

International Union of Crystallography

Report of Executive Committee for 1972

Ninth General Assembly and Congress

The Ninth General Assembly and International Congress of Crystallography was held at the Kyoto International Conference Hall, Kyoto, Japan, 26 August–7 September 1972, by invitation of the Science Council of Japan. A report, including a detailed report of the proceedings of the General Assembly, has been published in this journal [*Acta Cryst.* (1973). A 29, 730–772] and will be sent to the National Committees for Crystallography.

The General Assembly and Congress were attended by 1263 scientists, of which 761 were from Japan and the remainder from 30 other countries. The Congress Discourse by Professor I. Nitta, entitled *Japan's Participation in Research on Crystals*, has been published in this journal [*Acta Cryst.* (1973). A 29, 315–322]. Three General Lectures were presented, *Crystallography and Biology* by D. C. Phillips, *Electron Diffraction and Microscopy in Japan, Past and Present* by R. Uyeda and *Perfect Crystals and Imperfect Neutrons* by C. G. Shull. The latter two lectures are being published in the *Journal of Applied Crystallography* [Uyeda: *J. Appl. Cryst.* (1974). 7, Part 1; Shull: *J. Appl. Cryst.* (1973). 6, 257–266]. The formal programme included approximately 510 papers. 13 Open Commission Meetings were organized by the Commissions of the Union and several *ad hoc* sessions were also held. All 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 equipment, books and photographs of crystallographic interest were also held and an extensive programme of social events was arranged.

The General Assembly met on the afternoon of Sunday 27 August, the evening of Tuesday 29 August and the morning of Wednesday 6 September. The normal routine business included receipt of the financial report and of the reports of the Executive Committee, the Commissions and Union Representatives on other bodies since the Eighth General Assembly (1959), and the election of new Officers of the Union and members of Commissions. The General Assembly did not accept the Executive Committee's recommendation for a further increase of the unit contribution in 1975. Instead, it set the contribution at \$160 for the years 1973–1975 inclusive. The replacement of the Adhering Bodies in Israel and Switzerland were accepted and the changes of name of the Adhering Bodies in India and the B.R.D. were recognized. The withdrawal of the Adhering Body in Pakistan from 1969 was accepted with regret. Changes were made to the By-Laws of the Union, concerning the quorum and voting procedure of the Executive Committee, the reporting of Executive Committee meetings to National Committees and the availability of funds for Commission meetings.

The greatly improved publication times and the introduction of air-freight deliveries to the U.S.A. and Canada for the journals were welcomed. Recent and future activities intended to speed up the publication of *Structure Reports* were reported, as was the progress with Part IV of *International*

Tables and with the Pilot Issue of the future *International Crystallographic Tables*.

A Working Party on Information Services was set up to examine in depth the questions of publication, storage, retrieval and dissemination of crystallographic information. The proposal to establish a Commission on Electron Distributions was not accepted in its original form. After much discussion, the General Assembly asked the Executive Committee to set up an *ad interim* Commission on Charge, Spin and Momentum Densities for the period to 1975, when the matter would be reconsidered by the Tenth General Assembly.

The invitation from the Netherlands to hold the Tenth General Assembly and Congress in Amsterdam was accepted with pleasure. Professor A. Vos was appointed Chairman of the 1975 Programme Committee.

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

Other Meetings

The Union sponsored the following two meetings held during 1972: Second International Conference on Vapour Growth and Epitaxy, Jerusalem, Israel, 23–25 May (co-sponsored with IUPAP and IOCG); Third International Symposium on the Chemistry of the Organic Solid State, Glasgow, Scotland, 18–22 September.

Executive Committee

The membership of the Executive Committee, including the new members elected by the General Assembly, is as follows:

President: Professor Dorothy Hodgkin (U.K.); Vice-President: Professor H. Jagodzinski (BRD); General Secretary and Treasurer: Professor S. E. Rasmussen (Denmark); Immediate Past President: Professor A. Guinier (France); Ordinary Members: Professor N. Kato (Japan), Dr K. Łukaszewicz (Poland), Professor A. Magnéli (Sweden), Dr A. McL. Mathieson (Australia), Professor D. P. Shoemaker (U.S.A.), Professor B. K. Vainshtein (USSR). Dr J. N. King continues as Executive Secretary.

Publications

In 1972, Volume 28 of *Acta Crystallographica* was published; Section A totalled 682 pages and Section B 3676 pages, excluding indexes. In addition, the Congress Communicated Abstracts were published as a Supplement (Part S4) to Section A and contained 303 pages. Volume 5 of the *Journal of Applied Crystallography* was also published and contained 448 pages, excluding indexes.

Volume 29 (for 1964) of *Structure Reports* was published in December. A second reprint of Volume II of *International Tables* was also published.

Volume 3 of *Molecular Structures and Dimensions* (Bib-

liography 1969–1971) and the Third Edition of the *Index of Crystallographic Supplies* were also published. The latter was prepared by R. Rudman, on behalf of the Commission on Crystallographic Apparatus, and was distributed *gratis* to subscribers to the Union's journals.

Adhering Bodies

Changes to the Adhering Bodies reported to the Ninth General Assembly have been mentioned above under the report of that meeting. The latest list of Adhering Bodies of the Union and the names and addresses of the Secretaries of the National Committees for Crystallography are given in Table 1. The full list of memberships of National Committees is included in the detailed report of the General Assembly and Congress, which has been published in this journal [*Acta Cryst.* (1973). A29, 730–772].

Work of the Commissions

Commission on Journals

During 1972 the Commission on Journals produced Volume 28 of *Acta Crystallographica* and Volume 5 of the *Journal of Applied Crystallography*. The enlarged staff in the Technical Editor's office and the move of the printers to larger premises, mentioned in the report of the Commission for 1971, have contributed to an acceleration in the rate of publication of the journals. During 1972 the backlog of unpublished papers has been entirely cleared, with the result that this volume of *Acta Crystallographica* contains the largest number of pages published in one year. The regular issues of Section A and of the *Journal of Applied Crystallography* show a slight drop in comparison with 1971. This elimination of the backlog has produced a gratifying reduction in the time required for publication; it will mean, however, that the size of future issues of the journals is likely to fluctuate considerably more than it has in the past, as there will be no reservoir from which to even out variations in the rate at which papers are submitted. An analysis of the contents of *Acta Crystallographica* for the last six years and of the *Journal of Applied Crystallography* for the last five years is given in Table 2.

