Acta Cryst. (1964). **17**, 1488

International Union of Crystallography

Report of Executive Committee for 1963

Personal note

The Executive Committee regrets to report that in 1963 the crystallographic world again lost one of its distinguished members. On 8 October Prof. Robert E. Rundle died at the age of only 48 years. The news of his death came very unexpectedly to all who had just met him at the International Congress in Rome. During the years 1958–1960 Prof. Rundle officially participated in the work of the Union as a member of the Programme Committee for the Fifth International Congress in Cambridge.

Meetings

The most important events in 1963 were the Sixth General Assembly and International Congress, and the three subsequent Symposia. By invitation of the Consiglio Nazionale delle Ricerche and the Italian National Committee for Crystallography, these meetings were held in Rome from 9 to 18 September. More than 1300 active and 300 accompanying members, from 34 countries, registered, and this attendance was again higher than at any previous meeting of the Union.

A summary report about the Assembly, Congress and Symposia has already been published in this journal (*Acta Cryst.* (1964), **17**, 317); a more detailed report of the proceedings of the Assembly has been published separately and sent to the National Committees and to all persons participating in the work of the Union. Further copies can be obtained from the Secretaries of the National Committees, or from the General Secretary of the Union.

The General Assembly met on Monday morning, Tuesday evening and Saturday afternoon 9, 10 and 14 September, respectively. In addition to the regular business (discussion of the Commission reports, election of the new membership of the Executive Committee and the Commissions of the Union, *etc.*) a number of other important matters were discussed. Among these were the proposal that the Union should launch a new journal on applied and industrial crystallography; and the desirability of an investigation regarding the place of Crystallography in teaching and research. A long discussion also took place on the question as to how the future Congresses could be organized in the best way.

With regard to the meetings planned for the next triennial period, the General Assembly accepted the invitation from the Australian Academy of Science to join in sponsorship of a Conference in Melbourne in August 1965, and the invitation from the Akademia Nauk of the U.S.S.R. to hold the Seventh General Assembly and International Congress in Moscow, probably in August 1966.

The scientific programme of the Congress consisted of (*a*) a Congress Discourse; (*b*) four General Lectures presented by invited speakers; and (*c*) about 500 contributed papers arranged in groups according to 21 topics. Most of the contributed papers were treated under a Rapporteur system. As in 1960, when the system was applied for the first time at a Congress of the Union, the opinions of the participants about the system varied from very favourable to strongly opposed.

During the Congress and Symposia three exhibitions were held, of commercially available apparatus, of non-commercial apparatus and devices, and of crystallographic and related books. The members of the Congress further enjoyed a fine programme of social events.

Resignations and appointments

At the close of the Rome General Assembly the terms of service of a number of Officers of the Union, and of Chairmen and Members of Commissions, came to an end. The Executive Committee wishes to take this opportunity to express the thanks of the Union to all these persons for their assistance in the work of the Union. Special mention should be made of the work of the retiring Chairman of the Commission on *International Tables*, Dame Kathleen Lonsdale, under whose energetic guidance this standard crystallographic work was compiled and published.

The new membership of the Executive Committee and of the Commissions of the Union can be found in the aforementioned summary report (*Acta Cryst.* (1964), **17**, 321).

Publications

In addition to the twelve regular monthly issues of *Acta Crystallographica*, a supplementary part 13 was published containing the abstracts of almost all papers presented at the Congress and Symposia in Rome. In 1963 three new volumes of *Structure Reports* appeared, *viz.* Vols. 17 (for 1963), 19 (for 1955) and 20 (for 1956).

The General Assembly approved the publication of a selected set of two-dimensionally periodic drawings by Mr M. C. Escher, for which Prof. C. H. MacGillavry had agreed to serve as Editor. The proposed publication of a second journal, on applied and industrial crystallography, was also approved and the Executive Committee was authorized to continue with the preparations and to appoint an Editor.

Adhering Bodies; National Committees

The membership of two new Adhering Bodies was approved by the General Assembly, *viz.* the Magyar Tudományos Akadémia (Hungarian Academy of Sciences) and the Pakistan Council of Scientific and Industrial Research. The present twenty-eight Adhering Bodies are listed in Table 1, which also contains the names and addresses of the secretaries of the National Committees. Since the publication of the membership of the National Committees in the Report for 1962 (*Acta Cryst.* (1963), **16**, 714), changes have been reported in the lists for Argentina, Denmark, Australia, France, India, Japan, Netherlands, Pakistan and U.S.A. The new membership lists are included in the detailed report of the Rome General Assembly.

