

International Union of Crystallography

Report of Executive Committee for 1967

Corrigendum

In the *Report of Executive Committee for 1966*, published in *Acta Crystallographica* (1967) **23**, 1115, the following paragraph should be added at the end of the section *Meetings*:

From 24 to 30 July 1966, an International Summer School on 'The Dynamic Theory of Diffraction of X-rays and Electrons' was held in Harmonia, Czechoslovakia. The meeting was organized by the Union's Commission on Crystallographic teaching and was attended by 82 participants from 16 countries and comprised 28 lectures.

Meetings

In 1967, one meeting under co-sponsorship of the Union was held, namely the Anniversary Meeting on Electron Diffraction, 3–5 July, Imperial College, London. The meeting was organized by the Electron and Microscopy Analysis Group of The Institute of Physics and The Physical Society to commemorate the 40th Anniversary of the discovery of electron diffraction, independently by Davisson & Germer and by Thomson & Reid.

The meeting was attended by about 270 scientists including some 50 from outside the United Kingdom. Opening talks were given by Dr L. H. Germer and Sir George Thomson, which were followed by some 40 lectures.

Publications

In 1967, the twelve regular issues (two volumes) of *Acta Crystallographica* were published, and the First Supplement to the *Crystallographic Book List* was mailed free of charge to the subscribers to *Acta Crystallographica*.

In September of the year, the Executive Committee took two important decisions:

- (a) To expand *Acta Crystallographica* into two Sections, to begin with the January 1968 issues. Section A, containing papers on crystal physics, diffraction, and theoretical and general crystallography, would appear every two months, and Section B, on structural crystallography and crystal chemistry, monthly.
- (b) To launch a new journal called *Journal of Applied Crystallography* in April 1968. This journal would be concerned with methods, apparatus, problems and discoveries in applied crystallography. The Sixth General Assembly in 1963 had already approved of the publication of a *Journal of Applied Crystallography*.

In order to ensure maximum cooperation between the journals, the Executive Committee decided to establish a Commission on Journals consisting of the Editorial Boards of both the journals. With the consent of the author, a paper could be rerouted within the Commission from one journal

to the other. The date of receipt would be that on which the paper first reached an editor, even if finally it was published in the other journal.

Adhering Bodies

The latest list of the thirty Adhering Bodies of the Union and of the names and addresses of the Secretaries of National Committees is given in Table 1. Since the publication of the Report of the Seventh General Assembly five memberships of National Committees have changed. Their new memberships are:

Chile: O. WITTKÉ (Chairman), H. CID (Vice-Chairman), I. GARAYCOCHEA.

France: A. HERPIN (Chairman), P. DUCROS and G. VON ELLER (Vice-Chairmen), A. AUTHIER, E. F. BERTAUT, Y. CAUCHOIS, J. CHAPPELLE, J. CLASTRE, R. COLLONGUES, Y. LE CORRE, J. FRIEDEL, A. GUINIER, J. LAVAL, M. MATHIEU, J. MÉRING, TH. PETITPAS, J. PLATEAU, C. RÉRAT, J. WYART.

Germany (Regional Committee): for the B.R.D.: H. O'DANIEL (Chairman), G. BORRMANN, TH. HAHN, E. HELLNER, R. HOSEMANN, A. RABENAU; for the D.D.R.: no change.

Israel: I. MINKOFF (Chairman), M. ISH-SHALOM, Z. KALMAN, J. LIPSON, W. TRAUB.

Switzerland: R. WOODTLI (Chairman), F. LAVES, A. SPICHER, A. STRECKEISEN, M. WEIBEL.

Work of the Commissions

Commission on Journals

The Commission was set up by the Executive Committee as an *ad interim* arrangement, to be reconsidered by the Eighth General Assembly in 1969 (Statute 5.5). Its membership:

A. J. C. WILSON (Chairman, *Acta*; U.K.), A. GUINIER (Co-Chairman, *JAC*; France), H. JAGODZINSKI (*Acta*; Germany), H. LIPSON (*Acta*; U.K.), R. E. MARSH (*Acta*; U.S.A.), S. MIYAKE (*Acta*; Japan), Z. G. PINSKER (*Acta*; USSR), H. P. ROOKSBY (*JAC*; U.K.), D. P. SHOEMAKER (*Acta*; U.S.A.), E. R. WÖLFEL (*JAC*; Germany), P. M. DE WOLFF (*JAC*; Netherlands), J. WYART (*Acta*; France), R. A. YOUNG (*JAC*; U.S.A.) [in early 1968 two more Co-editors were added: R. D. HEIDENREICH (*JAC*; U.S.A.) and R. UYEDA (*JAC*; Japan)].

