

Acta Cryst. (1961). **14**, 797

International Union of Crystallography

Report of Executive Committee for 1960

Introduction

In April 1960 the Union suffered a great loss in the death of its Honorary President, Professor Max von Laue. His sudden and unexpected death was a shock to the community of crystallographers who had so very much hoped to see him personally present at the planned Commemoration meeting in Munich in July 1962. It will be not necessary to summarize in this report the great contributions which Professor Von Laue made to science, and especially to crystallography. It was in recognition of his work, and in particular of his epoch-making discovery of the diffraction of X-rays by crystals, that the First General Assembly of the Union unanimously elected him Honorary President. Professor Von Laue was one of the founders of the Union and participated in the work of the International Crystallographic Committee which was set up in 1946, and which organized the establishment of the Union and its three main publications. Since then he had served on the *Acta Crystallographica* Advisory Board. A detailed obituary has been published in this journal (see *Acta Cryst.* (1960), **13**, 513).

In the fall of 1960 another great crystallographer and solid-state physicist, who had participated in and witnessed the whole development of modern crystallography, died, namely Academician A. I. Ioffe. The Executive Committee wishes to express its sympathy with the Russian crystallographers in the loss of one of their most outstanding senior scientists.

The Fifth General Assembly and International Congress, and the two subsequent Symposia, formed the most important events to be reported for 1960. By joint invitation of the Royal Society and the University of Cambridge, these meetings were held in Cambridge from 15 to 24 August. The attendance was higher than at any previous meeting of the Union; about 1250 active and 200 accompanying members from thirty-one countries registered for the Congress and the Symposia.

The General Assembly met on Monday morning 15, on Thursday evening 18 and on Saturday afternoon 20 August. It approved the admission to the Union of four new members: the Royal Society of New Zealand, the Israel Crystallographic Society, the [Argentine] Consejo Nacional de Investigaciones Científicas y Técnicas, and the Suomalainen Tiedeakatemia [Finland]. In addition to the routine business, as prescribed by the Statutes, the General Assembly made some amendments to the Statutes and By-Laws, and approved the establishment of a Commission on Crystallographic Computing. A summary of the business of the General Assembly can be found elsewhere in this journal (*Acta Cryst.* (1960), **13**, 695). A more detailed report of the proceedings, including the more important appendices to the Agenda and the amended Statutes and By-Laws, has been published separately and sent to the National Committees and to all persons involved in the work of the Union. Persons wishing to receive a copy should write to the

secretary of their National Committee, or to the General Secretary of the Union.

The scientific programme of the Congress consisted of (a) a Congress Discourse; (b) five General Lectures presented by invited speakers; and (c) 423 contributed papers covering all branches of crystallography. A novelty at the Congress was the use of a rapporteur system in order to reduce the total number of sessions; five topics had been selected for treatment under this system.

Following the Congress two Symposia were held, respectively devoted to 'Thermal motion in crystals and molecules', and 'Lattice defects and the mechanical properties of solids'. An extra financial UNESCO subvention to the second Symposium was received through the International Union of Pure and Applied Physics. At the Symposia 33 and 96 papers were presented respectively, following two general introductory lectures which were given by invited speakers on 20 August.

During the Congress and Symposia exhibitions of commercial apparatus and of books on crystallographic and closely related subjects had been organized. More details about the meetings, exhibitions and social arrangements can be found in a report already published in this journal, and which is followed by the abstracts of all papers presented in Cambridge (*Acta Cryst.* (1960), **13**, part 12).

At the close of the General Assembly the term of service of a number of Officers of the Union, and of the Chairmen and Members of Commissions, came to an end. The Executive Committee wishes to take this opportunity to thank all these persons for their assistance in the work of the Union. Special mention may be made of the work of the retiring Chairmen of the Commissions on *Acta Crystallographica* and of *Structure Reports*, Professors P. P. Ewald and A. J. C. Wilson, who had already resigned as Editors of these publications at the end of 1959. Under the guidance of these Editors, and thanks also to their efforts and devotion, *Acta Crystallographica* and *Structure Reports* have reached their present high standard.

The new Executive Committee met after the close of the General Assembly, primarily to make arrangements in pursuance of the decisions made by the Fifth General Assembly, and in particular for the meetings planned for the period until the Sixth General Assembly: a Symposium on Electron and Neutron Diffraction in Kyoto, Japan, in September 1961; a Commemoration Symposium in Munich, Germany, in July 1962; and the Sixth General Assembly and International Congress in Rome, Italy, in September 1963.

Since the Fifth General Assembly the Executive Committee confirmed the appointment of the following two new Co-Editors for *Structure Reports*: J. D. Dunitz (Switzerland) and S. Geller (U.S.A.). Before the end of 1960 the Executive Committee further appointed F. H. Laves and P.-O. Löwdin as Representatives of the Union on the Commission on Solid-State Physics of the International Union of Pure and Applied Physics, after

