

## International Union of Crystallography

### Report of the Executive Committee for 1987

#### Fourteenth General Assembly and Congress

The Fourteenth General Assembly and International Congress of Crystallography were held at the University of Western Australia, Perth, Australia, 12–20 August 1987, by invitation of the Society of Crystallographers in Australia and the Australian Academy of Science. A report, including a detailed report of the General Assembly, has been published [*Acta Cryst.* (1988). **A44**, 567–621].

The General Assembly and Congress were attended by 889 scientists from 49 countries, together with 188 accompanying persons.

The first Ewald Medals and Prizes were presented at the Opening Ceremony. A special medal was given to Mr Arnold Ewald, who was representing the Ewald family. Then the awardées, Professor J. M. Cowley and Dr A. F. Moodie, received their medals and prizes. B. W. Matthews gave the Bragg Lecture, entitled *Crystallography in the Life Sciences*.

There were 12 Main Lectures and 32 Microsymposia. The afternoons were reserved for poster sessions and *ad hoc* sessions. There were also two evening symposia, on high-critical-temperature superconductors and on new developments in direct methods, the latter symposium in honour of Nobel Laureates Herbert Hauptman and Jerome Karle. About 700 papers were presented. The detailed plan for the scientific programme had been compiled by an international Programme Committee at a preparatory meeting in July 1986. The abstracts submitted were printed, by direct reproduction of the typescript copy, in a book of Collected Abstracts and in a Supplement to *Acta Crystallographica*, Volume A43, dated 1 August 1987.

Exhibitions of commercial crystallographic equipment, non-commercial apparatus and books were held during the Congress. A microcomputing display was organized by the Commissions on Crystallographic Computing and Crystallographic Teaching, whilst the Commission on Crystallographic Data organized a database demonstration.

The General Assembly met on the evenings of Thursday 13 August, Friday 14 August and Tuesday 18 August. The Bulgarian Academy of Sciences was accepted as an Adhering Body in Category I and the Category of Adherence for the Council for Scientific and Industrial Research in South Africa was increased to Category II.

The Assembly received the triennial financial report and the reports of the Executive Committee, the Commissions and the Union Representatives on other bodies since the Thirteenth General Assembly in 1984. New Officers of the Union, Chairmen and members of Commissions and Union Representatives were elected, the full list of these people being given as an annex to the report of the Fourteenth General Assembly and Congress. A Commission on Powder Diffraction was established and the Commission on Crystallographic Studies at Controlled Pressures and Temperatures was terminated, these fields being incorporated within the Commission on Crystallographic Apparatus. An *ad interim* Commission on Modulated Structures, Polytypes

and Quasi-crystals and a Working Party on Crystallographic Information were appointed. The establishment of an IUCr/Oxford University Press Book Series was reported. The Joint Committee on Powder Diffraction Standards–International Centre for Diffraction Data (JCPDS–ICDD) was accepted as a Scientific Associate and the Asian Crystallographic Association (ASCA) was accepted as a Regional Associate. The Assembly continued the unit contribution unchanged for the years 1988–1990 inclusive at SwFr 890.

The General Assembly reaffirmed its decision to hold the Fifteenth General Assembly and Congress in Bordeaux, France, 19–28 July 1990, and provisionally accepted an invitation from the Chinese National Committee for Crystallography and the China Association for Science and Technology to hold the Sixteenth General Assembly and Congress in Beijing in 1993.

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

#### Other Meetings

In conjunction with the Congress mentioned above, the Union sponsored several satellite meetings held in Australia, namely: Symposium on the Validity of Structures from Electron Microscopy, Melbourne, Victoria, 7–9 August; Symposium on Neutron Scattering, Lucas Heights, New South Wales, 8–10 August; Symposium and Workshop on X-ray Powder Diffractometry, Perth, Western Australia, 20–22 August; International Winter School on Crystallographic Computing, Bedford Park, South Australia, 22–29 August; Symposium on Accuracy in Structure Factor Measurements, Lorne, Victoria, 23–26 August.

Other meetings held in 1987 and sponsored by the Union were: Meeting on Applications and Techniques of Small Angle Scattering, Argonne, Illinois, USA, 26–29 October; International School on Crystal Growth and Characterization of Materials for Electronics, La Habana, Cuba, 30 November–11 December.