Commission on Acta Crystallographica

Two volumes of *Acta Crystallographica* (22 and 23) were published during 1967. Between them they contain 2094 pages, somewhat less than in 1965 and 1966. These were, however, swollen for special reasons; 1965 by a change of printers that made it possible to clear up the backlog of accumulated papers, and 1966 by 304 pages of abstracts of papers given at the Seventh Congress in Moscow. The trend of papers submitted for publication is still upwards. A survey of the contents for the last six years is given in Table 2.

Table 1. *Adhering Bodies*

Country	Group*	Adhering body	Secretary of National Committee
Argentina	I	Consejo Nacional de Investigaciones Científicas y Técnicas	MARÍA JIMÉNEZ DE ABELEDO, Laboratorio de Difracción, Comisión Nacional de Energía Atómica, Avenida del Libertador General San Martín 8250, Buenos Aires
Australia	III	Australian Academy of Science	J. DEEBLE, Australian Academy of Science, Gordon Street, Canberra City, A.C.T.
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	R. PANKOWSKI-FERN, Institut des Matériaux, U.L.B., 87 Avenue Adolphe Buyl, Brussels 5
Brazil	I	Conselho Nacional de Pesquisas	E. TAVORA, Faculdade Nacional de Filosofia, Av. Pres. Antonio Carlos 40, Rio de Janeiro, G.B.
Canada	III	National Research Council	F. R. AHMED, Division of Pure Physics, National Research Council, Ottawa 7, Ontario
Chile	I	National Committee for Crystallography	I. GARAYCOCHEA, Laboratorio de Cristalografía, Universidad de Chile, Casilla 5487, Santiago
Czechoslovakia	I	Československá Akademie Věd	A. LÍNEK, Institute of Solid State Physics, Československá Akademie Věd, Cukrovarnická 10, Prague 6
Denmark	I	Akademiet for de Tekniske Videnskaber	S. JORGO JENSEN, Aarhus Tandlægehøjskole, Vennelyst Boulevard, Aarhus C
Finland	I	Suomalainen Tiedeakatemia	K. A. MANSIKKA, Wihuri Physical Laboratory, University of Turku, Vesilinnantie 5, Turku
France	IV	Académie des Sciences (Institut de France)	A. AUTHIER, Laboratoire de Minéralogie-Cristallographie à la Sorbonne, 1 Rue Victor-Cousin, Paris 5
Germany	V	Sektion für Kristallkunde of the Deutsche Mineralogische Gesellschaft (B.R.D.), jointly with the Deutsche Vereinigung für Kristallographie of the Deutsche Gesellschaft für Geologische Wissenschaften (D.D.R.)	Not yet settled, and provisionally as follows: (a) for the B.R.D.: H. O'DANIEL, Institut für Kristallographie, Universität Frankfurt, Senckenberg-Anlage 30, 6 Frankfurt/Main (b) for the D.D.R.: H. NEELS, Institut für Mineralogie und Petrographie der Karl-Marx-Universität, Scharnhorststrasse 20, 703 Leipzig
Hungary	I	Magyar Tudományos Akadémia	L. ZSOLDOS, Department of Experimental Physics, L. Eötvös University, Muzeum krt. 6-8, Budapest VIII
India	I	Ministry of Scientific Research and Cultural Affairs	G. N. RAMACHANDRAN, Department of Physics, University of Madras, Alagappa Chettiar College of Technology Buildings, Guindy, Madras 25
Israel	I	Israel Crystallographic Society	J. LIPSON, Department of Metallurgy, Technion, Israel Institute of Technology, Haifa
Italy	III	Consiglio Nazionale delle Ricerche	M. FORNASERI, Istituto di Geochimica, Università di Roma, Città Universitaria, Rome
Japan	IV	Science Council of Japan	R. SADANAGA, Mineralogical Institute, Faculty of Science, University of Tokyo, Hongo, Tokyo
Netherlands	III	Stichting voor Fundamenteel Onderzoek der Materie met Röntgen- en Elektronenstralen	P. M. DE WOLFF, Laboratorium voor Technische Natuurkunde der T. H., Lorentzweg 1, Delft
New Zealand	I	The Royal Society of New Zealand	P. P. WILLIAMS, Chemistry Division, D.S.I.R., Private Bag, Petone
Norway	I	Det Norske Videnskaps-Akademi	S. FURBERG, Kjemisk Institutt C, Universitetet i Oslo, Blindern, Postboks 1033, Oslo 3
Pakistan	I	Pakistan Council of Scientific and Industrial Research	M. M. QURASHI, Defence Science Organization, Government of Pakistan, Ministry of Defence, 21 Victoria Barracks, Rawalpindi
Poland	I	Polska Akademia Nauk	K. ŁUKASZEWICZ, Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Plac Kate-dralny 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	I. LINDQVIST, Department of Agricultural Chemistry I, Royal Agricultural College of Sweden, Uppsala 7
Switzerland	II	Société Suisse de Minéralogie et de Pétrographie	F. H. LAVES, Institut für Kristallographie und Petrographie der E.T.H., Sonneggstrasse 5, 8006 Zürich
U.K.	V	The Royal Society	D. C. MARTIN, The Royal Society, 6 Carlton House Terrace, London S.W.1
U.S.A.	V	National Academy of Sciences - National Research Council	W. PARRISH, Philips Laboratories, Briarcliff Manor, New York 10510

Table 1 (cont.)

