commission has held no meetings during the year, but there has been an active correspondence on the proposal for a crystallographic dictionary. An Open Meeting will be held during the Tenth Congress, at which this proposal will be discussed and other Commissions will present reports of their work in the field of nomenclature. The Commission has participated, through its Chairman, in the Joint (with the International Mineralogical Association) Committee on Nomenclature.

Commission on Crystallographic Studies at Controlled Pressures and Temperatures

Two Open Commission Meetings will be held during the Tenth Congress. One will be devoted to two subjects; 'New Developments for Crystallographic Studies at Extreme Pressures and/or Temperatures' and 'Calibration Methods'. The other, organized jointly with the Commission on Crystallographic Apparatus, will be entitled 'Single-Crystal Diffraction Measurements at Controlled Pressures and Temperatures'.

The Commission has continued its interest in the preparation of bibliographies and specialized articles within its sphere of interest. A monograph on diffraction at low temperatures is being prepared by R. Rudman, a member of the Commission on Crystallographic Apparatus. A bibliography on recent results obtained in the field of high temperatures has been compiled by J. P. Traverse. Bibliographic works on high pressures are being prepared through the National Bureau of Standards in the U.S.A.

Commission on Crystallographic Teaching

Further translations of E. A. Wood's book (*Crystals - a Handbook for School Teachers*) for primary schools are under way. A summer school on X-ray topography and dynamical theory, to be held in France, is being arranged by A. Authier. It is hoped that some pamphlets may emerge from it to start off the teaching pamphlet project which the Commission has been trying to initiate for some time.

A start has been made on an enquiry into the timing and mechanism of teaching X-ray diffraction at university level in different countries. It is hoped that this will produce some background material for the presentation topic 'Integrated or Independent Teaching of Crystallography in the University Curricula', at the Tenth Congress. There has already been some response including a number of replies from the continent of Africa. The *Atlas of Optical Transforms*, one of the remaining items of the UNESCO Pilot Project on Teaching Materials, went to press and proofs have been received. It is confidently expected that the *Atlas* will be published before the Congress. Plans are in hand for various activities during the Congress. The Commission hopes to take full advantage of the fact that participants may submit a paper for the topic on teaching, in addition to a paper on a scientific topic. The annual list of summer schools on crystallography was produced as usual.

Commission on Electron Diffraction

The sessions on the use of dynamical effects in the study of crystals, at the International Crystallography Conference, which was held in Melbourne, 19-23 August 1974, were organized by A. F. Moodie with the collaboration of three other Commission members and others. Fifty-five papers having a direct or close connexion with electron diffraction and microscopy were presented. In addition, more than ten papers were presented in other sessions of the conference.

The working group on gas electron diffraction (L. S. Bartell, H. M. Seip, and K. Kuchitsu) has completed and circulated a paper entitled 'A Guide to the Publication of Experimental Gas-Phase Electron Diffraction Data and Derived Structural Results in the Primary Literature'. This report contains general recommendations for the guidance of authors, referees, and editors on the reporting of electron diffraction data and derived structures. These recommendations are intended to facilitate reliable evaluation, ease of comparison with other data and the retrieval of information, if later re-analysis becomes desirable in the light of new theories or experiments.

The Commission is arranging two Open Commission Meetings at the Tenth Congress, entitled 'Surface Crystallography' and 'Gas Electron Diffraction - Novel Species and Techniques'.

Through correspondence and personal discussions, the following opinions and comments with respect to the future activity of the Commission were given to the Commission Chairman by members:

1. Consideration should continue to be given to the development of surface crystallography studies by LEED and related methods.
2. The present systems of units, notation and nomenclature in electron diffraction should be reconsidered.
3. Most of the considerations which govern the symmetry of the wave functions and intensities in HEED have been greatly developed recently and much has been published. A systematic compilation with respect to the various space groups should be considered.
4. As a combined activity of the three sub-fields of electron diffraction (HEED, LEED and gas electron diffraction), an effort should be made to eliminate certain theoretical inconsistencies in the formulations of the various branches of electron scattering.
5. A meeting to mark the fiftieth anniversary of electron diffraction should be held in 1977.