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, Av. del Libertador Gen. San Martín 8250, Buenos Aires
Australia	II	Australian Academy of Science	R. I. Garrod, Aeronautical Research Laboratories, Box 4331, G. P. O., Melbourne, Vic.
Austria	I	Österreichische Akademie der Wissenschaften	F. Machatschki, 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	N. Joel, Istituto di Física y Matemática, Sección Cristalografía, Universidad de Chile, Casilla 2777, Santiago
Czechoslovakia	I	Československá Akademie Věd	A. Línek, Institute of Solid State Physics, 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
Hungary	I	Magyar Tudományos Académia	Imre Tarján, Hungarian Academy of Sciences, Puskin-u. 9, Budapest VIII
India	I	Ministry of Scientific Research and Cultural Affairs	G. N. Ramachandran, Department of Physics, University of Madras, A. C. College Buildings, Madras 25
Israel	I	Israel Crystallographic Society	P. Coppens, Weizmann Institute of Science, Department of X-ray Crystallography, Rehovoth
Italy	II	Consiglio Nazionale delle Ricerche	M. Fornaseri, Istituto di Geochimica, Università di Roma, 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	A. F. Peerdeman, Laboratorium voor Kristalchemie, Catharijnesingel 51, Utrecht
New Zealand	I	The Royal Society of New Zealand	D. Hall, Department of Chemistry, University of Auckland, Auckland
Norway	I	Det Norske Videnskaps-Akademi	I. Oftedal, Institutt for Geologi, Universitetet i Oslo, Blindern, Oslo
Pakistan	I	Pakistan Council of Scientific and Industrial Research	M. M. Qurashi, Pakistan Council of Scientific and Industrial Research, Central Laboratories, 34–37 P.N.H. Lines, Karachi, Cantt.
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	J. L. Amorós, Departamento de Cristalografía, Consejo Superior de Investigaciones Científicas, P. Castellana 84, Madrid 6
Sweden	II	Kungliga Vetenskapsakademien	I. Lindqvist, Department of Agricultural Chemistry I, Royal Agricultural College of Sweden, Uppsala 7
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 fo, Crystallography, The Royal Society, Burlington Houser London W. 1
U.S.A.	V	National Academy of Sciences—National Research Council	D. P. Shoemaker, Chemistry Department, M. I. T., Cambridge 39, Mass.
U.S.S.R.	V	Akademija Nauk S.S.S.R.	V. I. Simonov, Institute of Crystallography, Leninskii prospekt 59, Moscow B-333

Work of the Commissions

Commission on Acta Crystallographica

During 1963 Professors I. Nitta and E. W. Hughes, for many years Co-editors of *Acta Crystallographica*, asked to be relieved of their responsibilities. The Commission and the Executive Committee accepted their resignations with great regret, and the Executive Committee appointed Prof. S. Miyake and Dr R. E. Marsh to succeed them. The Commission wishes to place on

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
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
14	1961	1318	206	1111	5·40	166	181	1·09
15	1962	1324	199	1170	5·88	105	106	1·01
16†	1963	1460	198	1099	5·55	101	117	1·16

* Volume 13 includes the report of the Cambridge Congress, involving 169 pages of abstracts
† Volume 16 includes the report of the Rome Congress, involving 198 pages of abstracts.

record its great indebtedness to Professors Nitta and Hughes for their services over many years.

The twelve regular issues of Vol. 16 for 1963 contain 1262 pages, slightly less than Vol. 15 for 1962. However, a supplementary part 13 of 198 pages, containing the abstracts of most papers presented at the Rome Congress and Symposia, brings the total to 1460 pages, and Vol. 16 is thus the largest so far published. A survey of the contents of the last six volumes is given in Table 2.

Although the number of subscribers has increased from year to year, the increase in income has not kept pace with the increasing cost of production. The Executive Committee, after full discussions at the Rome meeting, authorized an increase in both the regular subscription price and the reduced rate for personal subscribers, with effect from 1 January 1964. Further details have been given in *Acta Cryst.* (1963), **16**, 1184.

Commission on Structure Reports

Early in 1963 Vol. 17 (for 1953) appeared, and Vols. 19 (for 1955) and 20 (for 1956) were published at the end of the year. These latter two volumes contained 692 and 728 pages respectively, indicating a successful effort to curb the ever-increasing size which had reached 863 and 845 pages in Vols. 17 and 18 respectively.

Analysis of the cost per page of *Structure Reports* reveals a satisfactory situation. For the last four volumes (17–20) the selling price has been very steady at about one dollar per 25 pages. This may be compared with other recently published volumes of critical data; for some of these less than 10 pages are obtained per dollar.