Country	Group*	Adhering body	Secretary of National Committee
U.S.S.R.	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 Chemistry, Faculty of Science, Ul. Soc. Revolucije 8, Zagreb

* Adherence to the Union is in one of five Groups I-V, with corresponding voting powers and contributions as set out in Statutes 2·6, 4·5 and 8·4.

Table 2. Survey of the contents of Acta Crystallographica

Vol.	Year	Number of pages	Articles			Short Communications		
			Number	Number of pages	Average length	Number	Number of pages	Average length
15	1962	1324	199	1170	5·88	105	106	1·01
16*	1963	1471*	198	1099	5·55	101	117	1·16
17	1964	1631	242	1406	5·81	127	162	1·28
18 & 19	1965	2172	330	1943	5·89	134	161	1·20
20 & 21†	1966	2273†	287	1751	6·10	118	159	1·35
22 & 23	1967	2094	315	1843	5·85	97	126	1·30

* Volume 16 includes the report of the Rome Congress, involving 198 pages of abstracts.

† Volume 21 includes 304 pages of abstracts of papers presented at the Moscow Congress.

The Commission has not met during the year, but there has been a great deal of activity, first of all in preparing a *Festschrift* in honour of Professor Paul P. Ewald. This will appear on 23 January 1968, his eightieth birthday. As most crystallographers know, Prof. Ewald was the first Editor of *Acta Crystallographica*, and served on this post for twelve years. The preparation of his *Festschrift* has been very much a labour of love for the present Editorial Board. Secondly, it has been decided to publish *Acta Crystallographica* in two Sections, as mentioned earlier. Preparation for this division, and cooperation in the founding of the *Journal of Applied Crystallography*, have involved a great deal of work for the Commission. For the present, Section A will appear every two months on the first day of the month, and Section B monthly on the fifteenth.

Commission on Structure Reports

Although no volumes were published during the year, it has been one of considerable achievement. Vigorous efforts by two Editors have rescued Volumes 22 and 24 which were delayed, so that these are now with the printers. Also, Volume 26 is in print and the remaining portions of Volume 27 should be delivered to the printers during the summer of 1968. The decennial index, Volume 25, only awaits the indexes for Volumes 22 and 24.

To relieve the General Editor, a trial period has been arranged for in which the literature search for papers to be listed for reporting will be undertaken by one of the Co-editors. If this proves to be successful it may lead to a division of the General Editor's responsibilities into two categories: (a) Production and coordination and (b) Lists.

Commission on International Tables

A meeting of the Editorial Committee was held in Aachen, Germany, in April 1967, where more detailed plans were discussed for the production of the pilot edition of the Parts 1-4 of the projected Series A, *Symmetry Tables*. These Parts are:

- Part 1. *Symmetry in Direct Space*
- Part 2. *Reciprocal Space*
- Part 3. *Patterson Space*
- Part 4. *Synoptic Tables*

It was decided to produce these Parts in 1968 and distribute copies to laboratories that will undertake to use the pilot edition and to make comments and give criticisms by the time of the Eighth Congress in 1969. Consultations with the National Committees have resulted in a list of laboratories willing to cooperate.

The Commission will hold open discussions during the 1969 Congress as proposals have been made for the development of new symbolisms. After these discussions and receipt of the reports on the pilot edition, the Commission will be able to start detailed planning for the projected new edition of the *Tables*.

Study of a possible pilot edition for two more Parts has continued:

- Part 5. *Physical Properties in Symmetric Media*
- Part 6. *Generalized Symmetry*.

A detailed plan was drawn up for a Supplement to the existing Volumes II and III, to be published in the same style as these Volumes by the end of 1969. Volume II was reprinted during 1967 with corrections only; Volume III will be available, reprinted with corrections only, in 1968.

Commission on Crystallographic Apparatus

The main activities of the Commission were:

1. *Bibliographies* (E. G. Steward). The third bibliography, on 'Methods of Obtaining Monochromatic X-rays and Neutrons' was printed in the end of the year and will be distributed in January 1968. Two further bibliographies are under preparation, on 'X-ray Diffraction Microscopy' (J. H. Koenig) and on 'Small-Angle Scattering' (M. Renouprez). The method of publication of

bibliographies in relation to the extended publishing activities of the Union is under review.

2. *Single Crystal Intensity Measurement on Diffractometers* (S. C. Abrahams). The results of the first phase of this project, summarized earlier at an Open Session of the Seventh General Assembly, have been incorporated into a report. The first draft was circulated in mid-1967 to all active participants in the project and to Commission members for critical comment. From the resulting active discussion, the report is being prepared for publication in *Acta Crystallographica*.