Commission on Neutron Diffraction

The Commission has continued its programme of collecting and evaluating data on neutron scattering amplitudes. The Magnetic Structure Data Sheet Project (MSDS), for disseminating current information on magnetic structures, has continued to operate on a self-sustaining basis during 1974. A draft report of the Spectrometer Intercomparison Project has been issued and circulated among participants. The first issue of the Commission's newsletter has been distributed. Plans have been completed for the Conference on Neutron Diffraction to be held in the Netherlands, in August 1975, in cooperation with the Reactor Centrum Nederland, just prior to the Tenth Congress.

Ad interim Commission on Charge, Spin and Momentum Densities

The Commission met in Melbourne, in August 1974, at the time of the International Crystallography Meeting.

During 1974 the Commission inaugurated a project to produce a book on Compton scattering (Editor: B. G. Williams), to be published by McGraw-Hill.

The water project has been completed and while five laboratories show fairly good agreement ($\sim 2\%$) in the measured Compton profile of water, some recent work suggests that multiple scattering may require a serious correction to the data. Until this point is settled the project's findings must remain undetermined. B. G. Williams is the project organizer.

A very good response has been received to the project on theoretical calculations of structure factors and Compton profiles. This project includes calculations for several simple hydrocarbon molecules (methane, ethane, ethylene and acetylene), vanadium metal, and the ionic crystals NaCl and LiH. A report will be made by V. H. Smith and K.-F. Berggren at the Open Commission Meeting at the Tenth Congress. A joint Open Commission Meeting with the Commission on Crystallographic Apparatus, on the subject of extinction, has also been arranged. A Summer School for crystallographers, on the subject of electron charge, spin and momentum density, will be held at Warwick University, 27 July–2 August, under the direction of M. J. Cooper.

The first circular for the Fifth Sagamore Conference on electron charge, spin and momentum density, to be held at Kiljava, Finland, 16–20 August 1976, has been distributed.

Sub-Committee on the Union Calendar

The Sub-Committee has received a number of requests for Union sponsorship and, in some cases, limited financial support. Acting on recommendations made by the Sub-Committee, the Executive Committee approved sponsorship of the following meetings:

1. Summer School on Charge, Spin and Momentum Density (Coventry, England, 27 July–2 August 1975).
2. Neutron Diffraction Conference (Petten, The Netherlands, 5–6 August 1975).
3. Third International Conference on Vapour Growth and Epitaxy (Amsterdam, The Netherlands, 18–21 August 1975).
4. Summer School on X-ray Dynamical Theory and Topography (Limoges, France, 18–27 August 1975).
5. Course on Crystal Growth (Erice, Sicily, 30 August–7 September 1975).
6. Third European Meeting on Ferroelectricity (Zurich, Switzerland, 22–26 September 1975).

Meetings held in 1974 which received Union sponsorship are listed in the Reports of the Executive Committee for 1972 and 1973 [*Acta Cryst.* (1974), A30, 115 and 862 respectively]. The Sub-Committee continues to encourage specialist and regional meetings with the aim of distributing opportunities for attendance and discussion, and of relieving pressure on the triennial Congresses of the Union. Organizers of meetings seeking Union sponsorship should write to the new Chairman of the Sub-Committee, Dr D. P. Shoemaker, Chemistry Department, Oregon State University, Corvallis, Oregon 97331, U.S.A.

IUCr-IMA Joint Committee on Nomenclature

The Joint Committee has continued its search for a universal system of notation that can be used to indicate the

precise orientation and displacement of component sheets within polytypic stacking sequences of layered structures. A proposal by B. B. Zvyagin has been reviewed and modified. K. Dornberger-Schiff and S. Durovič were requested to submit a proposal of symbolism based on order-disorder theory. This proposal incorporates some of the most desirable features of the Zvyagin system, but is based on the symmetry relations between asymmetric units. It presently is being reviewed by the Committee. A final report is anticipated during 1975.