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, Departamento de Física, Comisión Nacional de Energía Atómica, Av. del Libertador Gen. San Martín 8250, Buenos Aires
Australia	I	Australian Academy of Science	R. I. GARROD, Aeronautical Research Laboratories, Box 4331, G. P. O., Melbourne, Vic.
Austria	I	Österreichische Akademie der Wissenschaften	F. MACHATSCHKEI, Mineralogisches Institut der Universität, Dr. Karl Luegerring 1, Vienna 1
Belgium	II	Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique	R. VAN TASSEL, Institut Royal des Sciences Naturelles de Belgique, Rue Vautier 31, Brussels
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	W. H. BARNES, Division of Pure Physics, National Research Council, Ottawa 2, Ont.
Chile	I	National Committee for Crystallography	ISABEL GARAYOCHEA, Centro de Investigaciones de Cristalografía, Universidad de Chile, Casilla 2777, Santiago
Czechoslovakia	I	Československá Akademie Věd	A. LÍNEK, Ústav Technické Fysiky, Československá Akademie Věd, Cukrovarnická 10, Prague 5
Denmark	I	Akademiet for de tekniske Videnskaber	E. KROGH ANDERSEN, Den Kgl. Veterinær- og Landbohøjskoles Kemiske Laboratorium, Bülowsvej 13, Copenhagen V
Finland	I	Suomalainen Tiedeakatemia	K. A. MANSIKKA, Wihuri Physical Laboratory, University of Turku, Vesilinnantie 5, Turku
France	IV	Académie des Sciences (Institut de France)	H. CURIEN, Laboratoire de Minéralogie-Cristallographie à la Sorbonne, 1 Rue Victor-Cousin, Paris 5
Germany	V	Deutsche Mineralogische Gesellschaft	K. BOLL-DORNBERGER, Deutsche Akademie der Wissenschaften, Institut für Strukturforschung, Rudower Chaussee, Berlin-Adlershof
India	I	Ministry of Scientific Research and Cultural Affairs	The Secretary, Ministry of Scientific Research and Cultural Affairs (Scientific Research Division), Government of India, New Delhi
Israel	I	Israel Crystallographic Society	R. S. RUDMAN, Physics Department, Technion, Haifa
Italy	II	Consiglio Nazionale delle Ricerche	M. FORNASERI, Istituto di Geochimica, Università di Roma, Rome
Japan	IV	Science Council of Japan	T. WATANABÉ, Physics Department, Faculty of Science, Osaka University, Nakanoshima, Osaka
Netherlands	III	Stichting voor Fundamenteel Onderzoek der Materie met Röntgen- en Elektronenstralen	G. D. RIECK, Technical University, Insulindelaan 2, Eindhoven
New Zealand	I	The Royal Society of New Zealand	D. HALL, Chemistry Department, University of Auckland, Auckland
Norway	I	Det Norske Videnskaps-Akademi	I. OFTEDAL, Institutt for Geologi, Universitetet i Oslo, Blindern, Oslo
Spain	III	Consejo Superior de Investigaciones Científicas	J. L. AMORÓS, Departamento de Cristalografía, Consejo Superior de Investigaciones Científicas, P. Castellana 84, Madrid 6
Sweden	I	Kungliga Vetenskapsakademien	A. MAGNÉLI, Institutet för Organisk och Fysikalisk Kemi, Stockholms Universitet, Kungstensgatan 45, Stockholm Va
Switzerland	I	Société Suisse de Minéralogie et de Pétrographie	A. NIGGLI, Institut für Kristallographie und Petrographie der Eidg. Technischen Hochschule, Sonneggstrasse 5, Zürich.
U.K.	V	The Royal Society	The Secretary of the British National Committee for Crystallography, The Royal Society, Burlington House, London W. 1
Union of South Africa	I	South African Council for Scientific and Industrial Research	F. H. HERBSTEN, National Physical Research Laboratory, P.O. Box 395, Pretoria
U.S.A.	V	National Academy of Sciences—National Research Council	J. WASER, Department of Chemistry, California Institute of Technology, Pasadena, Calif.
U.S.S.R.	V	Academija Nauk U.S.S.R.	V. I. SMOONOV, Institute of Crystallography, Pyzhevsky per. 3, Moscow B-17

* See Statute 2.6 (*Acta Cryst.* (1960), 13, 971).

this Union had invited the International Union of Crystallography to nominate two members to the Commission.

The total number of Adhering Bodies increased to twenty-six in 1960, and they are listed in Table 1 along with the names and addresses of the secretaries of the National Committees. The changes in the membership

of the National Committees for Crystallography, which were reported since the publication of the membership of the National Committees in the Report for 1959, are given at the end of this Report. The activities of the Commissions of the Union are reported in the next section. A new venture for the Union was the publication of a second edition of the *World Directory of Crystallo-*

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
8	1955	872	143	747	5.22	95	97	1.02
9	1956	1048	173	915	5.29	91	87	0.96
10	1957	874	133	600	4.51	86	91	1.06
11	1958	909	152	790	5.20	73	82	1.12
12	1959	1067	181	926	5.12	93	103	1.11
13*	1960	1164	144	835	5.79	69	105	1.52

* Volume 13 includes the report of the Cambridge Congress, involving 169 pages of abstracts

graphers. This edition was edited by the General Secretary, and appeared just in time for the Cambridge meetings.

Work of the Commissions

Commission on Acta Crystallographica

Volume 13 for 1960 is the largest volume yet issued, with 1164 pages. It is fortunate that the number of subscribers continues to show a steady increase; the total distribution list stood at 1933 at the end of the year.

A survey of the contents of the last six volumes of *Acta Crystallographica* is given in Table 2. It appears that both papers and short communications are showing a tendency towards increase in length. The advertisements continue to make a small but useful contribution towards financing publication, and a beginning has been made with exchange advertisements in other scientific publications.