The Report of the Commission for 1970 mentioned indications that the number of structural papers offered to *Acta Crystallographica* had begun to decrease. This apparent trend has not been maintained, and in fact 1972 has shown similar suggestions of an upward turn. During 1972 the Commission has instituted a scheme for Short Structural Papers [*Acta Cryst.* (1972). B28, 2878–2885, 2888, 3668–3670], and it is hoped that this scheme will result in the publication of many more structural papers without substantial increase in the size of the journal. The increased volume of Section B has necessitated a moderate increase in subscription rate for 1973; the subscription rates for Section A and for the *Journal of Applied Crystallography* have not been increased.

Subscribers in the United States and Canada will in future receive their journals by air-freight following their request. This involves a small surcharge to subscribers in these countries, but it is expected that the quicker delivery of the journals will be generally welcomed.

In spite of the developments described above, the Commission is concerned about the time interval required for publication by current methods, and about the high

cost of, in particular, Section B. It has therefore set up two Working Groups, on Production Methods and Publication of Structures respectively, to consider other methods of publication and to make recommendations to the Commission and the Executive Committee if any changes appear to be advantageous.

A new set of 'Notes for Authors' was approved by the Commission in the course of its meetings in Kyoto, and appeared in the first 1973 issue of each journal [*Acta Cryst.* (1973). A29, 97–108, B29, 145–156; *J. Appl. Cryst.* (1973). 6, 46–57].

Commission on Structure Reports

The year 1972 has seen a major reorganization in the set-up for producing *Structure Reports*. This has arisen from the resignation of W. B. Pearson as General Editor and the appointment of J. Trotter as his successor. In practice, Dr Pearson is still very much involved, in that he has retained responsibility for producing all the volumes up to and including Volume 35 (for 1970). Professor Trotter is concerned with producing volumes from 1971 onwards, on as near a current basis as possible. This division of effort should enable the backlog to be overcome, while maintaining work on current volumes.

The new General Editor met with the Executive Committee in Kyoto. The Commission held one formal and several informal meetings and participated in the Open Commission Meeting on Crystallographic Data and Documentation.

Volume 29 (1964) was published in December. Work is proceeding on all volumes, up to and including the current literature. Several older volumes are still held up by the non-arrival of long-promised manuscripts, but effort on these has been increased, and the manuscripts will probably be completed in 1973.

Recent manuscripts have become so large that the oft-proposed splitting into two parts, Metals/Inorganic and Organic, seems opportune. The 1968 and 1970 Organic Sections are now almost completely typed for photo-offset printing, and the 1966 and 1967 Organic Sections are being typed. The Metals Sections of these volumes are also typed or being typed, but will be held up by the non-availability of the Inorganic manuscripts.

Commission on International Tables

1. Present Edition

Volume IV of the present edition, *Revised and Supplementary Tables*, is now with the printers and will be published in 1974. A second reprint of Volume II, *Mathematical Tables*, was published in 1972.

2. Pilot Issue for Series A (Symmetry Tables)

Part 1 (Direct Space) and Part 2 (Reciprocal Space) were published just before the Ninth International Congress in Japan in August, 1972. Part 3 (Pattern Data) was published in 1969. Part 4 (Synoptic Tables) was due to be published by the end of 1972, but has suffered some delay. [It was published in March 1973.] Progress is being made with Part 5 (Generalized Symmetry) and Part 6 (Physical Properties in Symmetric Media) which will complete the programme of the Pilot Issue.

The Commission asks all recipients of the Pilot Issue to help by sending in comments and criticisms: the evaluation of these responses will be of great assistance in the planning of the new edition that is envisaged for the future.

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 Científicas y Técnicas	L. BECKA, Departamento de Física, Facultad de Ciencias Exactas, Universidad Nacional de La Plata, Calle 115 y 49 CC 37, La Plata
Australia	III	Australian Academy of Science	J. DEEBLE, Australian Academy of Science, P.O. Box 216, Civic Square, Canberra, A.C.T. 2068
Austria	I	Österreichische Akademie der Wissenschaften	J. ZEMANN, Mineralogisches Institut der Universität, Dr. Karl Lueger-Ring 1, 1010 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. R. FRANCO, Conselho Nacional de Pesquisas, Avenida Marechal Camara 350, Rio de Janeiro, G.B.
B.R.D. (Federal Republic of Germany)	IV	Arbeitsgemeinschaft Kristallographie	H. WONDRA TSCHKEK, Institut für Kristallographie der Universität, Kaiserstrasse, 7500 Karlsruhe
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-WITTKKE, 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	Deutsche Vereinigung für Kristallographie der Deutschen Gesellschaft für Geologische Wissenschaften	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 Tiedeakatemia	P. PAALASSALO, Wihuri Physical Laboratory, University of Turku, 20500 Turku 50
France	IV	Académie des Sciences (Institut de France)	A. AUTHIER, 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	P. T. BEURSKENS, Laboratorium voor Kristallografie, Toernooiveld, Nijmegen
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 Científicas	S. GARCÍA-BLANCO, Instituto de Química Física 'Rocasolano', Consejo Superior de Investigaciones Científicas, 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. L. KEHL, Gulf Research and Development Co., P.O. Box 2038, Pittsburgh, Pa. 15230
USSR	V	Akademija Nauk S.S.S.R.	V. I. SIMONOV, Institute of Crystallography, Leninsky pros- pekt 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.

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
22 & 23	1967	2076	315	5·85	97	1·30	–	–
A 24 } B 24 }	1968	714 } 1706 } 2420	108 } 251 } 359	6·37 } 6·72 } 6·62†	27 } 62 } 89	1·25 } 1·44 } 1·38†	–	–
A 25 } B 25 }		1969	1027 } 2672 } 3699	120 } 355 } 475	6·11 } 7·17 } 6·91	25 } 74 } 99	1·24 } 2·01 } 1·81	–
A 26 } B 26 }	1970		702 } 2138 } 2840	112 } 301 } 413	6·04 } 6·80 } 6·59	32 } 54 } 86	1·66 } 1·76 } 1·72	–
A 27 } B 27 }		1971	700 } 2494 } 3194	103 } 367 } 480	6·28 } 6·60 } 6·39	24 } 67 } 91	1·42 } 1·30 } 1·33	–
A 28 } B 28 }	1972		985 } 3676 } 4661	107 } 584 } 691	5·94 } 6·07 } 6·05	35 } 75 } 110	1·23 } 1·53 } 1·44	–
								4

Journal of Applied Crystallography

Vol.	Year	Number of pages*	Articles		Short Communications		Crystal Data	
			Number	Average length	Number	Average length	Number	Average length
1	1968	330	54	5·60	7	1·39	–	–
2	1969	312	50	5·44	11	1·45	3	1·42
3	1970	552	79	6·06	26	1·77	2	1·13
4	1971	534	74	5·61	23	1·74	8	1·25
5	1972	448	69	4·93	27	1·56	12	1·25

* Excluding indexes.