Representatives on Other Bodies

Abstracting Board of the International Council of Scientific Unions

The General Assembly of the Abstracting Board of the International Council of Scientific Unions met in Berlin, 8–11 July. Unlike its meetings in previous recent years, there was no general invitation to observers, and thus no 'educational' programme; the meeting was concerned only with the business of the Board. One new national member (Union of South Africa) and one new member service (Centre de Documentation de l'Armement) were admitted.

Perhaps the most interesting discussion concerned the storage and retrieval of data, and in particular the 'flagging' [a simple scheme] or 'tagging' [a sophisticated scheme, possibly machine-readable] of abstracts of papers containing new data. The ICSU AB/CODATA Joint Working Group, with UNESCO support, held a further meeting on this subject in November 1974, and plans to meet again in February 1975. The Board has devoted a great deal of effort to the compilation of an aggregate list of journals abstracted by the members of the Board.

The papers presented at the Conference of Editors, 4–5 July 1973, have been published as a volume of ii + 179 pages.

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

The Ninth General Assembly and International Conference of CODATA took place in Tsakhadzor, Armenian S.S.R., in June and was attended by the Union's representative, D. G. Watson. A full report of this meeting has been submitted to the Union's Executive Committee.

The Task Group on the Accessibility and Dissemination of Data has embarked on a feasibility study of the establishment of a referral centre for numeric data. This work is being done under contract from UNESCO and involves the acquisition and analysis of a large body of information relating to existing data referral practices. Dr Watson has been assigned the task of coordinating the analysis of the questionnaires and it is planned that the report will be submitted to UNESCO in October 1975.

The Joint Working Group of CODATA and the ICSU Abstracting Board has continued its study of the problem of flagging data in the primary and/or secondary literature. The basic work under the present UNESCO contract has now been completed. The report being prepared will make proposals for a more extensive study of this important and difficult problem.

The publications, *CODATA Newsletter* and *CODATA Bulletin*, are now being produced in-house at the Secretariat and these are available on a subscription or single issue basis.

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

The Union's representative, C. A. Taylor, attended a meeting of the Committee's Officers, as well as a meeting of an advisory sub-committee at UNESCO and a working party in London. He was regrettably prevented from attending the full meeting of the Committee at Easter by a family bereavement. At this meeting Dr A. Baez was elected Chairman in succession to Dr M. Matyas and Professor Taylor was elected Vice-chairman.

Preparations are in hand for a seminar on problems of evaluation in integrated science, to be held in December 1975 immediately before the meeting of the newly formed International Council of Associations for Science Education and the meeting of the U.K. National Association for Science Education. A preliminary investigation has been started into new approaches to teaching and learning strategies in university science. At the moment small working parties are operating in the U.K. and U.S.A. It is hoped that their deliberations will lead to a larger international meeting.

The possibilities of joint discussions with the International Commission on Mathematics Education are being considered, with a view to joint activities on problems of teaching mathematics for application in other sciences. An investigation has been instigated into the possible contributions that the more specialist disciplines (*e.g.* crystallography, geology, astronomy) may make to teaching science at school level. It is hoped to include the teaching commissions of the relevant Unions into this activity, and the IUCr, Commission on Crystallographic Teaching is being asked to take part. It is hoped that a general seminar may be held in 1976.

The ICSU Committee, in conjunction with COSTED and SCOPE, hopes to organize some seminars on environmental science education. It is also discussing with COSTED and UNESCO the inter-relationships between teaching, research and national development, particularly in developing countries, whilst the advisory sub-committee has continued to discuss future plans with the Division of Science Teaching and the Division of Science and Technology of UNESCO.