All possible steps were taken at the meetings of the Commission during the Assembly in Rome to ensure an accelerated rate of publication of *Structure Reports* over the next three years. However, there are problems involving rapid printing when the printers have many manuscripts on hand. Although this problem is quite independent of the work of the Section Editors, it is not made easier by the obvious difficulty that they have in predicting when their manuscripts may be completed.

It has been planned that Vol. 21 be published in December 1964, Vols. 22 and 23 by the end of 1965, and Vols. 24–27 by the end of 1966.

Commission on International Tables

The retirement of Dame Kathleen Lonsdale from the chairmanship of the Commission after 15 years of service marked the end of the first period, during which three volumes were published and financial reserves built up.

At the Rome Congress the Commission was re-formed, and since that time communication has been maintained between the members in order to prepare the work which is being undertaken. The tasks before the Commission are (*a*) a new edition of Vol. I; (*b*) preparation for eventual new editions of Vols. II and III; (*c*) publication of a Vol. IV to complete classical symmetry; and (*d*) preparation of a plan for 'Symmetry beyond the 230'.

Arrangements have been made for some informal meetings, to be held during the first half of 1964, for working out proposals and to start work on the tasks listed above.

Commission on Crystallographic Apparatus

With the completion of the duties of the 1960–63 Commission at the Sixth Congress, activities in Rome represented a considerable part of its work.

1. An exhibition of non-commercial crystallographic apparatus, devices, models and teaching aids was presented during the Congress.

2. *Automatic single-crystal diffractometers for X-rays and neutrons.* Two open sessions of the Commission at Rome dealing with this subject were held. The first session consisted of six invited papers, the second comprised contributed papers only. To provide a compact assessment of the current status of diffractometry, arrangements were made for the publication, as a group, of the invited papers which were made available (*Acta Cryst.* (1964), **17**, 1183).

Other projects for which the 1960–63 Commission was responsible are:

3. *Comparison of commercial X-ray films.* The final report of this investigation of the properties of 43 types of film was published in *Acta Cryst.* (1963), **16**, 1107.

4. *Bibliographies.* Two bibliographies had been prepared, on low-temperature and on high-temperature X-ray diffraction techniques respectively. A third bibliography on automatic single-crystal diffractometry had been planned.

The Commission for 1963–66 held its first meeting at Rome. It was decided that more direct responsibility for specific projects would be borne by individual members of the Commission.

5. *Bibliographies.* Dr E. G. Steward will be responsible for this project. It was agreed that the bibliographies should be distributed with *Acta Crystallographica* as they become available. Other information, such as lists of reviews, may be published as brief notes, if suitable.

6. *Index of Crystallographic Supplies.* It was decided that the Index should not be continued in its present form. However, information on less well-known items

is of considerable value and should be collated. Since such information is ephemeral, it was considered more appropriate that the data be collected for limited subjects and published as a single- or double-sheet insert with *Acta Crystallographica*. Dr V. Scatturin will supervise this project.

7. *Single-crystal intensity measurements on diffractometers.* With the advent of automatic and semi-automatic single-crystal diffractometers there is considerable activity in the study of the factors which determine the accuracy of single-crystal intensity measurement and the spread of values likely to be encountered with different techniques. The American Crystallographic Association already has a study group which is concentrating on the problem as related to the measurements on an individual single crystal which will be passed from laboratory to laboratory. It would appear to be of interest to determine not only the accuracy ascribed to one crystal but also the spread of values which would occur if a material were measured in different laboratories under the conditions normally encountered there and with the equipment there available. The results should be interesting with regard to personal and statistical assessment of accuracy. Dr S. C. Abrahams will be responsible for this project and will be aided by Drs D. C. Phillips and Y. Saito, who have been appointed consultants for this purpose.

8. *Exhibition of non-commercial apparatus at the next Congress in Moscow.* To permit adequate time for planning, this project has been initiated early. Prof. M. M. Umansky has agreed to be responsible for it.

9. *Image converters.* The development of these devices for the direct observation of diffraction patterns should show considerable advances during the next three years and it is proposed that an Open Session on this subject should be organized for the Moscow Congress.

Commission on Crystallographic Computing

The outgoing Commission met briefly in Rome in September 1963. No other business was transacted than making recommendations for the new Commission. The new Commission met after its election and discussed plans for future activities. It was tentatively decided that a new edition of the *World List of Crystallographic Computer Programs* should be published in 1964.