Commission on Structure Reports

The two meetings of the Commission held in Cambridge have already been reported (*Acta Cryst.* (1960), **13**, 966). However, the effects of the decisions taken there on means of speeding up the production of *Structure Reports* can now be analysed.

(a) Although no new volumes were published during 1960, owing to delays which have plagued Vol. 17 (1953), Vols. 19, 20 and 21 are under active preparation, as the result of increasing the number of Inorganic and Organic Co-Editors to three each. Vol. 18 should appear in the first half of 1961 and Vol. 17 in the second half.

(b) The decision both to change the arrangement of the Metals section and to omit certain marginal subjects so far reported, would have resulted in a saving of 35 pages in the Metals section of Vol. 17. However, the saving will be very much greater in later volumes because, e.g., of the greatly increased studies in the most recent years on subjects such as coldwork and deformation of metals, now to be omitted.

(c) As a result of cooperation of the Commission on Crystallographic Data and enhanced cooperation of the National Committees of Japan and the U.S.S.R., the work of the General Editor in preparing lists of papers to be reported can eventually be somewhat lessened, with little increased risk of inadvertently omitting important structural papers.

The more vigorous policy in the preparation of *Structure Reports*, which has been adopted to deal with the rapidly expanding crystallographic literature, should lead to the preparation of four or five Volumes by the

time of the next General Assembly, compared to the two Volumes and an Index Volume which appeared between 1957 and 1960. The present programme would permit the production of Volumes up to and including Vol. 24 (1960) by 1966.

Commission on International Tables

Volume III began to be printed in February 1960 and by the end of the year it was mostly in print at the galley-proof stage, although the glossary and index are still in preparation. Publication is hoped for towards the end of 1961.

In 1960 the sales of Volume I continued at an even higher level than in previous years; they stood at 2652 by the end of the year. The number of copies sold of Volume II amounted to 1961 by that time, which meant that the cost of production was almost recovered within the very short period of a year and a half.

Commission on Crystallographic Apparatus

Ten of the papers presented at the Conference on the Precision Determination of Lattice Parameters, held at Karolinska Institutet, Stockholm, June 1959, were published in *Acta Cryst.* (1960), **13**, 813-850. The final report of the Commission on this project also appeared in the same issue. Arrangements were made to distribute free reprints of all these papers to those requesting them. Arrangements were also made to distribute free of charge samples of silicon and tungsten used in the project to those requesting them.

During the Fifth Congress of the Union the Commission had a small display showing its publications, reports and the plans for the commercial X-ray film study; business meetings were also held. It was agreed to publish a third edition of the *Index of Crystallographic Supplies*, and comments and suggestions from National Committees were solicited. The project of the testing of commercially available X-ray films was discussed; this project is actively being worked on under the direction of Prof. Ryozi Uyeda at Nagoya University, Japan. A more limited project on radiation protection was also begun.

Other topics discussed included collaboration with the Editor of *Acta Crystallographica* in the planning and selection of review articles on apparatus and techniques, non-diffraction crystallographic apparatus and automatic instrumentation. A project on the experimental comparison of X-ray intensity measurements along the lines of the lattice-parameter project was considered but temporarily postponed because of the great difficulty in formulating the programme in a manner that would produce significant results.

Commission on Crystallographic Computing

The first meeting of this Commission was held in Cambridge on 22 August 1960. The appointment of consultants and regional correspondents for the Commission, as recommended by the *ad-hoc* Committee, was approved. Their functions would be: (a) to advise the Commission on matters relating to the use and performance of specific machines or groups of machines; (b) to act in a liaison capacity with the users of specific machines; (c) to assist in the collection and distribution of information; and (d) generally to advise on and criticize any programme which the Commission might undertake. The names of the consultants and correspondents would appear with those of the members of the Commission in any reports or publications which might arise out of the work of the Commission, and their approval of this work would be obtained before publication. To date, the following have agreed to assist the Commission in this capacity: Wm. Busing, D. W. J. Cruickshank, E. Eichhorn, L. Lavine, P. Meriel, O. S. Mills, J. R. Rollett and D. W. Smits.

The Commission planned the following program.

(a) The standardization of information relating to computing procedures used in the description of crystal-structure analyses. It was agreed that the Commission should prepare some recommendations with respect to the minimum information that should be given in describing the computing procedures used in a crystal-structure analysis. These recommendations should then be sent to the Editors of those Journals in which crystal structure papers normally appear, for use at their discretion.

(b) Information service on the availability of computer programs. It was considered not desirable that the Commission should set up a program distribution bureau in the present state of computing development. On the other hand, information relating to the function and source of existing crystallographic computer programs would be extremely useful to crystallographers. The publication of a World List of Crystallographic Computing Programs was therefore proposed.

(c) The organization of an I.U.Cr. symposium on Crystallographic Computing. The success of the Glasgow Computing and Phase Determination Conference, which preceded the Fifth Congress, and the rapidity of development of digital computers, suggested that another International Computing Conference or Symposium should be held within the next few years. An appropriate occasion would appear to be contiguous with the 50th Anniversary Meeting in Munich in 1962 and the Commission has considered arranging such a symposium.

The Commission and its consultants and correspondents are arranging to meet at the University of Frankfurt in June 1961, when it is hoped to complete the plans for the collection of the information on computing programs and select a uniform method of description.