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

During 1974 the three conferences listed in the 1973 report were held with sponsorship and financial assistance from IUPAP as recommended by the Commission. Sponsorship without financial assistance was provided for a further three conferences.

Sponsorship with financial support has been approved for two meetings to be held in 1975; an International Conference on Luminescence (Tokyo, Japan, 1-5 September) and a Conference on Low-lying Lattice Vibrational Modes in Ferroelectrics and Superconductors (San Juan, Puerto Rico, 1-4 December). Support for two further conferences, in The Netherlands and Brazil, is under discussion. There has been further correspondence, but little progress, regarding possible means for coordination in the planning of international conferences.

Conference Committee of European Physical Society

The Union's representative, Dr A. Linek, followed the activities of the Conference Committee of the European

Physical Society with the aim of providing information on meetings of physicists which might be of interest to crystallographers.

International Organization for Crystal Growth

One IOCG council meeting, followed by a General Assembly, was held on 26 March, during the Fourth International Conference on Crystal Growth in Tokyo. It was decided that the IOCG would seek affiliation to IUPAC, IUPAP and IUCr within the framework of ICSU, but no approach has been made to these Unions as yet. The Fifth International Conference on Crystal Growth is to be held in Boston, U.S.A., 18-22 July 1977, by invitation of the American Association for Crystal Growth. Regional Associations for Crystal Growth had been formed in Czechoslovakia and in Italy and were accepted as IOCG members, which increases the number of such organizations to 11. For a report on the Fourth International Conference on Crystal Growth and the Second International Spring School on Crystal Growth, see the report of the Union's Commission on Crystal Growth.

International Council of Scientific Unions

The Union was represented at the 15th ICSU General Assembly, in Istanbul, Turkey, 23-26 September, by the Immediate Past President, Professor A. Guinier, and the Executive Secretary, Dr J. N. King. Professor Guinier also attended the associated meetings of the ICSU General Committee. The International Federation of Library Associations, the International Association on Water Pollution Research and the International Union for Quaternary Research were accepted as Scientific Associates, and Lebanon and Sudan were admitted as National Members. An *ad hoc* committee of representatives of various Unions, including the IUCr, was set up to consider the formation of an Inter-Union Commission for the Moon and Planets and to define its terms of reference. It was suggested that the members of this *ad hoc* committee should also constitute the membership of a committee to be set up to investigate and report on the proposal by the ICSU Committee on Space Research (COSPAR) for an International Solar System Decade.

There was considerable dissatisfaction with proposed changes in the organizational structure of UNESCO dealing with scientific and technical information matters. The General Assembly urged UNESCO to have the proposed changes investigated by a qualified, impartial body.

A number of cases had been reported when *bona fide* scientists from member countries of Unions had recently been prevented from attending symposia organized or sponsored by these Unions, through a refusal to grant entry visas. In the light of earlier ICSU resolutions emphasizing the right to free movement of scientists in this connexion, the General Assembly drew the attention of Unions to the following guide lines and recommended their adoption:

1. Before symposia or meetings are arranged, an assurance in writing should be obtained from the organizers in the country concerned that visas will be granted to *bona fide* scientists if proper applications are made, and the unfortunate consequences which may arise through a failure to grant visas should be communicated to the organizers of the symposia or meetings involved.

2. The following procedure, recently adopted by IUPAC, was commended for observance by other Unions. Applications for visas where necessary should be made to the appropriate authorities not less than three months before the date of the symposium or meeting. If these visas are not granted or promised in writing one month before the date of the event then sponsorship should be withdrawn.
3. National Members of ICSU should urge the authorities in their countries to facilitate attendance and exit visas for scientists to attend such meetings.
4. Each Union should inform ICSU and its Committee on the Free Circulation of Scientists of cases in which withdrawal of sponsorship has become necessary, so that other Unions may take this into account in making their own future arrangements for symposia and meetings.
5. The Chairman of the ICSU Committee for Free Circulation and the ICSU Secretary General should maintain a record of cases reported, to which the Unions and other ICSU bodies may refer as may be necessary.