Commission on Crystallographic Data

During the Rome Congress two open sessions on Crystallographic Data had been organized by the Commission. At the first session an address on the Uses of Crystal Structure Data, written by the Chairman, Prof. J.D.Bernal, was read in his absence. It was supplemented by reports on the work of the various National Data Committees, on *Crystal Data* and on *Structure Reports*. The second session was devoted to Powder Data; three formal papers were presented, after which general problems relating to Powder Data were discussed by a panel of experts in the field.

The Commission, in conjunction with the Commission on Crystallographic Teaching, was responsible for a book exhibition, which attracted many visitors.

The work of the Commission in helping the compilation of data through its various National Committees culminated on 1 April 1963, when the second edition of *Crystal Data, Determinative Tables* appeared as ACA Monograph No. 5. This compendium of some 13,000 entries has been recognized as a valuable addition to crystallographic literature (see *Acta Cryst.* (1964), **17**, 73; *Amer. Min.* (1963), **48**, 1422).

The newly elected Commission met twice at the close of the Congress. The following activities were planned:

(*a*) Continued support of all organizations concerned with compilation and publication of crystallographic data.

(*b*) Standardization of the presentation of crystallographic data in primary publications.

(*c*) Inclusion of crystal data in the various national pharmacopoeias.

(*d*) Continued cooperation with the Commission on Crystallographic Teaching on producing and updating the *List of Books on Crystallography*.

(*e*) Study of recent developments in methods of information retrieval, with a view to producing a general bibliography of crystallography.

Commission on Crystallographic Nomenclature

Correspondence continued on the numbering of atoms, the nomenclature of structure types, and the adjective corresponding to epitaxy. It appears that 'epitaxic' is etymologically correct, and the form used by the originator of the word (*Acta Cryst.* (1963), **16**, 1261).

The responsibility for the nomenclature of structure types has been delegated by the Executive Committee to an *ad hoc* Committee, but the Commission on Crystallographic Nomenclature is participating in the activities of this committee and those of an earlier committee set up by the American Society for Testing Materials.

Commission on Crystallographic Teaching

The major activities of the Commission in 1963 were directed towards the Sixth International Congress in Rome.

1. *Book exhibit.* With the cooperation of the Data Commission and the Diffusione Edizioni Americane, a very instructive exhibit of textbooks and reference books dealing with crystallography and crystallographic subjects was arranged for the International Congress.

2. *Open session.* An open session, with about ten papers and films on subjects dealing with crystallographic teaching, was held. This session brought forward some useful ideas that were later discussed at the business meeting of the Commission.

Three meetings of the Commission were held during the Rome Congress, and resulted in the following action or decisions.

3. The Syllabus File will be continued under the care of Prof. S. Furberg in Oslo.

4. A new edition of the Book List will be published in the form of a separate pamphlet. Also a list of crystallographic films is in preparation; efforts will be made to get short annotated notices on each of the films. The Commission plans to find methods to stimulate the production and circulation of films useful in the teaching of crystallography.

5. At the request of the Executive Committee, preliminary plans were made for an investigation of the status of teaching and research in crystallography.

6. Plans were also made for a summer school to acquaint teachers of crystallography with the latest developments in the field, this school to be held immediately before or after the next Congress in 1966.

7. The Commission is considering recommendation of the publication by the Union of a volume containing reprints of the now historic papers in crystallography. The scope and content of the book are still being discussed.

8. The Commission recommended that the Union be represented on the ICSU Inter-Union Commission on Science Teaching. On behalf of the Commission, Prof. N. Joel attended a meeting on Physics in General Education, held in Rio de Janeiro in June. The ICSU Inter-Union Commission on Science Teaching is planning a congress in 1965 on 'Scientific Teaching and Economic Development', dealing with (*a*) Evolution and Coordination and Fundamental Teaching; (*b*) Methods and Systems of Teaching in Developing Countries; and (*c*) the Teaching of Science Relevant to the Important Applications for the Future of Humanity. The IUCr Teaching Commission will be represented at this congress and will give special attention to the interrelationship of crystallography and the other sciences in these problems.

Commission on Electron Diffraction

At the beginning of September 1963 a symposium on electron diffraction, organized by Prof. S. Goldsztaub and his coworkers, was held in Strasbourg. It was a successful and well visited meeting.

During the IUCr Congress in Rome, the Commission had a number of business meetings. The main items of discussion were the new membership of the Commission, and the International Conference in Melbourne in August 1965. Part 1 of this Conference will be on 'Electron Diffraction', and the advice of the Commission had been asked for the topics for and the organization of this meeting.

Representation on other bodies

Abstracting Board of the International Council of Scientific Unions

The Executive Committee of the ICSU Abstracting Board met in Philadelphia, Pa., U.S.A., at the end of September, immediately after the first UNESCO Working Group on Scientific Publications. As these meetings followed so closely after the Sixth General Assembly and International Congress of the Union, it was unfortunately not possible for either of the Observers to be present.