Commission on Crystallographic Data

During the Congress in Cambridge the Commission held two open meetings on crystallographic documentation. The first session was devoted to general problems, to the present-day organization of various data compilations and to future needs in this field. During the second session various aspects of powder-data work were discussed. Individual papers were presented on the work of

the X-ray Powder Data File, the practical requirements for the collection of accurate powder data and its uses in identification. The formal papers were followed by a Panel Discussion, covering practical and theoretical aspects of powder data. Both meetings were attended by an unexpectedly large audience and the lively open discussions seemed indicative of the wide general interest in crystallographic documentation.

During the Congress several business meetings of the Commission were held as well as a meeting with members of the Joint Committee on Chemical Analysis by Powder Diffraction. From these discussions it appeared that there was much overlap in the work of various groups abstracting and reporting on crystallographic data, and some centralization and reappraisal of effort were called for. National Data Commissions could play a useful part in collecting both published and unpublished regional data and the formation of a Soviet and an Italian Commission were discussed. The question of authors providing centralized abstracts was also considered. During its coming term of office the Commission will, as one of its principal functions, try to improve coordination between various data-collecting organizations.

The work on the Single Crystal File for the Second Edition of *Crystal Data* was continued. A new office, supported by the A.S.T.M. File Fund, was established in London for the Organic Section, and the Inorganic Section at Leeds was also transferred there. The manuscript of Part II of *Crystal Data* is in an advanced state of preparation. During 1960 Prof. Nowacki started on the preparation of the new edition of Part I of *Crystal Data*, the distribution of substances according to space-group symmetry.

Commission on Crystallographic Nomenclature

The composition of the Commission on Crystallographic Nomenclature was radically altered in the course of the meetings of the Union in August 1960. None of the existing members of the Commission were eligible for re-election, and it was felt that the Commission would be most useful if it consisted of the Editors of the main publications of the Union *ex-officio*. The Commission on *Structure Reports* has asked that the practicability of a systematic nomenclature for structure types be considered, and a start has been made on the collection of relevant literature references.

Commission on Crystallographic Teaching

The work of the Commission in collecting information on the availability and content of films and visual teaching aids is continuing. As this list is under constant revision, because new films are continually being produced, and information as to their availability in an ever-increasing number of countries is being received, the most up-to-date list can be obtained directly from Professor Curien, the secretary of the Commission.

The classified bibliography of books and periodicals which was compiled by the Commission for inclusion in the *Index of Crystallographic Supplies*, and which formed the basis for the Book Exhibition at the Cambridge Congress, is also being expanded. Any information about new books, or books being written or revised, would be very useful to the Commission.

The Commission has begun a tentative scheme to maintain a file of syllabuses of crystallographic courses.

Anyone who has planned a syllabus for any course in crystallography is invited to send it in to be filed; thus, anyone wishing to plan courses may write and ask for copies of those which are relevant to his needs. Particulars sent with the syllabuses should include the following facts: (a) main interest of class (e.g. chemistry, crystallography, metallurgy, mineralogy, physics); (b) academic level of students, and nature of course (e.g. first-year university, final-year technical college, M.Sc., evening class for beginners); (c) number of hours of lectures, and accompanying practical work, if any; and (d) text-books recommended to help with the course, if any.

The Commission is making an attempt to prepare annually a list of special courses or schools in crystallography (those not included in the regular academic calendar) to be published as a note in *Acta Crystallographica* as well as in various trade journals. As a majority of these courses occur in the summer, all information, such as title, dates, tuition, and location, should reach the secretary of the Commission before the first of January of the year the course is to be offered.

Commission on Electron Diffraction

The principal activities of the Commission in 1960 dealt with preparations for the 1961 Symposium and the reorganization of the Commission. Meetings of the Commission were held in Cambridge during the Fifth International Congress of the Union.

An official invitation from the Science Council of Japan was presented to the General Assembly proposing joint sponsorship by the Science Council and the International Union of Crystallography of a Symposium on Electron and Neutron Diffraction in Kyoto from 25–30 September 1961; this invitation was accepted by the General Assembly. The Symposium has been organized as Part II of an International Conference on Magnetism and Crystallography. The electron-diffraction part of the programme emphasizes sessions on dynamical and inelastic scattering and on diffraction effects in electron microscopy with additional sessions on structure analyses in solids, electron diffraction by gases, and apparatus and techniques. The neutron-diffraction sessions include two sessions jointly with Part I, mainly on the study of magnetic structures, and other sessions on structure analysis, neutron-diffraction physics and apparatus and techniques.

Since the May 1959 meeting, the organization of the Commission has been considered carefully in view of the high level of interest of all of its members and of the Statutes governing membership on Commissions. It was recommended to and approved by the 1960 General Assembly that the number of elected members be continued at eight and that all of the present members be re-elected for an additional term. It was approved by the Commission that four of its present members would not be re-nominated at the 1963 General Assembly, in order to provide some continuity in membership while abiding by the statutory limitation of three consecutive terms. Further, it was decided to appoint four consultants to the Commission, who would be fully informed on all activities and who would be possible candidates for Commission membership in 1963.

Suggestions were received regarding systematic files of electron-diffraction single-crystal and powder data. No action was taken other than the response that it might

be useful first to re-index the A.S.T.M. file of X-ray powder diffraction data in a fashion less dependent on relative intensities, thereby making it more useful for identification purposes in connection with electron-diffraction data.