It was recommended that an appropriate institution in the People's Republic of China be again invited to become a member of ICSU, but that no precipitative action be taken by UNESCO which would make the solution of the problem more difficult than necessary. The wide interest and deep concern of participants at the General Assembly in the problems of developing countries was recognized. The Unions and National Members of ICSU were urged to encourage support for efforts to solve the scientific and technical problems of developing countries, and enlist the cooperation of scientists from the developing countries themselves.

The arrangements for the distribution of the annual UNESCO subvention to the Unions were changed, with the result that IUCr has been placed in the lowest category and will only receive \$4,000 in 1975. This matter has been taken up with ICSU by the Union's Treasurer.

Finances

The audited accounts for the year 1974 are given at the end of this Report. For comparison, the 1973 figures 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 U.S. dollars at 31 December 1974 have been translated into U.S. dollars in the Balance Sheet at the rate operative at that date. For the Income and Expenditure Accounts, transactions have been translated into U.S. 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 U.S. dollars, amounting to \$3796. This profit has been divided amongst the eight Fund Accounts with credit balances, in direct proportion to the balances on these accounts at 31 December 1974.

The *Acta Crystallographica* account for 1974 shows a profit of \$28 813 as compared with a profit of \$25 985 in 1973. The profit is primarily due to publishing costs having

risen less than was estimated, and also to increased sales as a result of the special sale of early volumes. This sale appears to have encouraged some libraries which had cancelled their subscriptions in recent years to renew these subscriptions; overall, the number of subscribers increased by 5%. Subscription rates for 1974 were increased slightly. As in previous years, the total cost of the Technical Editor's 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; 85% and 15% respectively for 1974. The journals accounts have also been charged with administrative expenses as shown in the General Fund.

The *Journal of Applied Crystallography* account shows a deficit of \$2464 as compared with a profit of \$11 030 in 1973. This small deficit was the result of the decision not to increase the subscription rates for 1974. The sale of earlier volumes resulted in a smaller additional income than had been expected and the number of subscribers only increased from 1200 in 1973 to 1221 in 1974.

The *Structure Reports* account shows a deficit of \$652 as compared with a deficit of \$37 679 in 1973. This considerable improvement is the result of five volumes being published in November 1974. Editorial activity is still being maintained at a high level, with the result that editorial expenses totalled \$30 205 and a further \$3961 was spent on typing manuscripts for photo-offset printing. As many as 14 more volumes may be published in 1975.

The *International Tables* account shows a deficit of \$32 326 as compared with a deficit of \$28 312 in 1973. 1062 volumes were sold in 1974, including 347 copies of Volume IV which was published late in the year, as compared with 886 volumes in 1973. Volume IV cost \$22 963 to print and the binding costs will appear in the 1975 accounts.

\$145 was received from the sale of 13 copies of *Fifty Years of X-ray Diffraction* and \$272, after payment of royalties, from the sale of the remaining 48 copies of *Symmetry Aspects of M. C. Escher's Periodic Drawings*, which is now out of print. The sale of 16 copies of Volume I and 30 copies of Volume II of *Early Papers on Diffraction of X-rays by Crystals* yielded \$885, reducing the deficit on the fund account to \$8964.

The *Molecular Structures and Dimensions* account shows a profit of \$618. Volume 5 was published in 1974. The excess of income over expenditure, \$12 369, was shared between the University of Cambridge and the Union in the ratio 19:1.

The General Fund account shows a profit of \$7338 as compared with a profit of \$16 299 in 1973. The administrative expenses were \$27 972 in 1974 as compared with \$26 089 in 1973 but an additional \$400 was charged to the journals and publications. \$7214 was spent supporting scientific meetings whilst the Executive Committee meeting cost \$7504. The income from subscriptions (\$21 120) and the grant from the UNESCO subvention (\$5250) were the same as for 1973. Interest from investments and bank accounts was \$21 714 as compared with \$21 867 in 1973.