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

1. At its meeting in Warsaw in September 1963, IUPAP elected the following as members of its Commission on the Solid State: W. Boas (Australia), W. Dekeyser (Belgium), F. H. Laves (Switzerland), P.-O. Löwdin (Sweden), G. W. Rathenau (Netherlands), F. Seitz (U.S.A.) and S. N. Zhurkov (U.S.S.R.), with F. Seitz and G. W. Rathenau as Chairman and Secretary respectively.

2. In 1963 two successful International Conferences took place, which were sponsored by IUPAP at the proposal of the Commission. The first of these meetings was on 'Lattice Dynamics', and was held in Copenhagen from 5 to 9 August; the second meeting, on 'Superconductivity', was held at Hamilton, N.Y., U.S.A., from 26 to 29 August.

3. *Future conferences.* The Commission has been asked to sponsor and support International Conferences on (*a*) 'The Solid-state Physics Aspects of Non-crystalline Media', to be held at Delft, Netherlands, 6–10 July 1964; and (*b*) 'The Nature of Defects in Crystals' to be held at Melbourne, 16–20 August 1965. For both meetings the Commission recommended IUPAP's sponsorship and support.

Topics of future Conferences, considered to be promoted by the Commission, include: application of physical non-diffraction methods to the investigation of atomic arrangements; band structure and localized electron bonds in metallic systems; theory of crystal fields and applications (ligand theory); transport phenomena in solids (with special attention to relaxation times); ESR and NMR from first principles. Further suggestions are invited.

International Council of Scientific Unions

The Retiring President, Prof. P. P. Ewald, represented the Union at the Extraordinary and the 10th General Assembly of ICSU, and at the 15th meeting of the ICSU Executive Board. These meetings were held in Vienna from 17 to 29 November.

The main reason for calling the extraordinary General Assembly was the proposed new structure of the Council. Various Unions, including IUCr, had objected to a suggested grouping of the Unions for the purpose of representation on the proposed new Executive Committee of ICSU. Objections had further been raised against a proposal that the Union representatives should be appointed for periods of four years, and that alternates with full voting power should not be allowed to substitute. With the exception of these proposals, a new structure and new statutes, substantially as recommended by the Committee on the Future Structure of ICSU, were adopted. The major changes include (*a*) the replacement of the previous Executive Board by an Executive Committee, on which also ten representatives from the National Members of ICSU will serve [the National Members were previously only represented at the General Assemblies]; (*b*) the replacement of the previous Bureau by a Board of Officers elected from among the members of the Executive Committee; (*c*) a reduction of the period between successive General Assemblies from three to two years; and (*d*) the abolition of the distinction between General and Specialized Scientific Unions.

The General Assembly approved the adherence of six new National Members, but no new Unions were admitted. It further decided that the publication of the *ICSU Review* be stopped, but that the *Information Bulletin* be continued in an improved form. The relations of ICSU with UNESCO and with developing countries, the International Biological Programme, the International Year of the Quiet Sun, the International Hydrological Decade, and the Upper Mantle Project were other important items of discussion.

Finances

The audited accounts of the Union for the year 1963 are published at the end of this Report. The amounts are again expressed in Netherlands Guilders, and the following rates of exchange were used: £1 = $2·80; $1 = *f.*3·62 = Fr.Fr.4·90 = Sw.Kr.5·17 = D.Kr.6·90. According to a statement received from ICSU, these rates were the standard rates of exchange used by the U.N. organizations on 1 January 1964.

As in previous years the *Acta Crystallographica* account for 1963 again shows a deficit, but whereas the deficit amounted to *f.*16,058 in 1962, it was only *f.*10,958 in 1963. From a comparison of the accounts for 1962 and 1963 it can be seen that the increase in the income from subscriptions, and in particular from the sales of back numbers, exceeded the increase in the annual cost of production. The total income from these sources was *f.*178,296 in 1962 and *f.*196,979 in 1963. The publication expenses for the regular twelve parts of the journal were about equal in the two years, but in 1963 an additional part was published which contained the abstracts of the papers presented at the Congress and Symposia in Rome. The printing and distribution of this part 13 involved an additional expenditure of *f.*10,284. The total editorial expenditure increased from *f.*36,970 in 1962 to *f.*40,664 in 1963.