Abstracting Board of the International Council of Scientific Unions

Two important meetings in connection with the ICSU Abstracting Board were held during 1960. The first was a meeting of the Editors, with some observers, held in Paris on 11, 12 and 13 July. This was concerned largely with the application of mechanical and electrical methods to documentation and indexing, and it became clear that much work remains to be done before such methods can be applied on a large scale. The Executive Committee of the Abstracting Board met in El Escorial on 15 and 16 July. Many problems were discussed, mostly of a domestic nature. Four general resolutions, however, were put forward for the consideration of the International Council of Scientific Unions, and three of these have been adopted; action on the fourth has been postponed. The three adopted resolutions concern (a) a uniform system for the abbreviation of titles of scientific periodicals; (b) a uniform system of transcription of Cyrillic letters into the Latin alphabet, without regard to transposition; and (c) the study of improved methods of indexing and retrieval of scientific information. All three, obviously, are of great interest to the Commissions on *Acta Crystallographica* and *Structure Reports*.

Commission on Macromolecules of the International Union of Pure and Applied Chemistry

A meeting of the Commission was held during the Symposium on Macromolecules in Moscow in June 1960.

A report on high polymer nomenclature in the German language has, after lengthy discussions, been published in *Die makromolekulare Chemie* (1960, 38, 1), and will also be published in the *Journal of Polymer Science*. The Russians have agreed to a uniform system of nomenclature which was used in practice at the Moscow Symposium. These reports do not cover nomenclature for stereoregulated polymers. The outline of a system for these polymers, in English, has been discussed by the Commission and has been published in the *Journal of Polymer Science*. A special sub-committee is examining comments which have been made on it.

Samples of polystyrene of high molecular weight and with a very narrow molecular-weight distribution have been made as standards by two organizations, one in Germany and the other in the U.S.A., and are being distributed to a number of laboratories which have the necessary facilities for molecular-weight measurement. It is hoped that a better degree of concordance will be achieved than in a previous exercise on this subject.

International Council of Scientific Unions

The General Secretary represented the Union at the Twelfth meeting of the Executive Board of ICSU, which was held in Lisbon, at the Academy of Sciences, from 19 to 22 October. An important item of discussion was the financial situation of ICSU, and an *ad-hoc* Finance Committee appointed by the Board paid great attention

to this matter. In order to prevent a severe deficit the Board was obliged to take some difficult decisions, including the closing of the ICSU Publications Office in London.

In addition to its routine business, the Board devoted much time to questions of the future development of ICSU and its organization, the continuation or termination of the publication of *ICSU Review*, and to matters of no direct interest to the Union, such as the work of various Special Committees of ICSU and the organization of some new projects to be undertaken under the sponsorship of ICSU. Attention was also paid to the preparations for the Ninth General Assembly of ICSU, to be held in London in September 1961.

Finances

The audited accounts of the Union for the year 1960 are published at the end of this Report. As usual the amounts are expressed in Netherlands Guilders, and the following rates of exchange were used: £1=f.10.64; \$1=f.3.80=N.F. 4.94=Sw.Cr. 5.17=D.Cr. 6.87.

It may be remarked that in March 1961 the Netherlands Guilder was revalued by about 4.8 per cent; the effect of this revaluation will appear in the accounts for 1961.

A comparison of the *Acta Crystallographica* account for 1960 with the one for 1959 shows a considerable increase in the excess of income over expenditure from f.7176 in 1959 to f.37,048 in 1960. Various factors contributed to this increase. In the first place the nett yield from the sales of back numbers was in 1960 almost twice as high as in 1959, amounting to f.40,772 and f.22,971 respectively in these years. To a great extent this increase was a result of the adjustment of the prices of the older volumes which became effective in 1960. In addition, and along with the number of subscribers, the number of back volumes sold has been increasing from year to year, because many new subscribers order complete sets of back volumes. The increase in the number of subscriptions from 1740 by the end of 1959 to 1893 by the end of 1960 yielded an extra income of f.11,255, after deduction of the publishers' commission. Although at a first sight the increased balance seems to be explained by these two factors, a third one has to be mentioned. The December 1960 issue of the journal mainly consisted of the abstracts of the papers presented at the Cambridge Congress and Symposia, and the typesetting of these abstracts was charged against the General Fund and for the greater part covered by a UNESCO subvention. The cost of production of Volume 13 remained in this way about equal to that of Volume 12, although its size was larger and the printing rates were again increased in 1960. The publication expenses for the 1961 volume will certainly be higher, and it is unlikely that the 1961 account will show such a large excess of income over expenditure. The accumulated balance of the *Acta Crystallographica* account amounted to f.186,779 at the end of 1960.

The *Structure Reports* account shows a balance of f.41,032 for 1960 whereas for 1959 it had shown a deficit of f.30,801. However, in previous reports it has already been stated that a comparison of the annual accounts of this publication is hardly justified because neither the unsold copies of *Structure Reports* nor the editorial

honoraria already paid for volumes in preparation appear as assets in the accounts. It may further be noted that in 1960 about two-thirds of the income came from the sales of copies of Volume 16, which appeared by the end of 1959; the publication expenses of this volume had been charged against the 1959 account. No volume was published in 1960, and in this year practically all expenditure was related to editorial honoraria for work on volumes which are still in preparation.