In 1974, a profit of \$819 was made on the redemption of £17 000 and \$3500 of investments. As on previous Balance Sheets, the investments have been valued according to their quotations at the end of the year. Their depreciation in value, together amounting to \$44 576, has not been charged against the General Fund but has again been included as an asset on the Balance Sheet, to avoid annual fluctuations in value influencing the General Fund account. At the end of 1974 the Union held investments in government bonds with

a total maturity value of *f*227 000, plus \$86 500, plus £30 000, plus Swiss F18 000.

The total of \$34 833 with the Banks at the end of the year was represented by *f*23 086 and \$660 with the Amsterdam-Rotterdam Bank, \$6585 with the First National City Bank, £7967 with the National Westminster Bank and Swiss F616 with the Union Bank of Switzerland. The amounts shown in the Balance Sheet for Debtors and Creditors relate to

sums, principally on the publishing accounts, due at 31 December 1974. Where appropriate, these amounts have now been settled.

The Balance Sheet shows that the assets of the Union, expressed in U.S. dollars, have increased during the year, from \$361 917 to \$368 342, including a profit of \$3796 resulting from fluctuations in rates of exchange but excluding stocks of unsold publications.

Acta Cryst. (1975). A31, 870

International Union of Crystallography
Balance Sheet as at 31 December 1974

	U.S. Dollars		1973	1974	U.S. Dollars 1974	1973
FUND ACCOUNTS	As at December 1973	Profit on fluctuations in rates of exchange	Excess of income over expenditure for the year	Balance at 31 December 1974	CURRENT ASSETS	
General Fund	75,652	785	7,338	83,775	Cash at Banks	5,528
<i>Acta Crystallographica</i>	166,023	1,842	28,813	196,678	Current Accounts	29,305
<i>Journal of Applied</i>				166,023	Deposit and Savings Accounts	16,812
<i>Crystallography</i>	45,035	403	(2,464)	45,035	Cash with Union Officials	1,202
<i>Structure Reports</i>	18,386	167	(652)	18,386	Debtors	126,891
<i>International Tables</i>	4,358	—	(32,326)	4,358	Subscriptions from Adhering Bodies, due for 1971 to 1974	1,540
General Publications	53,273	504	—	53,777	Less Paid in Advance	235
<i>Fifty Years of X-ray</i>				45,035		1,305
<i>Diffraction</i>	1,686	17	145	1,848	<i>Deduct Creditors</i>	194,370
<i>Escher Drawings</i>	5,436	54	272	5,762	Net Current Assets	99,755
<i>Early Papers</i>	(9,849)	—	885	(8,964)		94,615
<i>Molecular Structures</i>						
<i>and Dimensions</i>	1,917	24	618	2,559	FIXED ASSETS	
	<u>\$361,917</u>	<u>\$3,796</u>	<u>\$2,629</u>	<u>368,342</u>	Investments at market value on 31st December 1974	235,527
				<u>\$368,342</u>	Add Depreciation in value of Investments entered as an asset	30,253
				<u>\$361,917</u>		265,780
					Office Equipment at cost, less depreciation	1,522
					Total Fixed Assets	263,886
						<u>\$368,342</u>
						<u>\$361,917</u>

The attached notes form an integral part of these accounts.

Report of the Auditors to the International Union of Crystallography

We have examined the above Balance Sheet and the annexed Income and Expenditure Accounts, and have obtained all the information and explanations which we considered necessary.

In our opinion these accounts, together with the notes thereon, give a true and fair view of the state of affairs of the Union at 31 December 1974, and of the results for the year ended on that date.

Manchester, England

13 May 1975

Signed: MANN JUDD & Co.