Discussion of suitable standards for the second phase of this project has also actively continued, a number of measurements being made to assist in a decision.

3. *Powder Intensity Project* (F. H. Herbststein). This project, initiated after discussion at the Seventh General Assembly, has been realized by the supply of standard samples by B. W. Batterman, D. R. Chipman, and L. D. Jennings to a number of participants on an international basis. Results from seven participants have been received so far. Discussion and assessment of the results obtained will constitute a component of the Inter-Congress Meeting in Cambridge, England (see below).
4. *Inter-Congress Meeting on Accurate Determination of X-ray Intensities and Structure Factors* (A. McL. Mathieson). Arrangements for this meeting, which will take place from 24 to 28 June inclusive, 1968, in Churchill College, Cambridge, England, are proceeding satisfactorily. Dr U. W. Arndt is the Commission member handling the local arrangements. Information concerning the meeting, detailed so far in Circular 1 (June 1967) and Circular 2 (December 1967) which included the registration form, was sent to those with particular concern in the subject matter of the meeting. The programme of invited speakers is largely complete. Sir Lawrence Bragg kindly consented to open the meeting.

This specialist meeting has been organized to provide a forum for the thorough discussion of the technical and theoretical factors involved in the subject matter; numerical results obtained by different X-ray methods will be compared and discussed. Because of the restricted number of participants, early publication of the contents of the meeting is regarded as advisable. The proceedings of the meeting will be published in the January 1969 issue of *Acta Crystallographica* Section A (Part 1, Vol. A25).

Commission on Crystallographic Computing

Some further progress has been made towards devising a set of standard test calculations, intended to assist in the checking of individual programs.

It is hoped to organize a Summer School on Crystallographic Computing just before the Eighth General Assembly and Congress in 1969.

Commission on Crystallographic Data

The Sub-Committee on Powder Data met in Cambridge, England, on 6–8 October, to discuss the preparation of a Memorandum on Powder Data. Subsequently, the first draft of the various sections was prepared by individual members and is now being collated by A. J. C. Wilson.

The Commission maintained liaison with the various organizations working on crystallographic data and wishes to report that:

1. The third edition of *Crystal Data* (Organic Volume) is ready for publication by the National Bureau of Standards, U.S.A.
2. The Bibliographic Listing of Organic Structures, published during 1960–1966, was completed by the Crystallography Group, Cambridge, England.
3. The up-dating of the 'Crystal Structural Data for Pyrimidine Derivatives and for Hydrocarbons' is being continued at the Crystallography Laboratory, Pittsburgh, U.S.A.

The recommendations on 'Primary Crystallographic Data' published in *Acta Crystallographica* (1967) **22**, 445, have found widespread acceptance.

Commission on Crystal Growth

The Commission, set up in December 1966, has not met during the year, but work has started by correspondence on (a) exchange of information on activities on crystal growth in the several countries and on monographs in preparation; (b) preparation of a list of scientists working in the field; (c) preparation of a report on subjects that merit study from an experimental as well as a theoretical viewpoint by means of an international inquiry; (d) the preparation of a glossary of terms of crystal growth in four languages; (e) preparation of a list of films on crystal growth.

It is hoped to organize a Topical Meeting during the Eighth Congress in 1969 on the crystallographic aspects of crystal growth, and especially of morphology.

The Commission will try to create a Periodic Summer School of Crystal Growth which has as its object to attract young scientists. Attendants would be chosen and speakers invited by the Commission. The first such Summer School should take place before or after the Eighth Congress in 1969, and the second in Europe in 1971.

Commission on Crystallographic Nomenclature

The Commission has not met during 1967, but has functioned actively by correspondence. The subjects have included the SI system of units, and bracket symbols to denote one or more of, but not all, the faces of the form $\{hkl\}$ or the directions of the zone $\langle uvw \rangle$. The Commission is not yet in a position to make recommendations on either subject, but brings the following matters to the attention of the Union.

The SI system is a particular version of metre-kilogramme-second units that is now being widely advocated. The main difficulty that arises in connection with crystallography is that the ångström is not a standard unit, so that wavelengths and cell dimensions ought to be expressed either in nanometres ($\text{nm} = 10 \text{ \AA}$) or picometres ($\text{pm} = 0.01 \text{ \AA}$).

In discussions of epitaxy, and in particular in concise tabular representations, a need is felt for short symbols to indicate one, any or some of the faces of the form $\{hkl\}$, and the corresponding partial sets of directions. Response to a circular sent out by the Commission favoured $\{hkl\}_x$, the subscript letter or numeral indicating one, some or any, but no agreement was reached on the letters or numerals to be used. The most ingenious suggestion was $\{hkl\}$, which clearly indicates something intermediate between a single face and a complete form.