In previous reports it was further explained that a better picture of the *Structure Reports* account could be obtained by examining expenditure and income for each individual volume, and that it then appears that the total cost of each volume is recovered within a period of three to five years after its publication. As the sales of the older volumes are still continuing at a reasonable level, the financial situation may be considered satisfactory. This also appears from the accumulated balance in the account, which amounted to f.85,737 by the end of 1960. This accumulated balance forms a safe reserve against unexpected factors, and it also makes possible the appointment and remuneration of more Co-Editors, which is envisaged in order to reduce the delay in publication.

The *International Tables* account has a larger excess of income over expenditure in 1960 than in 1959, but also for this publication the balances on the annual accounts may not be compared without further explanation. So it should be noted that Volume II appeared in 1959, and that for printing and binding an amount of f.81,604 was then charged to the account. In 1960 the publication expenditure amounted to only f.10,206, namely f.9115 for binding additional copies of Volumes I and II, and f.1091 for the printing of error sheets. The gross yield from the sale of copies of Volume II amounted to f.51,142 in 1960, which was f.4070 more than in 1959. Also the gross yield from the sales of copies of Volume I was higher in 1960 than in 1959, and amounted to f.17,557 and f.12,342 respectively in these years. The appearance of Volume II probably stimulated the selling of Volume I and caused this quite unexpected increase in the sales. At the end of 1960 the accumulated balance of the *International Tables* account amounted to f.93,649, which will cover publication of Volume III, now in an advanced stage of printing.

Again in 1960 no changes occurred in the General Publication Fund, and the accumulated balance of this Fund remained at f.86,486.

The General Fund account is the only account showing a smaller balance for 1960 than for 1959. The expenses in connection with the Fifth General Assembly and International Congress, and the subsequent Symposia, together amounting to f.41,655, were a heavy charge on this Fund, although they were for a great part recovered from subventions received from UNESCO through ICSU (f.22,800) and through IUPAP (f.2,713). The administrative expenditure was slightly higher in 1960 than in 1959, and this expenditure was practically again covered by the income from investments and interest on banking and deposit accounts; this income amounted to f.10,176 in 1960.

For the publication of the second edition of the *World Directory of Crystallographers* no separate account was opened, but the publication expenses and the returns from the sales of copies were charged and credited respectively to the General Fund account. It appears

that for this activity expenditure exceeded income by f.971, and in fact the deficit was slightly higher because all postage and similar expenses in connection with this publication were included in the general administrative expenditure. It is hoped that the relatively small deficit will be fully or mainly recovered from the further sales. It should be noted that the 25 per cent publishers' commission on the sales includes a remuneration to the publishers for their assistance in the preparations of this publication and their share in the correcting of the printers' proofs.

The expenses of the non-publishing Commissions amounted to f.1910 in 1960, to be compared with an expenditure of f.3582 in 1959. An amount of f.296 was credited to the General Fund from the sales of copies of the Teaching Pamphlet of the Commission on Crystallographic Teaching. This pamphlet was published and paid by the Departamento de Cristalografia of the C.S.I.C. at Madrid, and 600 copies were made available to the Union for sale.

With respect to the Balance Sheet, most of the observations made in the Annual Report for 1958 are still valid (see *Acta Cryst.* (1959), **12**, 615).

Membership of Committees, Commissions and other bodies

The membership of the bodies belonging to the Union, and the names of the representatives on bodies not belonging to the Union, as at the end of 1960, are listed in the detailed *Report of Fifth General Assembly* which has been distributed. This membership has also been published in the summary report on the Cambridge meetings which appeared in this journal (see *Acta Cryst.* (1960), **13**, 965), except for the following additions:

Commission on Structure Reports

Add as Co-Editor: S. GELLER (U.S.A.).

Add

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

Representatives:

F. H. LAVES, Institut für Kristallographie und Petrographie, Sonneggstrasse 5, Zürich, Switzerland.

P.-O. LÖWDIN, Quantum Chemistry Group, University of Uppsala, Uppsala, Sweden.

Membership of National Committees

Since the membership of the National Committees for Crystallography have been published at the end of the Report for 1959 (see *Acta Cryst.* (1960), **13**, 570), the following changes have been reported:

Australia

R. I. GARROD (Convener), W. BOAS, J. S. BOWLES, C. J. BIRKETT CLEWS, J. M. COWLEY, A. McL. MATHIESON, N. K. NORRISH, M. S. PATERSON.

Canada

Add

W. B. PEARSON.

Finland

V. T. HOVI (Chairman), M. H. KANTOLA, U. K. KORHONEN, H. M. MIEKK-OJA, TH. G. SAHAMA, P. E. TAHVONEN.

Germany (both States)

R. BRILL (Chairman), BETHGE, K. BOLL-DORNBERGER, G. BORRMANN, E. E. HELLNER, R. HOSEMANN, H. JAGODZINSKI, W. KLEBER, F. H. LAVES, H. PEIBST, E. R. J. THILO.

Spain

Add

M. FONT-ALTABA.

U. K.

J. M. ROBERTSON (Chairman), N. P. ALLEN, K. W. ANDREWS, J. D. BERNAL, M. BLACKMAN, SIR LAWRENCE BRAGG, C. W. BUNN, P. J. GAY, SIR WILLIAM HODGE, D. M. C. HODGKIN, J. C. KENDREW, SIR PATRICK LINSTED, H. S. LIPSON, DAME KATHLEEN LONSDALE, D. C. MARTIN.