Chartered Accountants

General Fund Account for the year ended 31 December 1974

	U.S. Dollars		U.S. Dollars	
	1974	1973	1974	1973
Subscription to ICSU (2½% of subscriptions received from Adhering Bodies in 1973)	484	317	5,250	5,250
Subscription to ICSU Abstracting Board	130	100	21,120	21,120
Subscription to ICSU Committee on the Teaching of Science	200	200	18,501	18,882
Administration Expenses:			3,213	2,985
Honoraria: General Secretary, Treasurer and Secretarial Assistance	1,724	1,837	819	1,388
Audit and Accountancy Charges	1,740	1,537	100	144
Legal Fees	371	475		
Taxation Advisory Services	-	591		
Postages, Stationery, Printing and Sundries	620	472		
Travelling Expenses	99	814		
Bank Charges and Differences on Exchange	885	1,271	215	410
Executive Secretary's Office: Salary and Expenses	22,096	18,491	6,300	6,000
Depreciation of Office Equipment	437	601	2,100	2,000
Meeting of Executive Committee			240	240
Ninth General Assembly and International Congress, Kyoto, Japan:				
Publication of Report	-	2,700		
Tenth General Assembly and International Congress				
Meeting of Programme Committee	2,319	-		
Travel Expenses of IUCr	1,205	724		
Representatives on Other Bodies	3,492	319		
Expenses of Commissions	7,214	5,684		
Sponsorship of Meetings				
Excess of Income over Expenditure carried to Balance Sheet	7,338	16,299		
	<u>\$57,858</u>	<u>\$58,419</u>	<u>\$57,858</u>	<u>\$58,419</u>
Grant received from UNESCO				
Subvention to ICSU				
Subscriptions from Adhering Bodies				
Interest on Investments				
Interest on Banking Accounts				
Profit on Redemption of Investments				
Net Sale of copies of <i>World Directory of Crystallographers</i> :				
4th Edition				
Net Sale of Sundry Publications (Bibliographies, <i>Book List</i> , <i>List of Computer Programs</i> and <i>Index of Crystallographic Supplies</i>)				
Amount charged to Journals and Publications:				
<i>Acta Crystallographica</i>			6,300	6,000
<i>Journal of Applied Crystallography</i>			2,100	2,000
<i>Molecular Structures and Dimensions</i>			240	240
			<u>8,640</u>	<u>8,240</u>

The attached notes form an integral part of these accounts.

Fifty Years of X-ray Diffraction Account for the year ended 31 December 1974

	U.S. Dollars	
	1974	1973
<i>Excess of Income over Expenditure carried to Balance Sheet</i>		
	145	185
	<u>\$145</u>	<u>\$185</u>
	176	224
	31	39
	<u>145</u>	<u>185</u>
	176	224
	31	39
	<u>145</u>	<u>185</u>

Escher Drawings Account for the year ended 31 December 1974

<i>Excess of Income over Expenditure carried to Balance Sheet</i>		
	272	1,132
	<u>\$272</u>	<u>\$1,132</u>
	62	261
	23	98
	<u>\$272</u>	<u>\$1,132</u>

Early Papers Account for the year ended 31 December 1974

Publication Expenses: Binding Volume I		590
<i>Excess of Income over Expenditure carried to Balance Sheet</i>	885	1,673
	<u>\$885</u>	<u>1,673</u>
	1,073	2,263
	188	396
	<u>\$885</u>	<u>1,867</u>

Molecular Structures and Dimensions Account for the year ended 31 December 1974

Publication Expenses: Printing and Binding Volume 5 (1973 Volume 4)	4,346	3,235	15,975
Printing and Binding Volume A1 Carriage and Miscellaneous Expenses	256	1,076	28,223
Advertising Expenses	—	2,111	44,198
Administration Expenses	645	595	7,551
<i>Excess of Income over Expenditure for the year:</i>			
University of Cambridge	11,751	15,820	17,616
I.U.Cr. carried to Balance Sheet	618	832	36,647
	<u>\$17,616</u>	<u>\$36,647</u>	<u>\$36,647</u>

The attached notes form an integral part of these accounts.