Commission on Crystallographic Teaching

Good progress has been made with the preparations of the Monograph on Historic Papers (J. M. Bijvoet). Prog-

ress is also being made with two films that are being prepared with a UNESCO subvention: 'Coordination Polyhedra' (A. L. Mackay) and 'Liquid Crystals' (P. Chatelain).

A number of offers of collaboration have been received by the Panel set up by the Commission for the UNESCO Pilot Project on the Teaching of Crystallography in relation to the Chemistry and Physics of Solids. Two projects have been accepted so far and are being realized: (a) Programmed Instruction on Plane Symmetry (C. H. MacGillavry); (b) Atlas of Optical Transforms (C. A. Taylor).

Commission on Electron Diffraction

The Commission met during the Anniversary Meeting on Electron Diffraction in London; the idea of holding such a meeting was initiated by the Commission when it met in Melbourne, 1965. The Anniversary Meeting also marked the 10th anniversary of the Commission, set up by the Fourth General Assembly in Montreal, 1957.

Commission on Neutron Diffraction

The Commission has worked by correspondence on the preparation of an up-to-date list of the coherent scattering amplitudes of elements and isotopes, and preliminary consideration has been given to the collection of data on magnetic form factors.

Representation on other Bodies

Abstracting Board of the International Council of Scientific Unions

The Abstracting Board met in London, 10–12 July 1967, and a full report has been circulated to the Executive Committee and others within the Union who are concerned with matters discussed by the Board. The Board has published studies of abstracting periodicals in physics (reviewed in *Acta Cryst.* (1967), **23**, 873) and of the major journals in physics and chemistry. Although many people are under the misapprehension that *Acta Crystallographica* is a purely structural journal, it in fact ranks rather high among the journals abstracted for physics; in 1964 it provided 249 entries in *Physics Abstracts*, putting it thirtieth (out of about 400) in order of productivity.

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

The membership as given in the previous report (*Acta Cryst.* (1967) **23**, 1115) remains unchanged. The Executive Committee of IUPAP met at Grenoble in October of the year and has agreed with the Commission on sponsorship and financial support for the conferences (a), (b) and (c) below, and on sponsorship alone for (d). Final approval for the conferences (e) and (f) will be discussed at their next meeting (London, 1968). The conferences are: (a) 'Colour Centres in Halides' (Rome, 16–19 September 1968); (b) 'Vacancies and Interstitial Atoms' (Jülich, 23–27 September 1968); (c) 'Science and Technology of Non-metallic Crystals' (New Delhi, 13–17 January 1969); (d) 'Crystal Growth' (Birmingham, 15–19 July 1968); (e) 'Fracture' (Brighton, April 1969); (f) 'Luminescence' (Zürich, 1969).

Crystallographers are invited to propose to the Commission topics of mutual interest for joint IUCr-IUPAP meetings. As a rule, planned meetings should be announced to potential participants at least one year in advance. Sponsorship (by IUPAP) should not be requested too late.

The policy of the Commission is rather flexible but certainly favours small-sized meetings (less than 150 participants) over large ones (more than 600). The Commission is trying to make rules for the granting of financial and/or moral sponsorship based on the selection of high-standard contributions and on the periodicity of the meetings according to the interest of the topic.

Inter-Union Commission on Science Teaching of the International Council of Scientific Unions

This Inter-Union Commission will hold its first Congress, on the Integration of Science Teaching, in Varna, Bulgaria, 11–19 September 1968. The Secretary of the Commission on Crystallographic Teaching will represent the Union. A suggestion will be discussed regarding the preparation of a short handbook of crystallography, especially written for science teachers at the secondary level who have to introduce some notions of crystallography in their courses of physics, chemistry or geology, without having been trained themselves in crystallography.

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

The second meeting of CODATA was held in Moscow, 31 May–2 June of the year. National and Union Representatives gave reports on the work being carried out in their respective areas. Our Union was particularly commended for the range and extent of its documentation and abstracting services. The meeting also discussed the programme for the First International CODATA Conference to be held in Germany in June 1968, and a contribution on aspects of crystallographic data was included.

International Committee on Crystal Growth

The Committee is proceeding with the preparations for the Second International Conference on Crystal Growth to be held in Birmingham, England, 15–19 July 1968. The relations between the Committee and the Union are being reviewed and it is hoped and expected that a better contact can be established.

International Council of Scientific Unions

The Union was represented at the 7th Executive Committee meeting of ICSU, held 9–10 October 1967 in Rome, by the President, Prof. N. V. Belov. The next Executive Committee meeting of ICSU will be held in Paris, just before and after the ICSU General Assembly to be held there 22–27 June 1968.

Finances

The audited accounts of the Union for the year 1967 are given at the end of this Report. For comparison, the 1966 figures are provided in italics. Negative quantities are indicated by parentheses.