† For the first time the number of plate-pages was included in the number of pages per paper.

‡ Volume A 25 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 A 28 includes 303 pages of abstracts communicated to the Kyoto Congress.

3. Computer Trial Project

This work is being carried out at Groningen by D. S. Fokkema, who maintains close contact with the Chairman of the Commission. The project is directed towards computer calculation of the data for the future edition of *International Crystallographic Tables* including automatic type-setting. So far the following programs have been finished:

- (1) Calculation of general positions from the generators of the space group.
- (2) Calculation of special positions.
- (3) Calculation of 'general positions with special coordinates'.
- (4) Calculations of systematic absences for the positions mentioned under (1) to (3) above.

The work is being continued with the computation of the symmetry of special projections and sections and of the point symmetry of special positions. Reports on the progress of the project are submitted by Mr Fokkema on a quarterly basis.

4. Meetings of the Commission

During the Ninth International Congress the Commission held three closed and one Open meeting. In the closed meetings the future work of the Commission was discussed, especially with respect to the planning of the new edition of *International Crystallographic Tables*. In the Open Commission Meeting the Pilot Issue of *International Tables*, in particular Parts 1 and 2 which had appeared just before the Congress, was introduced and discussed by a number of speakers.

Commission on Crystal Growth

The Commission did not meet officially, but several old and new members had the occasion, at a meeting in Tsakhkadzor (USSR) in September, to discuss the programme of the Second International Spring School on Crystal Growth, to be held in Japan in 1974.

New activities were not undertaken whilst the existing ones progressed slowly.

Commission on Crystallographic Apparatus

In the period prior to the Ninth General Assembly and International Congress, the Commission published the third edition of the *Index Crystallographic Supplies* (edited by R. Rudman): the *Index* contains a detailed current listing of apparatus, manufacturers and suppliers, and copies are available from Oosthoek Publishing Company Domstraat 5-13, Utrecht, The Netherlands or from Polycrystal Book Service, P.O. Box 11567, Pittsburgh, Pa. 15238, U.S.A. The Single-Crystal Radiation Damage Survey was completed, and the final Report was accepted by the Commission at Kyoto and submitted for publication [S. C. Abrahams (1973). *Acta Cryst.* A29, 111-116]. Experimental data were submitted by four laboratories for inclusion in Phase II of the Single-Crystal Intensity Measurement Project (A. McL. Mathieson). A total of more than twenty laboratories have agreed to participate in the Project for Calibration of Absolute Intensities in Small-Angle X-ray Scattering (R. W. Hendricks).

The Commission met twice in person during the period of the Congress, and also sponsored four Open Commission Meetings on: 'Techniques for Simultaneous Measurement of Many Reflexions and Related Topics', 'X-ray Film and Automatic Densitometry: Hardware and Software', 'Reports on the Single-Crystal Radiation Damage Project and on the Single-Crystal Intensity Measurement Project-Phase II' and jointly with the Commission on Crystallographic Computing on 'Interactive Displays for Generating Atomic Models'. Commission consultant R. Kiriya organized the Exhibits on Non-Commercial Apparatus and on Photographs of Crystallographic Interest at the Kyoto International Conference Hall.

The Commission appointed for the term 1972-1975 decided on the following items for study and possible action:

1. *Project on the Accuracy of Intensities Determined Microdensitometrically* (U. W. Arndt). The project is designed to determine the accuracy of microdensitometrically measured integrated intensities, since this method is entering routine use in a steadily increasing number of laboratories.
2. *Single-Crystal Radiation Damage Project - Phase II* (R. Rudman and S. C. Abrahams). A continuation of Phase I is proposed, in which a small number of individual laboratories will be asked to determine the magnitudes of intensity changes, as a function of radiation exposure, in materials representative of those most commonly studied crystallographically.
3. *Powder Intensity Project* (P. Suortti). An extension and reformulation of the first powder intensity project of the Commission [*Acta Cryst.* (1969). A25, 217-222], in which errors of about 5% in integrated intensity were found, will be considered.
4. *Conference on Anomalous Scattering* (S. Ramaseshan, M. Font-Altaba, U. W. Arndt and S. C. Abrahams). A specialist inter-Congress meeting is planned to be held in Madrid, Spain, 22-26 April 1974, on problems in anomalous scattering of X-rays, neutrons and electrons.
5. *Small-Angle X-ray Scattering Absolute Intensity Project* (R. W. Hendricks). This project, using glassy carbon and polystyrene standards, is now in progress. Calibrations of these specimens have now been performed in more than 10 laboratories. The results of the first round of experiments will be reported in September 1973 at the Third International Conference on Small-Angle X-ray Scattering, Grenoble, France.
6. *Phase II of the Single-Crystal Intensity Measurement Project* (A. McL. Mathieson). The experimental results developed by this project will be analysed and presented in a Commission Report.

Commission on Crystallographic Computing

Five members of the Commission and three consultants met twice during the period of the Congress to plan the Commission's future work. Two Open Commission Meetings, on the topics 'Data Storage, Search, Retrieval, and Publication' and 'Interactive Displays for Generating Atomic Models', were held conjointly with other Commissions. At the request of a number of crystallographers, an *ad hoc* meeting was held on the topic 'Crystallographic Computing Developments: Regional Exposés and Small Computer Potentials'. The success of these meetings was due to a large extent to the good planning of the Organizing Chairmen and to the very efficient work of the Japanese Organizing Committees of the Congress.