**Notes on the Accounts
for the year ended 31 December 1974**

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 U.S. Dollars at 31 December 1974 have been translated into U.S. Dollars in the Balance Sheet at the rates operative on that date. These are as follows compared with the U. S. Dollars:

	1974	1973
Netherlands Guilders	2.60	2.75
Danish Crowns	5.80	6.05
Pounds Sterling	0.431	0.423
Swiss Francs	2.74	3.20
French Francs	4.65	4.45

In each of the Income and Expenditure Accounts transactions in currencies other than U.S. Dollars have been translated into U.S. 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 eight Fund Accounts with credit balances in direct proportion to those balances at 31 December 1974.

(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. To this has been added depreciation 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	437
<i>Acta Crystallographica</i>	439
<i>Journal of Applied Crystallography</i>	56
<i>Structure Reports</i>	177
	<u>\$ 1,109</u>

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 1967, 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 1974.

International Union of Crystallography

Acta Crystallographica *Journal of Applied Crystallography*

The Executive Committee of the International Union of Crystallography has found it necessary to increase the yearly subscription rates for *Acta Crystallographica* and *Journal of Applied Crystallography* as from 1 January 1976.

Acta Crystallographica

The following rates will apply for Volumes A 32 and B 32 (1976). All subscription rates are fixed in Danish kroner, and the U.S.dollar equivalents given below are subject to exchange-rate fluctuations.

Complete volumes, regular price per volume

Sections A & B (combined subscription)	D.kr. 1680	(\$280.00)
Section A only	D.kr. 380	(\$ 64.00)
Section B only	D.kr. 1450	(\$242.00)

Complete volumes, reduced price for individuals

Sections A & B (combined subscription)	D.kr. 700	(\$118.00)
Section A only	D.kr. 160	(\$ 27.00)
Section B only	D.kr. 600	(\$100.00)

All subscribers in the U.S.A. and Canada should add to the above subscription rates the additional charges for airfreighting as mentioned below.

The reduced-rate subscriptions are ordinarily only available to members of recognized scientific societies, and applications must be accompanied by a written undertaking that the journal is for the personal use of the subscriber and will not be made available to libraries, institutions, etc.

Single parts

The prices of single parts are as follows:

Vol. A 32	D.kr. 95	(\$16.00)
Vol. B 32	D.kr. 180	(\$30.00)

Journal of Applied Crystallography

The following rates will apply for Volume 9 (1976). All subscription rates are fixed in Danish kroner, and the U.S. dollar equivalents given below are subject to exchange-rate fluctuations.

Complete volumes,
regular price per volume D.kr. 380 (\$64.00)

Complete volumes,
reduced price for individuals D.kr. 190 (\$32.00)

All subscribers in the U.S.A. and Canada should add to the above subscription rates the additional charge for airfreighting as mentioned below.

The same conditions apply to reduced-rate subscriptions as in the case of *Acta Crystallographica* (see above).

Single parts

The price for single parts of Volume 9 (1976) is D.kr. 95 (\$16.00).

Airfreighting of copies to the U.S.A. and Canada

Deliveries of *Acta Crystallographica* and *Journal of Applied Crystallography* to the U.S.A. and Canada in 1976 will continue to be by air freight to New York and thence by second class mail. The use of this service is obligatory for all subscribers in those countries. The charges in Danish kroner remain the same as in previous years, and are as given below.

Acta Crystallographica

Sections A & B (combined subscription)	Add D.kr. 70	(\$12.00)
Section A only	Add D.kr. 20	(\$ 3.50)
Section B only	Add D.kr. 50	(\$ 8.50)

Journal of Applied

Crystallography Add D.kr. 20 (\$3.50)

Since the charges are fixed in Danish kroner, the U.S.dollar equivalents are subject to exchange-rate fluctuations.

Orders

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