In November 1967 the pound sterling was devalued relative to the U.S. dollar, with an alteration of the standard rate of exchange from \$2.80 = £1 to \$2.40 = £1. The Danish crown was also devalued, though by a smaller proportion, from D.Kr. 6.907 = \$1 to D.Kr. 7.50 = \$1. All transactions in pounds sterling and Danish crowns concerning the post-devaluation period in these accounts have been converted into dollars at the revised rates of exchange. These transactions include the end-of-year settlements with Messrs Munksgaard (*Acta Crystallographica*) and Imperial Metal Industries Ltd, Kynoch Press (*International Tables*).

In terms of dollars, a loss of \$6,362 has arisen on the Union's net holding of sterling assets at 18th November 1967. After allocation of losses directly related to specific accounts, the balance of the loss on devaluation has been divided amongst the five fund accounts with credit balances in proportion to the balances on these accounts at 31st December 1967. This procedure is similar to that used in 1961 on the revaluation of the Netherlands guilder.

The *Acta Crystallographica* account for 1967 shows a loss of \$1,835 as compared with a profit of \$9,585 in 1966. The loss is primarily due to the necessity of reprinting Volumes 5, 6 and 9. The apparent drop in the net subscription income from \$113,622 to \$108,402 is due to the devaluation of the Danish crown. The actual receipts by Munksgaard were slightly higher than in 1966, owing to the increase in the number of subscriptions from 2,356 (of which 464 were at the reduced rate) to 2,382 (459 reduced rate). The editorial expenses have increased from \$16,399 to \$19,327, chiefly because of higher expenses in the Technical Editor's office. For the first time the account shows the effects of a full year of secretarial salary and office rental. The income from advertisements has again increased slightly. The *Acta Crystallographica* account for 1968 is expected to show a sizable profit due to the increase in subscription rates. This profit is badly needed, for the balance on the fund account at the end of 1967 was only \$24,399.

The *Structure Reports* account shows a small net loss of \$112. No new volumes were published during 1967. Sales of earlier volumes continued at a moderate level to give a net income of \$12,101. The editorial honoraria at \$11,352 are higher than usual, and represent payments on completed manuscripts for Sections of future Volumes. Five Volumes are expected to be published in 1968-69 and the accumulated balance in the *Structure Reports* account is adequate to meet the expenses of publication.

The *International Tables* account shows a loss of \$1,582. This is primarily due to the expense of reprinting Volume 2. Sales continued at a reasonable rate.

In 1967 \$581 were received from the sales of 71 copies of *Fifty Years of X-ray Diffraction* and the accumulated deficit in the account decreased to \$445. The sales of *Symmetry Aspects of M.C. Escher's Periodic Drawings* were again good, and 626 copies were sold with a net income of \$2,673. After allowance for further binding costs of \$935, the net deficit on this account was reduced to \$1,533. The deficits on both accounts are expected to have been recovered from sales by 1969.

The balance of the General Publications Fund was affected only by the loss on currency revaluation. From the accumulated balance of \$47,921, a transfer of \$15,000 will be made during 1968 to open the account of the new *Journal of Applied Crystallography*.

The General Fund account shows an excess of income over expenditure of \$17,221 as compared with the excess of expenditure of \$11,148 in the previous year, when very large expenses were incurred in the connection with the Seventh General Assembly and International Congress in Moscow. High expenses for meetings are again expected in 1968 and 1969.

The subvention received from UNESCO through ICSU remained constant at \$5,250. ICSU also assisted by refunding the subscription paid by the Union in 1966. The subscriptions from Adhering Bodies increased to \$13,500, owing primarily to the change in the unit of subscription from \$60 to \$100. The interest from investments and deposit accounts decreased slightly from \$6,547 in 1966 to \$5,949. The receipts and payments on teaching films represent the final instalments on UNESCO contracts arranged by the Commission on Crystallographic Teaching.

In 1967 the holdings of investments decreased by the redemption of *f.* 2,000 3% Nederland 1937, \$2,000 3% Nederland 1947, *f.* 5,000 4½% Nederland 1964, *f.* 2,000 3% Nederlandsch Indië 1937 and *f.* 1,000 Unie van Zuid Afrika 1955. There was a profit on these redemptions of \$243. 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 \$1,767, 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.

The larger parts of the balances with the banks are still placed on deposit accounts, namely, at the end of 1967, *f.* 146,125 with the Amsterdam-Rotterdam Bank N.V., \$21,006 with the First National City Bank, Sw.Kr. 59,721 with A.B. Svenska Handelsbanken, and £8,973 with the Westminster Bank Limited. The amounts shown on the Balance Sheet for Debtors and Creditors relate to sums, principally on the publishing accounts, due at 31 December 1966. Where appropriate, these amounts have since been settled.

The Balance Sheet shows that the assets of the Union have increased during the year from \$183,211 to \$192,859, excluding stocks of unsold publications.