U.S.A.

W. H. ZACHARIASEN (Chairman), B. O'BRIAN, M. J. BUERGER, J. D. H. DONNAY, J. DONOHUE, H. T. EVANS, P. P. EWALD, G. A. JEFFREY, D. HARKER, E. W. HUGHES, W. N. LIPSCOMB, R. E. MARSH, R. C. L. MOONEY-SLATER, A. L. PATTERSON, R. E. RUNDLE, V. SCHOMAKER, D. P. SCHOEMAKER, K. N. TRUEBLOOD, B. E. WARREN, J. WASER, E. A. WOOD.

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International Union of Crystallography

Acta Crystallographica Account for the year ended 31 December 1960

	<i>Netherlands Guilders</i>	<i>Netherlands Guilders</i>
Publication Expenses:		
Printing and Binding, Vol. 13, 1960	(D. Cr. 192,461-19) 106,455-96	(D. Cr. 281,110-79) 155,490-68
Distribution and Postage	(D. Cr. 25,049-12) 13,855-41	(D. Cr. 472-00) 261-08
Editorial Expenses:	120,311-37	(D. Cr. 84,241-91) 46,596-69
Editorial Honoraria and Secretarial Assistance	22,270-60	202,348-45
Office Rent, Postages, Telephone, Office Supplies, Stationery and Sundries	2,993-75	25,285-26
Travelling Expenses	165-94	
Depreciation of Office Equipment	190-00	
Cost of Advertisements	(D. Cr. 3,388-91) 25,620-29	(D. Cr. 45,713-09) 177,063-19
<i>Excess of Income over Expenditure carried to Balance Sheet</i>	1,874-51	9,166-98
	37,047-88	1,376-12
	<u>f. 184,854-05</u>	<u>f. 184,854-05</u>

Structure Reports Account for the year ended 31 December 1960

Publication Expenses:			
Binding Additional Copies of Volume 10	373-00	Sale of Copies of Vol. 8	4,530-25
Binding Additional Copies of Volume 13	433-00	Sale of Copies of Vol. 9	3,892-25
Editorial Expenses:	806-00	Sale of Copies of Vol. 10	2,189-26
Editorial Honoraria, Abstractors' and Assistants' Salaries	36,516-61	Sale of Copies of Vol. 11	3,600-20
Subscriptions to Journals, Photocopies	63-58	Sale of Copies of Vol. 12	2,472-17
Stationery, Postages and Sundries	673-32	Sale of Copies of Vol. 13	4,695-65
Travelling Expenses	369-43	Sale of Copies of Vol. 14	4,119-25
<i>Excess of Income over Expenditure carried to Balance Sheet</i>	37,622-94	Sale of Copies of Vol. 15	8,189-50
	41,031-68	Sale of Copies of Vol. 16	64,571-00
	<u>f. 79,460-62</u>	<i>Less Publisher's Commission on Sales</i>	98,259-53
			18,798-91
			<u>f. 79,460-62</u>

International Tables Account for the year ended 31 December 1960

	<i>Netherlands Guilders</i>	<i>Netherlands Guilders</i>
Publication Expenses:		
Binding Additional Copies of Volume I	5,667.93	Sale of Copies of Volume I
Binding Additional Copies of Volume II	3,447.36	Sale of Copies of Volume II
Printing of Error Sheets	1,090.96	Sale of Offprints of Volume I
	10,206.25	Less Publisher's Commission on Sales
Editorial Expenses:		11,329.21
Stationery, Postages, Photocopies and Sundries	239.69	Bank Charges and Differences
Travelling Expenses	258.72	57,506.62
	488.41	
<i>Excess of Income over Expenditure carried to Balance Sheet</i>	46,801.96	<i>f. 57,506.62</i>
	<u><u>f. 57,506.62</u></u>	

General Fund Account for the year ended 31 December 1960

Subscription to ICSU (2% of subscriptions received from Adhering Bodies in 1959)	469.75	Subventions from UNESCO through ICSU for: Meetings and Symposia Publications	(\$ 5,500.-) (\$ 500.-)	20,900.00 1,900.00	
Administrative Expenses:		Subvention from UNESCO through IUPAP for Symposium II	(£ 255)	2,713.20	22,800.00
Honarium General Secretary and Secretarial Assistance	7,985.14	Subscriptions from Adhering Bodies		25,745.80	
Auditors' Fees	703.13	Interest on Investments:			
Postages, Stationery, Printing and Sundries	1,573.77	4½% Conversion Stock 1962	900.06		
Bank Charges and Differences on Exchange	167.60	3% Nederlandsch Indië 1937	2,012.50		
	10,429.64	4% Noorwegen 1955	255.00		
Expenses in Connection with Fifth General Assembly, International Congress and Symposia:		4% Unie van Zuid Afrika 1955	240.00		3,407.56
Travel Expenses Executive Committee and Travel Grants to Invited Speakers for General Lectures	14,979.91	Interest on Banking and Deposit Accounts			6,768.65
Travel Grants to Invited Speakers for Symposium I	3,989.59	Sale of Copies of <i>World Directory of Crystallographers</i>	8,167.49		
Travel Grants to Invited Speakers for Symposium II	2,713.20	Less Publisher's Commission	2,038.05		
Cost of Production of Abstracts of Papers	15,383.70	Sale of Copies of Abstracts	718.92		700.88
Cost of Production and Distribution of Report of Fifth General Assembly	1,820.72	Less Publisher's Commission	18.04		296.38
Other Expenses	2,767.55	Sale of Copies of Teaching Pamphlet			
	41,654.67				
Expenses of Commissions:					
Commission on Crystallographic Apparatus	1,323.44				
Commission on Crystallographic Data	444.27				
Commission on Crystallographic Teaching	142.18				
	1,909.89				
Incidental Travelling Expenses	1,332.57				
Cost of Production of 2nd Edition of <i>World Directory of Crystallographers</i>	7,100.40				
<i>Excess of Income over Expenditure carried to Balance Sheet</i>	5,664.99				<u><u>f. 68,561.91</u></u>