The continuing increases in the publication and editorial expenses made an adjustment of the subscription prices unavoidable; moreover the size of the journal is expected to expand further during the coming years. The Executive Committee made this decision at its meeting in Rome. Thanks to the much larger present circulation of the journal, however, the increase in the subscription prices could be kept small in relation to the increase in the size of the annual volumes during the preceding period of about ten years, in which the subscription prices had not been changed. In consequence of the increased subscription prices, a number of profitable years without deficits can be expected.

In 1963 the cost of printing and binding of three volumes of *Structure Reports* was paid, *viz.* Vols. 17, 19 and 20. The total income from the sales of copies, in particular from these three volumes, was, however, much higher than the total publication and editorial expenditure during 1963. The account for 1963 shows a profit of *f.*41,852, and the accumulated balance in the account increased to *f.*161,630.

Also the *International Tables* account for 1963 shows a higher profit, of *f.*69,816. Vol. III, which appeared in 1962, was sold at a most satisfactory rate. Already in 1962 it could be noted that the appearance of this volume had stimulated the sales of copies of Vols. I and II. In 1963 the sales of copies of these volumes continued to increase. Notwithstanding the relatively low selling prices for the three volumes, their cost of production has been recovered much sooner than anticipated. The accumulated balance in the account, which amounted to *f.*171,695 at the end of 1963, is more than sufficient for a new printing which will soon become necessary.

The accumulated deficit in the *Fifty Years of X-ray Diffraction* account decreased from *f.*14,514 at the end of 1962 to *f.* 3364 at the end of 1963. The income from the sales of copies was about equal in the two years. It may be expected that the total cost of production of the first printing will practically be recovered when all copies have been sold. The type of the book has been kept for a new printing, undertaken early in 1964.

The accumulated balance of the General Publications Fund did not change in 1963, and remained at *f.*84,562.

Unlike the publication accounts, the General Fund suffered an appreciable deficit in 1963. The main cause of this deficit was the heavy expenditure in connection with the Sixth General Assembly and International Congress in Rome, which amounted to *f.*78,234. The major part of this expenditure was paid for travel and subsistence reimbursements and grants, together amounting to *f.*47,203. Through ICSU a subvention of *f.*21,720 was received from UNESCO towards the cost of these meetings, so that a total amount of *f.*56,514 was paid from the funds of the Union.

A comparison of the General Fund accounts for 1962 and 1963 shows that the administrative expenses, which had been rather low in 1962, increased from *f.*8,095 to *f.*12,235. On the other hand a total amount of only *f.*1,092 was paid in 1963 for various activities of the non-publishing Commissions. This expenditure amounted to *f.*7,154 in 1962, after deduction of a sum of *f.*4,512 spent in that year by the Programme Committee for the Rome Congress.

The income of the General Fund was only slightly larger in 1963 than in 1962. In addition to the UNESCO subvention already mentioned, the major sources were the subscriptions from the Adhering Bodies (*f.*27,134 in 1963 against *f.*25,506 in 1962) and the income from investments and interest on banking and deposit accounts (*f.*17,844 in 1963 against *f.*18,114 in 1962).

The total expenditure of the General Fund in 1963 exceeded income by *f.*26,049, and the accumulated balance of the Fund decreased to *f.*82,651.

In 1963 the holding of investments was enlarged by the purchase of $20,000 3% Nederland 1947. On the other hand the following securities were redeemed: *f.*2000 3% Nederland 1937, $1000 3% Nederland 1947, *f.*2000 3% Nederlandsch Indië 1937 and *f.*1000 4% Unie van Zuid Afrika 1955. As on the previous Balance Sheet, the investments have again been valued according to their quotations as at the end of the year. Their depreciation in value, together amounting to *f.*2005, has not been charged against the General Fund, but it has been included as an asset on the Balance Sheet so that the General Fund account is not influenced by the annual fluctuations in the value of the investments.

The larger parts of the balances with the various banks are still placed on deposit accounts, namely, at the end of 1963, *f.*25,000 with the Amsterdamsche Bank N.V., $12,183 with the First National City Bank of New York, Sw.Kr.111,439 with A.B. Svenska Handelsbanken, and £7069 with the Westminster Bank Ltd. The amounts due from the three publishers represent the balances of the 1963 accounts with these firms, and the amounts concerned were received in 1964.