International Union of Crystallography
Balance Sheet as at 31 December 1967

	U.S. Dollars	
	1967	1966
FUND ACCOUNTS		
As at 31 December 1966	Balance at 31 December 1967	
27,363-27	24,399-46	27,363-27
62,785-26	(112-13)	62,785-26
33,847-79	(1,581-92)	33,847-79
49,559-85	—	49,559-85
(1,025-54)	580-71	(1,025-54)
(3,270-53)	1,738-02	(3,270-53)
13,950-58	1,009-41	17,220-82
\$ 183,210-68	6,361-98	16,010-73
	192,859-43	183,210-68
Acta Crystallographica		
<i>Structure Reports</i>	22,713-35	11,196-08
<i>International Tables</i>	94,272-49	79,235-69
General Publications	1,218-61	1,035-79
<i>Fifty Years of X-ray Diffraction</i>	30,351-96	34,759-59
<i>Escher Drawings</i>	1,780-00	480-00
General Fund	100-00	120-00
	150,236-41	126,587-15
	19,743-60	12,850-26
	130,492-81	113,736-89
CURRENT ASSETS		
Cash at Banks		
Current Accounts		
Deposits and Savings Accounts	1,780-00	480-00
Cash with Union Officials	100-00	120-00
Debtors	150,236-41	126,587-15
Subscriptions from Adhering Bodies	19,743-60	12,850-26
Due for 1967	1,780-00	480-00
Less Paid in advance	100-00	120-00
	150,236-41	126,587-15
	19,743-60	12,850-26
	130,492-81	113,736-89
Deduct Creditors		
<i>Net Current Assets</i>	150,236-41	126,587-15
	19,743-60	12,850-26
	130,492-81	113,736-89
FIXED ASSETS		
Investments at market value on 31 December 1967	59,163-07	65,803-42
Add Interest accrued thereon	841-32	965-64
Depreciation in value of Investments entered as an asset	1,767-23	2,064-73
	61,771-62	68,833-79
Office Equipment at cost less depreciation	595-00	640-00
<i>Total Fixed Assets</i>	62,366-62	69,473-79
	\$ 192,859-43	\$ 183,210-68

Notes**1. Rates of Exchange**

The standard rates of exchange, as per details issued by ICSU Secretariat on 4 December 1967, have been adopted in this Balance Sheet. These are as follows, compared with the U.S. Dollar.

	1967	1966
French Francs	4-90	4-90
Netherlands Guilders	3-60	3-60
Swedish Crowns	5-16	5-16
Danish Crowns	7-50	6-907
Pounds Sterling	0-4167	0-3571

2. Investments

The depreciation in the value of Investments has been shown in the Balance Sheet only. This is to prevent fluctuation in their value from affecting the result of the General Fund.

3. Stocks of unsold copies of Union publications

As previously the value of these stocks has not been taken into account for Balance Sheet purposes.

General Fund Account for the year ended 31 December 1967

	U.S. Dollars		U.S. Dollars	
	1967	1966	1967	1966
Subscription to ICSU (2% of subscriptions received from Adhering Bodies in 1966)		149.45	5,250.00	5,250.00
Subscription to ICSU Inter Union Commission on Scientific Teaching		200.00	149.45	—
Administration Expenses:				
Honoraria General Secretary, Treasurer and Secretarial Assistance	2,276.00	3,112.24	13,500.00	1,000.00
Audit and Accountancy Charges	780.00	949.70	2,314.93	7,920.00
Postages, Stationery, Printing and Sundries	796.71	1,067.14	3,634.24	2,582.03
Bank Charges and Differences on Exchange	1,075.33	680.63	243.40	3,965.01
Depreciation of Office Equipment	78.05	83.74	347.20	505.58
Seventh General Assembly and International Congress Moscow, USSR:	59.24	36.90	216.68	291.93
Printing of Report	1,175.00	83.47	45.96	—
Other Expenses	—	24,451.44	—	—
Anniversary Meeting on Electron Diffraction in London - U.K.				
Travel Grants to participants	1,319.36	—	518.88	264.70
ICSU Committee on Data for Science and Technology - Moscow Travel Grant	431.20	—	91.56	—
Commission on Crystallographic Teaching Travel Grants	—	1,000.00	427.32	211.76
Cost of Printing and Distributing <i>World List of Crystallographic Computer Programs</i>	—	1,059.74	—	—
Final payments for teaching films	800.00	—	2,300.00	200.00
<i>Co-ordination Polyhedra Cristaux Liquides</i>	1,500.00	200.00	—	—
Printing and Distributing first supplement to <i>Crystallographic Book List</i>	167.11	—	—	—
<i>Excess of Income over Expenditure carried to Balance Sheet</i>	17,220.82	(11,148.14)	—	—
	<u>\$ 28,036.02</u>	<u>\$ 21,926.31</u>	<u>\$ 28,036.02</u>	<u>\$ 21,926.31</u>