The major decisions taken at the closed business meetings were: (1) to continue with the preparation of additional standard tests for crystallographic computer programs; (2) to pursue the collection of additional information about existing crystallographic computer programs; (3) to organize an International Summer School on Crystallographic Computing for 1975, to be held somewhere in Europe (preferably Czechoslovakia) prior to the Tenth Congress; and (4) to circulate yearly informative letters among the members and consultants of the Commission.

Part I of the Standard Tests for Crystallographic Computer Programs was published in *Acta Crystallographica* [*Acta Cryst.* (1972). A28, 365-393]. The Third Edition of the *World List of Crystallographic Computer Programs* was accepted for publication in the *Journal of Applied Crystallography* [*J. Appl. Cryst.* (1973). 6, 309-346].

Commission on Crystallographic Data

The principal business of the Commission during 1972 took place at the Ninth Congress. Two business sessions were held and two Open Commission Meetings; one on Powder Data, the other on Data Storage, Search, Retrieval and Publications. The latter was organized jointly with the Commissions on Crystallographic Computing, Journals and *Structure Reports*.

The Commission discussed standards of publication of data in non-Union journals and it was suggested that an appropriate check list be circulated to editors of various journals which publish crystallographic data. Particular concern was expressed at the growing practice of depositing atomic coordinates and it was agreed that this should be discouraged.

In view of the proliferation of data services and com-

pendia it was decided that a list of such items be prepared and submitted for publication by the Union and CODATA. This problem has been recognised by the Executive Committee and a Working Party on Information Services has been established. The Commission has been urged to communicate its views to this group.

The activities of the sub-committee on structure-factor storage were terminated in 1972 since the Executive Committee decided to institute a voluntary deposition scheme.

Commission on Crystallographic Nomenclature

The Commission has held no meetings during the year, though some members had informal discussions during the Kyoto Congress. Through its Chairman, the Commission has participated in the work of the Joint (with the International Mineralogical Association) Sub-committee on Nomenclature.

Commission on Crystallographic Studies at Controlled Pressures and Temperatures

An informal meeting was held in July to consider possible future projects and tasks for the Commission. Professor Foex was elected Chairman and the size of the Commission was increased to six elected members and three *ex officio* members (the Chairmen of the Commissions on Crystallographic Apparatus, Electron Diffraction and Neutron Diffraction).

The Proceedings of the meeting on 'Studies of crystalline transformations at high temperatures' (Odeillo, France, 1971) were published by C.N.R.S. in 1972. An up-dated bibliography by J. P. Traverse, on diffraction of X-rays at high temperatures, will be published in the *Revue Internationale des Hautes Températures et des Réfractaires*.

The Commission plans to prepare special articles on crystallographic studies at (i) high pressures, (ii) high temperatures and (iii) low temperatures. Contacts have been established with the IUPAC Commission on High Temperatures and Refractory Materials, with the intention of improving cooperation, particularly on the use of crystalline transformation points as calibration standards.

Commission on Crystallographic Teaching

The work of the Commission during 1972 has largely been dominated by the Congress and the meetings which took place there. However, the following additional activities can be reported:

1. The publication of *Laboratory Manual of Crystal Growth* by I. Tarján and M. Mátrai under the UNESCO Pilot Project on the Teaching of Crystallography in relation to the Physics and Chemistry of Solids.
2. The publication of Dr E. A. Wood's book *Crystals - a Handbook for School Teachers* which has been warmly received and is now being translated by various members of the Commission into the languages of their countries.
3. Preparation by the Secretary of a list of summer schools.

Regrettably, no papers were submitted for the Congress under the heading 'Teaching'. This might be explained by the rule that a Congress participant could submit only one abstract, although his name could appear as a co-author in abstracts submitted by other participants. Because of the high expenses involved, many large research schools were represented by very few participants who preferred to submit a paper more representative of their research interests. About 80 people attended the Open Commission Meeting

when 8 papers were presented on topics ranging from teaching at school to teaching crystallography for technicians, chemists and biologists.

Various suggestions for future Commission activities are being studied, including:

1. The possibility of planning a joint meeting with local school-teachers during the next Congress.
2. The possibility of planning a summer school on crystallographic teaching in Europe either just before or just after the next Congress.
3. Renewed attempts to produce an international film list.
4. Exploration of the possibility of publishing a set of short papers in a standard format dealing with a specific technique or a method of teaching a particular topic at a particular level. Short papers of 6-8 pages are envisaged in the hope that busy experts might find the time to contribute.
5. Continued exploration of efforts to improve communications between our Commission and the large number of crystallographers interested in teaching and also with the Teaching Commissions of other Unions.

Commission on Electron Diffraction

The Commission held three Open Meetings, one on gas electron diffraction (GED) and two on LEED, during the Ninth Congress. The first one was very successful in reinforcing the good existing cooperation in the field. The meetings on LEED gave an encouraging prospect for development of 'atomic structure analysis' of surfaces. Reports of excellent work on HEED in connexion with electron microscopy were presented in the five Frontier Topics suggested by the Commission and in some other Topics, proving that this is a very important and wide-spread field of crystallography.

The question of cooperation within the three sub-fields of electron diffraction, each of which has a special activity, was discussed in the formal and informal meetings of the Commission and at private talks during the Congress. It was eventually concluded, however, that the present method of having the unified Commission was the best, since the three fields have common basic problems such as multiple-scattering effects and interesting future joint problems such as 'macromolecules and small particles'.

To improve the past drawback that the GED field was liable to become isolated from the others and from crystallography, one more member was added to the new Commission so that the Commission now consists of a Chairman and 9 members, 3 representing each of the three sub-fields. Professor K. Kuchitsu, who has been appointed Commission Secretary, works in GED.

Commission on Neutron Diffraction

A revised list of neutron scattering amplitudes has been published by the Commission [*Acta Cryst.* (1972). A28, 357-358]. The Magnetic Structure Data Sheet Project has been put into operation; the first set of data sheets and binders have been mailed to those participating in the service. Work continues on the analysis of measurements obtained in the Commission's Spectrometer Evaluation Project.

Ad interim Commission on Charge, Spin and Momentum Densities

The Ninth General Assembly requested the Executive

Committee to set up this Commission, *ad interim*, until 1975 when the Tenth General Assembly could review the situation. These formalities were not completed until early 1973.