#### Executive Committee

The membership of the Executive Committee, including new members elected at the General Assembly in 1987, is as follows:

President: Professor M. Nardelli (Italy); Vice-President: Professor Y.-q. Tang (People's Republic of China); General Secretary and Treasurer: Professor A. I. Hordvik (Norway); Immediate Past President: Professor Th. Hahn (Federal Republic of Germany); Ordinary Members: Professor A. Authier (France), Professor P. Coppens (USA), Dr R. Diamond (UK), Professor A. Kálmán (Hungary), Dr E. N. Maslen (Australia), Professor S. A. Semiletov (USSR).

Table 1. Survey of the contents of the Union Journals

*Acta Crystallographica*

Vol.	Year	Number of Pages*	Number of Papers	Full Articles		Short-Format Papers		Short Communications		
				Number	Average Length	Number	Average Length	Number	Average Length	
A39 } B39 } † C39 }	1983	950 } 770 } 3434 1714 }	146 } 121 } 912 645 }	129 } 118 } 247 636 }	6.4 } 6.4 } 6.4 2.7 }	— } — } — }	— } — } — }	17 } 3 } 29 9 }	1.0 } 0.6 } 0.8 0.9 }	
A40 } B40 } ‡ C40 }		1984	728 } 616 } 3470 2126 }	123 } 99 } 1033 811 }	109 } 99 } 208 789 }	6.2 } 6.2 } 6.2 2.7 }	— } — } — }	— } — } — }	14 } — } 36 22 }	1.1 } — } 0.9 0.8 }
A41 } B41 } C41 }			1985	624 } 456 } 2916 1836 }	114 } 67 } 884 703 }	108 } 66 } 174 686 }	5.4 } 6.4 } 5.8 2.6 }	— } — } 8 }	— } — } 1.5 }	6 } 1 } 16 9 }
A42 } B42 } C42 }	1986			588 } 640 } 3120 1892 }	98 } 90 } 920 732 }	85 } 89 } 174 648 }	6.3 } 7.0 } 6.7 2.7 }	— } — } 75 }	— } — } 1.6 }	13 } 1 } 23 9 }
A43 } B43 } § C43 }		1987		840 } 584 } 3896 2472 }	128 } 100 } 1223 995 }	114 } 91 } 205 817 }	6.5 } 6.3 } 6.4 2.7 }	— } — } 174 }	— } — } 1.7 }	14 } 9 } 27 4 }

*Journal of Applied Crystallography*

Vol.	Year	Number of Pages*	Number of Papers	Full Articles		Short Communications		Crystal Data		Computer Programs		Short Items**	
				Number	Average Length	Number	Average Length	Number	Average Length	Number	Average Length	Number	Average Length
16	1983	661	135	86	6.8	11	1.7	21	0.6	12	2.7	5	1.0
17	1984	488	104	66	6.2	11	1.5	7	0.5	7	2.4	14	0.9
18	1985	546	108	80	5.5	9	1.8	5	0.4	7	3.3	7	0.8
19	1986	492	104	71	6.1	12	1.6	10	0.4	7	1.9	8	0.8
20	1987	538	105	70	5.7	12	2.0	4	0.5	15	3.1	4	0.6

\* Excluding indexes.

† Volume 39 divided into three new Sections.

‡ Volume A40 includes, in addition, 542 pages of abstracts communicated to the Hamburg Congress.

§ Volume A43 includes, in addition, 360 pages of abstracts communicated to the Perth Congress.

\*\* Excluding Union Announcements, Crystallographers, New Commercial Products and Book Reviews.

**Publications**

Volume 43 of *Acta Crystallographica* and Volume 20 of the *Journal of Applied Crystallography* were published, as were Volume 51A of *Structure Reports*, a second, revised edition of Volume A of *International Tables for Crystallography* and *Crystallographic Databases*.

**Adhering Bodies**

The latest list of Adhering Bodies of the Union, the names and addresses of the Secretaries of the National Committees, and the full memberships of these Committees are given in Annex IV to the report of the Fourteenth General Assembly and Congress [*Acta Cryst.* (1988). **A44**, 618–619].