Escher Drawings Account for the year ended 31 December 1967

	<i>U.S. Dollars</i>	
	1967	1966
Publication Expenses:		
Cost of further Binding	934.58	—
Excess of Income over Expenditure	1,738.02	4,205.98
carried to Balance Sheet	<u>\$ 2,672.60</u>	<u>\$ 4,205.98</u>
	1967	1966
Sales of Copies	3,502.98	5,517.48
Less Publishers' Commission	613.02	965.67
on Sales	<u>217.36</u>	<u>345.83</u>
Royalties	<u>\$ 2,672.60</u>	<u>\$ 4,205.98</u>

Acta Crystallographica Account for the year ended 31 December 1967

Publication Expenses:				
Printing and Binding Volumes				
22 and 23 (1966 20 and 21)	71,734.02	72,347.59	105,284.65	112,740.44
(D.Kr. 538,005.08)				
Distribution and Postage	11,373.40	12,589.02	18,603.63	17,113.08
(D.Kr. 85,300.57)	<u>83,107.42</u>	<u>84,936.61</u>	<u>123,888.28</u>	<u>129,853.52</u>
Less Net Reduction in charge	—	921.66	15,486.03	16,231.69
of earlier volumes	<u>83,107.42</u>	<u>84,014.95</u>	<u>8,585.78</u>	<u>8,078.38</u>
Printing and Distributing				
Supplement to Volume 21	—	4,862.03	1,316.76	7,269.02
Part 7				
Reprinting Volumes 5, 6 and 9	15,071.51	5,519.38	108,402.25	113,621.83
(1966 Volume 10)	<u>15,071.51</u>	<u>5,519.38</u>	<u>1,834.77</u>	<u>(9,585.16)</u>
Editorial Expenses:				
Editorial Honoraria and Salaries	14,332.28	12,853.88		
Postages, Telephone, Office				
Supplies, Stationery and	2,875.95	1,484.11		
Sundries	282.84	1,163.96		
Travelling Expenses				
Rent, Cleaning and Heating of	1,695.19	753.60		
Technical Editor's Office	140.85	143.79		
Depreciation of Office Equipment	<u>19,327.11</u>	<u>16,399.34</u>	<u>\$ 117,506.04</u>	<u>\$ 110,795.70</u>
	<u>\$ 117,506.04</u>	<u>\$ 110,795.70</u>	<u>\$ 117,506.04</u>	<u>\$ 110,795.70</u>

Structure Reports Account for the year ended 31 December 1967

	U.S. Dollars	
	1967	1966
Publication Expenses:		
Printing and Binding Volume 23	—	10,897.21
Binding additional copies	861.58	307.69
	<u>861.58</u>	<u>11,204.90</u>
Editorial Expenses:		
Honoraria: Editors, Abstractors and Assistants Office and Travelling Expenses	11,351.70	5,445.45
	<u>11,351.70</u>	<u>5,471.92</u>
		Less Publishers' Commission on Sales
		<u>5,471.92</u>
		Excess of Expenditure over Income carried to Balance Sheet
	<u>\$ 12,213.28</u>	<u>\$ 16,676.82</u>

U.S. Dollars

1967

1966

12,516.88

2,517.08

15,033.96

2,932.81

12,101.15

5,338.31

24,662.49

(7,985.67)

\$ 12,213.28\$ 16,676.82**International Tables Account for the year ended 31 December 1967**

Publication Expenses:			
Printing and Binding Reprint of Volume 2 (1966 Volume 1)	5,306.40	8,489.71	16,429.71
Binding additional copies of Volumes 1 and 3 (1966 Volumes 2 and 3)	1,480.68	341.32	2,956.53
	<u>1,480.68</u>	<u>341.32</u>	<u>13,473.18</u>
Editorial Expenses:			
Editorial Office Expenses	258.52	98.00	1,581.92
Travelling Expenses	84.00	870.00	(2,671.06)
Aachen Meeting	1,024.78	874.87	
Expenses re Pilot Edition	—	128.22	
	<u>\$ 8,154.38</u>	<u>\$ 10,802.12</u>	<u>\$ 10,802.12</u>

Sales of Copies of
Volumes 1, 2 and 3

Less Publishers' Commission

on Sales

Excess of Expenditure over Income

carried to Balance Sheet

Fifty Years of X-ray Diffraction Account for the year ended 31 December 1967

Excess of Income over Expenditure carried to Balance Sheet	580.71	611.88	703.89	741.67
	<u>580.71</u>	<u>611.88</u>	<u>123.18</u>	<u>129.79</u>
	<u>\$ 580.71</u>	<u>\$ 611.88</u>	<u>\$ 580.71</u>	<u>\$ 611.88</u>

Sales of Copies
Less Publishers' Commission
on Sales

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

In our opinion these accounts give a true and fair view of the state of affairs of The Union at 31 December 1967 and of the results for the year ended on that date.

Manchester 2, England

14 June, 1968

Signed: LITTON, POWNALL, BLAKEY & HIGSON

Chartered Accountants