Sub-Committee on the Union Calendar

Among the aims of the Committee is the encouragement of specialist and regional meetings to distribute opportunities for discussion and relieve pressure on the triennial Congresses of the Union. A number of requests for Union sponsorship and, in some cases, nominal financial support have been received. The Executive Committee approved sponsorship of the following meetings:

1. Symposium on the Structure of Biological Molecules (Stockholm, Sweden, 9–11 July 1973).
2. Sagamore IV (Minsk, U.S.S.R., 13–18 August 1973).
3. Third International Conference on Small-Angle X-ray Scattering (Grenoble, France, 5–7 September 1973).
4. First European Crystallographic Meeting (Bordeaux, France, 5–8 September 1973).
5. Third International Meeting on Ferroelectricity (Edinburgh, Scotland, 10–14 September 1973).
6. Fourth International Conference on Crystal Growth, (Tokyo, Japan, 24–29 March 1974).
7. Second International Spring School on Crystal Growth (Mt. Fuji District, Japan, 31 March–7 April 1974).
8. Anomalous Scattering (Madrid, Spain, 22–26 April 1974).
9. Intra and Inter-Molecular Forces, (Pennsylvania State University, U.S.A., 14–16 August 1974).
10. International Crystallography Conference on Diffraction Studies of Real Atoms and Real Crystals (Melbourne, Australia, 19–23 August 1974).

Organizers of meetings seeking IUCr sponsorship should write to the Chairman of the Sub-Committee, Dr A. McL. Mathieson, Chemical Physics Division, C.S.I.R.O., P.O. Box 160, Clayton, Victoria 3168, Australia.

IUCr-IMA Joint Committee on Nomenclature

The Joint Committee, which contains equal representation from the two international bodies, has conducted its business entirely by correspondence during 1972. Agreement was reached on definitions for epitaxy, syntaxy, topotaxy, and polycrystal. Correspondence is continuing on nomenclature problems concerned with polytypism, in particular standardization of structural symbols to represent polytypes.

Representation on Other Bodies

Abstracting Board of the International Council of Scientific Unions

The ICSU Abstracting Board met in Ustaoset, Norway, 24–28 June 1972, with associated committees meeting on the days before and after. At the closed business session four new members were admitted: France as a member country; and the American Institute of Physics, *Excerpta Medica*, and the U.S. National Library of Medicine as member services. Because of increasing costs and the reduced value of subscriptions expressed in dollars it will be necessary to increase membership dues with effect from 1 January 1975. The next meeting of the Board will be in London in July

1973, in conjunction with the Seventy-fifth Anniversary of the Institution of Electrical Engineers.

The Board has recently become interested in cooperation between primary publications and secondary services, and set up a Joint Working Group in 1971. This Working Group arranged a full-day meeting on 25 June, the morning devoted to general questions of cooperation, and the afternoon to indexing. A small pamphlet produced by this group has been circulated to the Executive Committee of the IUCr and the appropriate Commissions. It plans to hold a two-day conference immediately before the main meetings of the Board in July 1973.

Other activities in Ustaoset were a 'round table' on Education of Scientists in the Use of Information, a discussion on UNISIST, a discussion on 'marketing', and numerous reports from members and observers.

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

The Third International Conference and Sixth Annual Meeting of CODATA, held in Le Creusot, France, 26–29 June 1972, were attended by 180 scientists. There are now 15 National members and 10 Union members of CODATA with membership from 5 more National members and 3 Union members under consideration.

A broader scope in the work of CODATA was noted in that it now included the information and data needs in the areas of geographical and biological sciences, engineering and astronomy. This was reflected in the programme of the Conference where a session was devoted to each of these four topics. Changes to the constitution were discussed to recognize the importance of systematically organized collections of measurements and observations, much of which are in non-numerical form, thus decreasing the previous emphasis on numerical data.

An important part of the work of CODATA is carried out by Task Groups which now number six, with several others under consideration. Developments relevant to the IUCr were reported by the Task Group on Computer Use in the formation of a roster of about fifty persons, throughout the world, capable and willing to give advice on the use of computers for the collection, organization, checking and publication of data. A symposium sponsored by this group is planned for 1973, to be held in Western Europe. The experience of the IUCr in this area, as transmitted by Dr O. Kennard, has proved helpful to this group. The Task Group on Presentation of Data in the Primary Literature reported the publication of *A Guide to Procedures for the Publication of Thermodynamic Data* [*CODATA Newsletter*, 8, 4 (May 1972)], which it hoped would be a model which would stimulate action by others concerned with good practice in this area. Publications of the IUCr relevant to this work were drawn to the attention of the Chairman of this group.

The importance of publicity as related to the distribution of data compilations was emphasized by several speakers. The growing tendency to make data programs self-supporting brings a new appreciation to marketing of the product. Awareness of data compilations is necessary before their usefulness can be appreciated. It is now becoming vital to the continuation of the work from a financial point of view. The necessity was noted to bring to data compilation a recognition of the importance of the function giving status and financial reward commensurate with this importance.

To strengthen the link between the Unions and CODATA, it was decided to recommend to the Unions that they recognize the importance of data by designating someone, preferably at the executive level, to have responsibility in this area. IUCr was mentioned as one of the few Unions which has already taken action in this regard.

Papers of specific interest to IUCr included one by F. M. Richards, concerning an atlas of protein structures using stereo-projections, and one by F. Dubois, on computer representation of numerical and graphic data, which suggested applications in several areas including chemical structure.

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

1. Preparations for the Conference on the training of teachers for integrated science to be held at the University of Maryland during the spring of 1973.
2. Preparations for the Workshop on Educational Technology to be held in Paris in September 1972.
3. Discussions with UNESCO on the preparation of *New Trends in Integrated Science*, Volume II.

Preparations for the Maryland Conference went extremely well and the response from participants and sponsors has all been encouraging. The Workshop on Educational Technology was extremely successful and the proceedings are to be published by UNESCO. Volume II of *New Trends in Integrated Science* contains only commissioned articles. All of them were ready in time and the volume will be published by UNESCO in the middle of April 1973.

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

The activities of the Commission during 1972 were limited almost entirely to the consideration of sponsorship of conferences. During 1972, in addition to the seven conferences listed in the report for 1971, two more conferences were held with IUPAP sponsorship.

1. International Conference on the Application of the Mössbauer Effect, (Ayeleth Hashahar, Israel, 28–31 August).
2. First International Conference on Modulation Spectroscopy, (Tucson, U.S.A., 23–26 November).