International Union of Crystallography

Acta Crystallographica Account for the year ended 31 December 1963

		Netherlands Guilders				*Netherlands Guilders*	
Publication Expenses:							
Printing and Binding, Vol. 16, 1963	(D. Kr. 273,518·57)	143,498·15		Subscriptions to Vol. 16, 1963	(D. Kr. 318,012·97)	166,841·59	
Distribution and Postage	(D. Kr. 38,073·00)	19,974·53		Sale of Back Numbers and Single Copies	(D. Kr. 111,081·16)	58,277·36	
Printing and Shipment Part 13		10,283·59				225,118·95	
			173,756·27	*Less* Publishers' Commission on Sales	(D. Kr. 53,636·76)	28,139·86	
Editorial Expenses:							196,979·09
Editorial Honoraria and Secretarial Assistance		33,315·31					
Postages, Telephone, Office Supplies, Stationery and Sundries		2,511·96		Income from Advertisements		10,274·53	
Travelling Expenses		4,002·55		*Less* Advertising Agent's Commission		1,593·66	
Shipment of files from Copenhagen to Chester		267·15					8,680·87
Depreciation of Office Equipment		566·63		*Excess of Expenditure over Income carried to Balance Sheet*			10,957·87
			40,663·60				
Cost of Advertisements	(D. Kr. 4,189·48)		2,197·96				
			f. 216,617·83				*f.* 216,617·83

Fifty Years of X-ray Diffraction Account for the year ended 31 December 1963

Storage of Type	658·90	Sale of Copies	14,314·00	
Excesss of Income over Expenditure carried to Balance Sheet	11,150·15	*Less* Publishers' Commission on Sales	2,504·95	
				11,809·05
	f. 11,809·05			*f.* 11,809·05

Structure Reports Account for the year ended 31 December 1963

Publication Expenses:				Sale of Copies of Vols. 8–16	22,457·75	
Printing and Binding, Volume 17 (for 1953)	34,257·27			Sale of Copies of Vol. 17	73,470·00	
Volume 19 (for 1955)	27,713·01			Sale of Copies of Vol. 18	12,779·00	
Volume 20 (for 1956)	29,050·26			Sale of Copies of Vol. 19	41,055·30	
Binding Additional Copies of Volume 8	712·50			Sale of Copies of Vol. 20	38,805·30	
Volume 12	798·66				188,567·35	
		92,531·70		*Less* Publishers' Commission on Sales	33,888·07	
Editorial Expenses:						154,679·28
Editorial Honoraria, Abstractors' and Assistants' Salaries	19,883,57					
Office Expenses and Sundries	411·64					
		20,295·21				
Excess of Income over Expenditure carried to Balance Sheet		41,852·37				
		f. 154,679·28				*f.* 154,679·28

International Tables Account for the year ended 31 December 1963

	Netherlands Guilders	
Publication Expenses:		
Binding Additional Copies of Volume I	1·427·15	
Volume II	1,769·75	
Volume III	1,227·10	
		4,424·00
Editorial Expenses:		
Travelling Expenses and Sundries		71·33
Excess of Income over Expenditure carried to Balance Sheet		69,815·86
		f. 74,311·19

		Netherlands Guilders	
Sale of Copies of Volume I		17,522·23	
Sale of Copies of Volume II		19,071·22	
Sale of Copies of Volume III		52,788·54	
		89,381·99	
Less Publishers' Commission on Sales	14,835·18		
Bank Charges and Differences	235·62		
		15,070·80	
			74,311·19
			f. 74,311·19

General Fund Account for the year ended 31 December 1963

Subscription to ICSU (2% of subscriptions received from Adhering Bodies in 1962)		514·44
Administrative Expenses:		
Honorarium General Secretary and Secretarial Assistance	7,118·36	
Auditors' Fees	1,700·00	
Postages, Stationery, Printing and Sundries	2,695·66	
Bank Charges and Differences on Exchange	661·37	
Depreciation of Office Equipment	60·00	
		12,235·39
Sixth General Assembly and International Congress, Rome, Italy		
Travel Expenses and Travel Grants	47,203·36	
Expenses Programme Committee and Honoraria	13,509·83	
Printing and Distribution of Collected Abstracts	14,140·38	
Expenses of Rapporteurs	3,342·88	
Miscellaneous Expenses	37·42	
		78,233·87
Incidental Travelling Expenses		1,185·98
Expenses of Commissions:		
Commission on Crystallographic Apparatus	402·68	
Commission on Crystallographic Data	31·00	
Bibliographies	658·48	
		1,092·16
		f. 93,261·84

Subvention from UNESCO through ICSU	($ 6,000·00)		21,720·00
Subscriptions from Adhering Bodies			27,134·24
Interest on Investments:			
3¼% Australia 1965/69		1,219·87	
6% Conversion Stock 1972		1,117·50	
3% Nederland 1937		1,020·00	
3% Nederland 1947		4,036·45	
3% Nederlandsch Indië 1937		1,415·00	
4½% Noorwegen 1955		255·00	
4% Unie van Zuid Afrika 1955		220·00	
			9,283·82
Profit through Redemption of Investments			399·94
Interest on Banking and Deposit Accounts			8,160·62
Sale of Copies of *World Directory of Crystallographers*		177·08	
Less Publishers' Commission		44·27	
			132·81
Sale of Copies of Abstracts		384·08	
Less Publishers' Commission		2·95	
			381·13
Excess of Expenditure over Income carried to Balance Sheet			26,049·28
			f. 93,261·84