Balance Sheet as at 31 December 1960

Liabilities

Sundry Creditors:	
Administrative Expenses	1,390-93
<i>Acta Crystallographica</i> Editorial Expenses	1,653-88
<i>Structure Reports</i> Editorial Expenses	980-40
Travelling Expenses	743-98
Expenditure by Commissions	472-91
Cost of Production and Distribution of Report of Fifth General Assembly	1,820-72
<i>Acta Crystallographica</i> Account:	7,062-82
Balance as at 1 January 1960	149,731-05
Add Excess of Income over Expenditure for the year to date	37,047-88
	186,778-93
<i>Structure Reports</i> Account:	
Balance as at 1 January 1960	44,705-76
Add Excess of Income over Expenditure for the year to date	41,031-68
	85,737-44
<i>International Tables</i> Account:	
Balance as at 1 January 1960	46,846-69
Add Excess of Income over Expenditure for the year to date	46,801-96
	93,648-65
General Publications Fund:	
Balance as at 1 January 1960	86,485-99

General Fund:

Balance as at 1 January 1960	77,984-22
Add Excess of Income over Expenditure for the year to date	5,664-99
	83,649-21

f. 543,363-04

Rates of Exchange: £ 1 = \$ 2-80; \$ 1 = f. 3-80 = N. F. 4-94 = D. Cr. 6-87 = Sw. Cr. 5-17 (I. C. S. U. rates)

We declare that the above Balance Sheet as at 31 December 1960, and the attached *Acta Crystallographica* Account, *Structure Reports* Account, *International Tables* Account and General Fund Account, exhibit a true and correct view of the affairs of the International Union of Crystallography.

Groningen, Netherlands, Ubbo Emmiusingel 75. 17 May 1961

Assets

Cash at Bank:		
Amsterdamsche Bank N.V., Groningen, guilders account, incl. interest on account due for 1960		90,444-31
Amsterdamsche Bank N.V., Groningen, dollar account (\$ 1,805-62)		6,861-36
Comptoir National d'Escompte de Paris (N.F. 2,102-77)		1,617-52
First National City Bank of New York (\$ 21,032-97)		79,925-28
A.B. Svenska Handelsbanken, Stockholm (Sw. Cr. 53,371-84)		39,228-82
Westminster Bank Ltd, Cambridge (£ 4,689. 6. 4)		49,894-33
		267,971-62
Cash with Editors and Commissions:		
Editor of <i>Acta Crystallographica</i> (£ 90.10. 8)		963-28
Technical Editor of <i>Acta Crystallographica</i> (D. Cr. 6,973-21)		3,857-09
Editor of <i>International Tables</i> (£ 75. 6. 2)		801-28
Commission on Crystallographic Apparatus (\$ 305.55)		1,161-09
		6,782-74
Due from:		
N.V. A. Oosthoek's Uitgevers Mij, Utrecht		75,846-36
Messrs Munksgaard, Copenhagen (D. Cr. 97,875-57)		54,137-88
The Kynoch Press Ltd, Birmingham (£ 2,083.1.9)		22,164-05
		152,148-29
Subscriptions from Adhering Bodies, due for 1960		2,280-00
Advertisements in <i>Acta Crystallographica</i> , due for 1960, after deduction of Advertising Agent's Commission		1,434-20
Investments:		
£ 3,000 4½ % Conversion Stock 1962 (at Par)		31,920-00*
f. 66,000 3 % Nederlandsch Indië 1937 (at Par)		66,000-00*
f. 6,000 4½ % Noorwegen 1955 (at Par)		6,000-00*
f. 6,000 4 % Unie van Zuid Afrika 1955 (at Par)		6,000-00*
		109,920-00
Interest accrued thereon		1,296-19
		111,216-19
Office Equipment:		
As at 1 January 1960		1,720-00
Less Depreciation during 1960		190-00
		1,530-00
Stocks of unsold Copies of <i>Acta Crystallographica</i> , <i>Structure Reports</i> and <i>International Tables</i>		pro memoria
		f. 543,363-04

* The investments are valued at par to avoid the necessity of accounting for differences in their quotations each year, and as so far no investments have been sold before they were due for redemption. The quotations as at 31 December 1960 were as follows:

4½ % Conversion Stock 1962	... 99	4½ % Noorwegen 1955 96
3 % Nederlandsch Indië 1937	... 98	4 % Unie van Zuid Afrika	1955... 72

Signed: VAN DIEN, VAN UDEN & Co. Accountants