For 1973, sponsorship with financial aid has been approved for:

1. Fourth International Conference on Solid Compounds on Transition Elements, (Geneva, Switzerland, 9–13 April).
2. Lattice Defects in Ionic Crystals, (Ile de Bendor, France, 2–7 July).
3. Sagamore IV: Electronic Charge, Spin and Momentum Densities, (Minsk, U.S.S.R., 13–18 August), co-sponsored with the IUCr.
4. Fifth International Conference on Internal Friction and Ultrasonic Attenuation, (Germany, 27–30 August).
5. First Specialized Ampère Colloquium: Nuclear Magnetic Resonance in Solids, (Krakow, Poland, 28 August–1 September).
6. Third International Meeting on Ferroelectricity, (Edinburgh, Scotland, 10–14 September), co-sponsored with the IUCr.

Organizers of future meetings concerned with solid-state physics are reminded that requests for sponsorship from IUPAP should be made at least 18 months in advance to the Secretary of the Commission.

The newly appointed Chairman of the Commission on the Solid State is the ex-IUCr representative, Professor E. F. Bertaut. The new Secretary is Dr G. Szigeti (Research Institute for Technical Physics, Hungarian Academy of Sciences, Postfach 76 – Ujpest 1, Budapest IV, Hungary).

Conference Committee of the European Physical Society

During the year 1972 the Union's representative, Dr A. Linek, followed the aims of this Committee to organize the meetings of the European physicists in the best possible way. Concerning the EPS meetings he attempted to prevent any possible clashes in dates of meetings which were of interest simultaneously to physicists and crystallographers.

International Organization for Crystal Growth

No IOCG council meetings occurred in 1972. The IOCG and the IUCr are sponsoring and are involved in the organization of the Second International Spring School on Crystal Growth and the Fourth International Conference on Crystal Growth, which will both be held in Japan (see also the Report of the Commission on Crystal Growth).

International Council of Scientific Unions

The Union was represented at the 14th ICSU General Assembly and Executive Committee Meeting, in Helsinki, Finland, 14–21 September 1972 by the Immediate Past President, Professor A. Guinier. The General Assembly adopted revisions to the Statutes and Rules of Procedure. The principle objects of these changes were set out in the Report for 1971. The International Union of Pharmacology was accepted as a Scientific Union member and the International Statistical Institute and the International Society of Soil Science were accepted as Scientific Associates. It accepted the proposal for a 40% increase in dues to be effective from 1 January 1974. It affirmed ICSU's willingness to continue its collaboration with UNESCO into the implementation phase of UNISIST. It approved the proposal for an International Magnetospheric Study and made recommendations to several existing bodies including the Scientific Committee on Problems of the Environment (SCOPE), CODATA, the ICSU Panel for World Data Centres and the Committee on Science and Technology in Developing Countries (COSTED). The Special Committees of ICSU make a major contribution to its activities and absorb a large proportion of its income.

Finances

The audited accounts of the year for the year 1972 are given at the end of this Report. For comparison, the 1971 figures are provided in italics. Negative quantities are indicated by parentheses.

The UNESCO standard rates of exchange, as issued by the ICSU Secretariat, have been used in the preparation of these accounts. As a consequence of the many changes 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 1972 have been translated into U.S. dollars in the Balance

Sheet at the rate issued on 1 January 1973. For each of the Income and Expenditure Accounts, transactions have been translated into U.S. dollars by applying the standard rates of exchange appropriate to the individual dates of these transactions.

As a consequence of these changes in exchange rates, a loss has arisen on the assets of the Union in terms of U.S. dollars, amounting to \$13996. This loss has been divided amongst the nine Fund Accounts with credit balances, in direct proportion to the balances on these accounts at 31 December 1972.

The *Acta Crystallographica* account for 1972 shows a deficit of \$14694 as compared with a profit of \$46967 in 1971. This deficit is primarily due to the increase in publication and editing expenses, resulting from publication of the backlog of articles and also rising costs. 4358 pages were published in 1972, excluding indexes and the Supplement containing the Congress Abstracts, as compared with 3194 pages in 1971. The number of subscriptions received in 1972 was slightly lower than the number received in 1971. As in previous years, the total cost of the Technical Editor's office is divided between the *Acta Crystallographica* and the *Journal of Applied Crystallography* accounts in percentages based on the number of text pages published during the year; 91% and 9% respectively for 1972. The journals accounts have also been charged with administrative expenses as shown in the General Fund.

The *Journal of Applied Crystallography* account shows a profit of \$9307, as compared with a profit of \$2726 in 1971, resulting from an increase in subscription rates for 1972. The number of subscribers decreased from 1230 in 1971 to 1211 in 1972.

The *Structure Reports* account shows a deficit of \$24539 as compared with a deficit of \$4265 in 1971. This deficit is due to the very high editorial activity undertaken with the intention of publishing *Structure Reports* more quickly. Considerable editorial work continued on many volumes and editorial expenses totalled \$30719 in 1972 as compared with \$11273 in 1971.

The *International Tables* account shows a deficit of \$8518 as compared with a profit of \$6640 in 1971. Volume II was reprinted in 1972 and sales were lower than in the previous year. Work continued on the Pilot Issue, Part 4 being printed and distributed in 1972. The Computer Trial Project, initiated in September 1971, continued at a cost of \$6842 as compared with \$1037 in 1971.

\$181 was received from the sale of 20 copies of *Fifty Years of X-ray Diffraction* and \$2051, after payment of royalties, from the sale of 456 copies of *Symmetry Aspects of M. C. Escher's Periodic Drawings*. Volume II of *Early*

Papers on Diffraction of X-rays by Crystals was published in 1972 at a cost of \$14592, in addition to \$432 for expenses in 1971. The sale of 46 copies of Volume I and 183 copies of Volume II yielded an income of \$4014, making the deficit on the fund account \$10578.

The *Molecular Structures and Dimensions* account shows a profit of \$291. The income from the sale of 197 copies of Volume 1, 203 copies of Volume 2 and 582 copies of Volume 3 covered all publication expenses and the resultant excess of income over expenditure (\$5811) was shared between the University of Cambridge and the Union in the ratio 19:1.