**Work of the Commissions***Commission on Journals*

Volumes 43 of *Acta Crystallographica* (*Acta*) and 20 of the *Journal of Applied Crystallography* (*JAC*) were produced and published in 1987. The total number of papers

published in *Acta* increased 33% as compared with 1986, and those in *JAC* increased by 1%. Sections A, B and C of *Acta* all had significant increases in numbers of papers published, continuing a rise that began in 1985. Overall, 3896 *Acta* pages were published in 1987 compared with 3120 in 1986. For *JAC*, the number of pages increased from 492 in 1986 to 538 in 1987.

The average length of full articles in *Acta* decreased from 3.5 pages in 1986 to 3.4 pages in 1987, the largest average decrease being in Section B from 7.0 to 6.3 pages (see Table 1). Those in *JAC* decreased from an average length of 6.1 pages in 1986 to 5.7 pages in 1987. Median publication times for full articles, the average elapsed time in months between the published acceptance and nominal publication dates, were 5.4 months for *Acta* A, 5.5 months for *Acta* B, 4.7 months for *Acta* C and 5.0 months for *JAC*. Corresponding publication times in 1986 were 5.7, 5.7, 4.8 and 4.8 months. Median publication times for Short Communications were 5.8 months for *Acta* A, 3.9 months for *Acta* B, 3.2 months for *Acta* C and 4.5 months for *JAC* in 1987. The median publication time for Short Format papers in *Acta* C was 4.5 months.

A total of 53 inorganic, 10 metal-organic and 31 organic related papers appeared in Section B in 1987, compared with 53, 5 and 27 respectively in 1986. By contrast, the distribution of papers in Section C was 119 inorganic, 288 metal-organic and 584 organic in 1987, compared with 80 inorganic, 201 metal-organic and 449 organic articles in 1986.

*Acta* papers were received from 57 countries in 1987, compared with 49 countries in 1986. *JAC* papers were received from 25 countries in 1987, compared with 20 countries in 1986.

The indexes that accompany *Acta* papers have been expanded to include a monthly 'List of Contributing Authors' in Section C. Cumulative abbreviated author indexes are included in final issues of *Acta* A, B and C. The index to Volume 20 of *JAC* was included in the final issue of the journal.

The Commission on Journals met in Perth on 10-12 August 1987 and reviewed most aspects of the journal publication programme of the Union. Among the decisions taken were the introduction of a new 'Fast Communications' section for *Acta*, which would permit timely papers to be published rapidly. In addition, it was decided that a trial mechanism would be implemented in collaboration with the Cambridge Crystallographic Data Centre for submission of structural papers directly to *Acta* in machine-readable form. It was agreed that the Commission would coordinate with the Commission on Biological Macromolecules and with other journals and international groups to develop standard policies governing the deposition and availability of coordinates and structure factors for macromolecular crystallographic studies. Revised *Notes for Authors* will be prepared, simplifying instructions and incorporating guidelines for 'Fast Communications', the submission of structural results in machine-readable form, and new policies relating to macromolecular crystallography.

C. E. Bugg was appointed to succeed S. C. Abrahams as Editor of *Acta* and Chairman of the Commission at the XIV General Assembly of the Union in August 1987. J. Albertsson, F. H. Allen, T. Ashida, B. M. Craven, J. P. Glusker and K. W. Muir were appointed Co-Editors of *Acta* during the year in succession to T. A. Hamor, C. E. Nordman, R. Norrestam and Y. Saito, whose resignations had been accepted. At Perth, the Commission extended its warm thanks to Sidney Abrahams for more than nine years of dedicated service as Editor of *Acta*, and to the retiring Co-Editors who have committed so much energy and time to their duties with the Commission.

#### Commission on Structure Reports

Co-editorial work has been completed for Volume 49B, is at an advanced stage for Volume 50B, and is in progress for 51B and 52B (Organic Compounds for 1982, 1983, 1984 and 1985 respectively). Preparation of the 10-year Index for the years 1971-1980 (Volume 47B) is under way. Volume 51A (Metals and Inorganic Compounds for 1984, 384 pages) was published in 1987; Volume 53A (Metals and Inorganic Compounds for 1986) was sent to the publisher and will appear in 1988. Work is nearing completion on the material necessary to finish off Volume 49A (Metals and Inorganic Compounds for 1982).