Balance Sheet as at 31 December 1963

Liabilities			*Assets*			
Sundry Creditors:			**Cash at Bank:**			
Acta Crystallographica Editorial Expenses	14,155·65		Amsterdamsche Bank N.V., Groningen, Guilder account		30,237·70	
Administrative Expenses	1,365·61		Amsterdamsche Bank N.V., Groningen, Dollar account ($ 3,801·82)		13,762·59	
Travelling Expenses	667·28		Comptoir National d'Escompte de Paris (N.F. 1,279·43)		945·21	
Miscellaneous Expenses	405·30		First National City Bank of New York ($ 12,501·21)		45,254·38	
		16,593·84	A.B. Svenska Handelsbanken, Stockholm (Sw. Kr. 111,439·49)		78,029·20	
Acta Crystallographica Account:			Westminster Bank Ltd, Cambridge (£ 7,069.2.6)		71,652·65	
Balance as at 1 January 1963	161,963·80					239,881·73
Less Excess of Expenditure over Income for the year to date	10,957·87		**Cash with Editors and Commissions:**			
		151,005·93	Editor and Co-editors of *Acta Crystallographica*		5,454·36	
Structure Reports Account:			Commission on Crystallographic Teaching (£ 6. 6.2)		63·94	
Balance as at 1 January 1963	119,777·42		Programme Committee for Rome Congress (£ 7.17.5)		79·78	
Add Excess of Income over Expenditure for the year to date	41,852·37					5,598·08
		161,629·79	**Due from:**			
International Tables Account:			Imperial Metal Industries Ltd, Birmingham (£ 2,775.17.11)		28,136·48	
Balance as at 1 January 1963	101,878·83		Messrs Munksgaard, Copenhagen (D. Kr. 59,345·69)		31,134·99	
Add Excess of Income over Expenditure for the year to date	69,815·86		N. V. A. Oosthoek's Uitgevers Mij, Utrecht		49,034·74	
		171,694·69				108,306·21
General Publications Fund:			Subscriptions from Adhering Bodies due for 1963			1,303·20
Balance as at 1 January 1963		84,561·63	Advertisements in *Acta Crystallographica*, due for 1963, after deduction of Advertising Agent's Commission			6,360·30
General Fund:			**Investments (Market values as at 31 December 1963):**			
Balance as at 1 January 1963	108,699·90		£ 3,702.19.3 3½% Australia 1965/69	88⅞	33,347·44	
Less Excess of Expenditure over Income for the year to date	26,049·28		£ 3,000·00 6% Conversion Stock 1972	107	32,536·56	
		82,650·62	*f.* 33,000·00 3% Nederland 1937	87	28,710·00	
			$ 45,000·00 3% Nederland 1947	90	145,980·00	
			f. 47,000·00 3% Nederlandsch Indië 1937[1]	98	46,060·00	
			f. 6,000·00 4¼% Noorwegen 1955	95	5,700·00	
			f. 5,000·00 4% Unie van Zuid Afrika 1955	89	4,450·00	
					296,784·00*	
			Add Interest accrued thereon		2,941·77	
					299,725·77	
			Add Depreciation in value of Investments, entered as an asset		2,005·43*	
						301,731·20
			Office Equipment			1,591·89
			Fifty Years of X-ray Diffraction Account:			
			Deficit as at 1 January 1963		14,514·04	
			Less Excess of Income over Expenditure for the year to date		11,150·15	
						3,363·89
			Stocks of Unsold Copies of Union Publications			*pro memoria*
		f. 668,136·50				*f.* 668,136·50

Rates of Exchange: £1 = $2·80; $1 = *f.* 3·62 = N. F. 4·90 = D. Kr. 6·90 = Sw. Kr. 5·17 (ICSU rates)

* As in the 1961 and 1962 accounts, the depreciation in value of the investments has been included in the Balance Sheet only, to prevent fluctuations in their values from influencing the General Fund account.

We declare that the above Balance Sheet as at 31 December 1963, and the attached *Acta Crystallographica* Account, *Fifty Years of X-ray Diffraction* 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 Emmiussingel 75. 7 October 1964 Signed: VAN DIEN, VAN UDEN & Co. *Accountants*