The General Fund account shows a profit of \$3116 as compared with a deficit of \$4656 in 1971. Administrative expenses were higher than in 1971 and there were large expenses in connexion with the Ninth General Assembly and Congress, including \$10648 for travel grants. There was also the expense of publishing the third edition of the *Index of Crystallographic Supplies*, which was distributed *gratis* to subscribers to the journals. The Union received an additional \$1000 from UNESCO, and interest from investments and bank accounts was \$20502 as compared with \$13703 in 1971. A further 861 copies of the fourth edition of the *World Directory of Crystallographers* were sold in 1971, yielding a net income of \$2742 and reducing the overall cost of this publication to the Union to \$3255.

In 1972, a profit of \$985 was made on the redemption of £22000 and \$6500 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 \$8364, 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 1972 the Union held investments in government bonds with a total maturity value of £317000, plus \$93500, plus £30000, plus Swiss F18000.

The total of \$62609 with the Banks at the end of the year was represented by £48416 and \$3530 with the Amsterdam-Rotterdam Bank, \$13312 with the First National City Bank, £6860 with the National Westminster Bank Limited, Swiss F52656 with the Union Bank of Switzerland and Yen 259960 with the Dai-Ichi Kangyo Bank Limited. The amounts shown in the Balance Sheet for Debtors and Creditors relate to sums, principally on the publishing accounts, due at 31 December 1972. Where appropriate these amounts have now been settled.

The Balance Sheet shows that the assets of the Union have decreased during the year from \$397079 to \$339700, excluding stocks of unsold publications.

General Fund Account for the year ended 31 December 1972

	U. S. Dollars		U. S. Dollars	
	1972	1971	1972	1971
Subscription to ICSU (2½% of subscriptions received from Adhering Bodies in 1971)	362	242	6,250	5,250
Subscription to ICSU Abstracting Board	100	100	240	264
Subscription to ICSU Committee on the Teaching of Science	200	200	13,200	13,000
Administration Expenses:			18,016	10,108
Honoraria: General Secretary, Treasurer and Secretarial Assistance	1,303	1,368	2,486	3,595
Audit and Accountancy Charges	2,113	960	985	649
Legal Fees	787	1,298		
Taxation Advisory Services	1,056	—		
Postages, Stationery, Printing and Sundries	621	687		
Travelling Expenses	1,182	97		
Bank Charges and Differences on Exchange	1,314	832	2,742	8,520
Executive Secretary's Office: Salary and Expenses	16,827	15,045		
Depreciation of Office Equipment	576	595		
Meeting of Executive Committee	—	20,882		
Eighth General Assembly: Printing of Report	—	4,215		
Ninth General Assembly and International Congress, Kyoto, Japan: Executive Committee	9,557	1,439		
Travel Grants	10,648	—		
Programme Committee	31	—		
Expenses of Commissions	348	3,202		
Travel Expenses of IUCr	—	—		
Representatives on Other Bodies	561	234		
Expenses of Commission Meeting	—	1,194		
Sponsorship of Meetings	383	3,093		
Index of Crystallographic Supplies: Cost of Printing	2,550	—	6,000	4,800
Distribution and Postage	546	—	2,000	1,600
Less Income from Advertisements	3,096	—	240	240
World Directory of Crystallographers 4th Edition:	1,803	—		
Cost of Printing	—	11,941		
Editorial Honorarium and Other Expenses	—	2,558		
Cost of Printing Bibliography 4	—	14,499		
Excess of Income over Expenditure carried to Balance Sheet	—	3,656		
	3,116	(4,656)		
	<u>\$ 52,378</u>	<u>\$ 48,300</u>	<u>\$ 52,378</u>	<u>\$ 48,300</u>

The attached notes form an integral part of these accounts.

Structure Reports Account for the year ended 31 December 1972

	U.S. Dollars	
	1972	1971
Publication Expenses:		
Printing and Binding Volume 27	24,594	—
Binding additional copies	625	593
Typing of Manuscripts	1,751	—
Editorial Expenses:	26,970	593
Salary and Honoraria: Editors, Abstractors and Assistants	30,213	10,913
Office and Travelling Expenses	383	236
Depreciation of Office Equipment	123	124
	<u>30,719</u>	<u>11,273</u>
	<u>\$ 57,689</u>	<u>\$ 11,866</u>
Sales of copies of Volumes 8-26	4,675	5,165
Volume 27	34,463	—
Ten-year Sets	1,116	4,190
	<u>40,254</u>	<u>9,355</u>
Less Publisher's Commission on Sales	7,104	1,754
	<u>33,150</u>	<u>7,601</u>
Excess of Expenditure over Income carried to Balance Sheet	24,539	4,265
	<u>\$ 57,689</u>	<u>\$ 11,866</u>

International Tables Account for the year ended 31 December 1972

	U.S. Dollars	
	1972	1971
Publication Expenses:		
Printing and Binding Reprint of Volume II	6,080	—
Binding additional copies	999	1,550
Editorial Expenses:	7,079	1,550
Travelling Expenses	246	368
Depreciation of Office Equipment	207	230
Pilot Issue:	453	598
Printing and Distribution	2,177	—
Travelling Expenses	34	333
Geneva Meeting	725	2,282
Miscellaneous Expenses	182	285
Computer Trial Project:	3,118	2,900
Salary	5,140	829
Travelling Expenses	1,559	208
Miscellaneous Expenses	103	—
	<u>6,842</u>	<u>1,037</u>
	<u>\$ 17,492</u>	<u>\$ 6,085</u>
Sale of copies of Volumes I, II and III	12,410	16,879
Less Publisher's Commission on Sales	3,436	4,154
	<u>8,974</u>	<u>12,725</u>
Excess of Expenditure over Income carried to Balance Sheet	8,518	(6,640)
	<u>\$ 17,492</u>	<u>\$ 6,085</u>

The attached notes form an integral part of these accounts.

Fifty Years of X-ray Diffraction Account for the year ended 31 December 1972

	U.S. Dollars	
	1972	1971
<i>Excess of Income over Expenditure carried to Balance Sheet</i>		
	181	299
	<u>\$ 181</u>	<u>\$ 299</u>
	220	362
	<u>39</u>	<u>63</u>
	<u>\$ 181</u>	<u>\$ 299</u>
	2,051	1,010
	<u>\$ 2,051</u>	<u>\$ 1,010</u>
	2,700	1,314
	<u>473</u>	<u>230</u>
	<u>176</u>	<u>74</u>
	<u>\$ 2,051</u>	<u>\$ 1,010</u>

Escher Drawings Account for the year ended 31 December 1972

	2,051	1,010
	<u>\$ 2,051</u>	<u>\$ 1,010</u>
	2,700	1,314
	<u>473</u>	<u>230</u>
	<u>176</u>	<u>74</u>
	<u>\$ 2,051</u>	<u>\$ 1,010</u>

Early Papers Account for the year ended 31 December 1972

Publication Expenses:		
Printing Volume II	13,761	—
Editorial Expenses:		
Editorial Honoraria	400	—
Travelling Expenses	172	—
Preparation of Manuscript and Sundry Expenses	<u>259</u>	<u>432</u>
	<u>\$ 14,592</u>	<u>\$ 432</u>
	550	1,298
	<u>4,315</u>	<u>—</u>
	<u>4,865</u>	<u>1,298</u>
	851	1,071
	<u>10,578</u>	<u>(639)</u>
	<u>\$ 14,592</u>	<u>\$ 432</u>

Molecular Structures and Dimensions Account for the year ended 31 December 1972

Publication Expenses:		
University of Cambridge	3,795	6,828
Carriage Charges	184	—
Advertising Expenses	<u>66</u>	<u>6,828</u>
Administration Expenses	475	240
<i>Excess of Income over Expenditure for the year:</i>		
University of Cambridge	5,520	1,615
IUCr carried to Balance Sheet	<u>291</u>	<u>538</u>
	<u>\$ 10,331</u>	<u>\$ 9,221</u>
	2,333	6,311
	<u>1,875</u>	<u>4,866</u>
	<u>8,314</u>	<u>—</u>
	<u>12,522</u>	<u>11,177</u>
	2,191	1,956
	<u>10,331</u>	<u>9,221</u>
	<u>\$ 10,331</u>	<u>\$ 9,221</u>

The attached notes form an integral part of these accounts.

**Notes on the Accounts
for the year ended 31 December 1972**

1. Accounting Policies

(a) Rates of Exchange

UNESCO standard 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 1972 have been translated into U.S. Dollars in the Balance Sheet at the rates issued on 1 January 1973. These are as follows compared with the U.S. Dollar:

	1972	1971
Netherlands Guilders	3.24	3.20
Danish Crowns	6.88	7.00
Pounds Sterling	0.426	0.386
Swiss Francs	3.80	3.84
Japanese Yen	301.00	—

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 changes in standard rates of exchange following revaluations of currencies during the year have been divided between the nine Fund Accounts with credit balances in direct proportion to those balances at 31 December 1972.

(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	\$ 576
<i>Acta Crystallographica</i>	422
<i>Journal of Applied Crystallography</i>	44
<i>International Tables</i>	207
<i>Structure Reports</i>	123
	<u>\$ 1,372</u>

These policies are consistent with those adopted in last year's accounts.

2. Taxation

As an association incorporated in Switzerland, the Union is exempt from Swiss Federal and Geneva Cantonal Tax and from United Kingdom Tax on investment income arising in that country.

Negotiations are continuing with the United Kingdom taxation authorities regarding the remainder of the income arising in the United Kingdom, but it seems reasonably clear that, at 31 December 1972, it is not necessary to provide for any taxation liability on such income in these accounts.

3. Subscriptions

Subscriptions from Adhering Bodies as shown by the General Fund Account represent total subscriptions due for the year 1972.

International Union of Crystallography

Acta Crystallographica

Journal of Applied Crystallography

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

The airfreighting service introduced in 1973 will be continued and is obligatory for all subscribers in the U.S.A. and Canada. The additional charges for this service are as follows:

Acta Crystallographica

Sections A & B (combined subscription)	Add D.Kr. 70 (\$12.50)
Section A only	Add D.Kr. 20 (\$ 3.50)
Section B only	Add D.Kr. 50 (\$ 9.00)

Journal of Applied Crystallography

Add D.Kr. 20 (\$ 3.50)

These charges are fixed in Danish kroner. The U.S. dollar equivalents are subject to exchange-rate fluctuations.

Acta Crystallographica

The Executive Committee of the International Union of Crystallography has found it necessary to increase the yearly subscription rates for *Acta Crystallographica* as from 1 January 1974. The following rates will apply for Volumes A30 and B30 (1974). 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. 1160 (\$205.00)
Section A only	D.Kr. 265 (\$ 47.00)
Section B only	D.Kr. 1000 (\$176.00)

Complete volumes, reduced price for individuals

Sections A & B (combined subscription)	D.Kr. 480 (\$85.00)
Section A only	D.Kr. 110 (\$19.50)
Section B only	D.Kr. 420 (\$74.00)

All subscribers in the U.S.A. and Canada should add to the above subscription rates the charges for airfreighting stated in the preceding section.

The reduced-rate subscriptions are ordinarily only available to members of recognized scientific societies, who must give a written undertaking accompanying their subscription application that the journal is for their personal use and will not be made available to libraries, institutions, etc.

Journal of Applied Crystallography

The prices in Danish kroner for *Journal of Applied Crystallography* remain unaltered. These prices and the U.S. dollar equivalents for Volume 7 (1974) are as follows:

<i>Complete volumes,</i> <i>regular price per volume:</i>	D.Kr. 300 (\$53.00)
<i>Complete volumes,</i> <i>reduced price for individuals:</i>	D.Kr. 150 (\$26.50)

All subscribers in the U.S.A. and Canada should add to the above subscription rates the additional charge of D.Kr. 20 (\$3.50) for airfreighting as mentioned in the first section above.

Sale of earlier volumes at reduced prices

For a limited period only and whilst stocks last, Volumes 1–23 (1948–1967) of *Acta Crystallographica* and Volumes 1–6 (1968–1973) of *Journal of Applied Crystallography* are being offered at special reduced prices. These prices do not include postage.

Acta Crystallographica

Complete set of Volumes 1–23	D.Kr. 1500 (\$265.00)
Complete volumes, price per volume	D.Kr. 70 (\$ 12.50)

Journal of Applied Crystallography

Complete set of Volumes 1–6	D.Kr. 300 (\$53.00)
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The set of the first six volumes of *Journal of Applied Crystallography* is being offered at this special price to encourage new subscribers to this journal. No further reduction is available should a subscriber wish to purchase only some of the volumes in this set.