#### Commission on International Tables

The Commission held two Closed Meetings and one Open Meeting in the course of the XIV Congress. At the Open Meeting the Editors gave short accounts of the state of their volumes, E. Prince reported on experiments on the network transmission of scientific text, and the Technical Editor reported on direct photocomposition of contributions supplied in machine-readable form [*Acta Cryst.* (1987). A43, C298-C300]. Proposals for the content of a Volume D were discussed briefly. The Editors also reported individually to the Executive Committee on the problems and progress of their volumes.

The appointments of the Editors were confirmed for a further three years, and the Chairmen of certain relevant Commissions were made *ex-officio* members of the Commission.

The networks BITNET and EARN have been used to great advantage in speeding communications between the Editors and with some contributors. Network transmission of contributions has been only partially successful, primarily because of the great diversity of marking-up schemes and control characters.

#### Volume A (*Space Group Symmetry*; Editor Th. Hahn)

The second, enlarged and fully revised, edition was published in June 1987. It was on display at the XIV Congress, and its features were explained during the Open Meeting of the Commission. Preparations for the third edition have begun.

The second edition of the *Brief Teaching Edition* of Volume A was published in February 1988.

#### Volume B (*Reciprocal Space*; Editor U. Shmueli)

The work on Volume B during 1987 included (i) bringing to a final stage the Editor's own contributions, (ii) preparations for the extensive discussions that took place during the XIV Congress, and (iii) extensive correspondence with the authors of Volume B. One of the issues thoroughly discussed in Perth was the Editor's proposal to announce 31 May 1988 as a cut-off date for the submission of any material to be included in the present edition of Volume B. Although this was not approved by the Executive Committee, it remained the Editor's intention and was communicated, as such, to all the authors of Volume B, orally to those attending the various meetings held in Perth, and in writing to all authors.

Specific changes or progress related to chapters for which nothing was available at the time of the XIV Congress:

- 1.3 Fourier Methods. A new author has accepted an invitation to write this chapter. The previously invited one resigned.
- 2.4 Isomorphous Replacement and Anomalous Scattering. A final draft of the chapter has been received.
- 5.1 Dynamical Theory of X-ray and Neutron Diffraction. A draft of the theoretical part of the chapter has been received.

All authors were requested to examine their chapters and decide whether any updating was needed in view of the long time that had elapsed since the final drafts of many of them were submitted. Several authors have sent in slightly

revised versions of their contributions and the remaining ones apparently decided that no updating was needed.

On the technical side it is worth mentioning that the printers, J. W. Arrowsmith Ltd, decided to produce the Structure Factor and Space Group Tables of chapter 1.4 by photographic reduction of the typescript submitted rather than by photocomposition from machine-readable material. The typescript of the Tables was prepared by means of a laser printer with a set of fixed-width fonts, which produced good-quality camera-ready material.

*Volume C (Mathematical, Physical and Chemical Tables; Editor A. J. C. Wilson)*

Many authors have submitted final drafts, and several have provided machine-readable floppy disks or tape. Two substantial contributions and one extensive table have been successfully photocomposed from these submissions; trials with others continue. Withdrawal of authors has posed problems, several authors have failed to meet their promised deadlines, and it has not yet been possible to find willing authors for all sections.

The Volume is in ten Parts, each divided into chapters and sections. The current position (early 1988) is:

1. Crystal Geometry [C]
2. Diffraction Geometry [H]
3. Preparation and Examination of Specimens [H]
4. Production and Properties of Radiations [S]
5. Determination of Unit Cell and Refinement of Lattice Parameters [H]
6. Interpretation of Diffracted Intensities [S]
7. Measurement of Intensities [S]
8. Refinement of Structural Parameters [C except 8.7]
9. Basic Structural Features [H]
10. Precautions Against Radiation Injury [C]

The symbols in square brackets are C = complete, S = some sections missing, H = in rough draft or about half complete.

In suitable cases editorial updating of the corresponding parts of the old Volumes II-IV has been begun, but it may be found desirable to omit certain sections, planned but not of the highest priority, if they cannot be provided before the technical editing of Volume B is completed.

#### *Volume D*

With the approval of the Executive Committee, B. T. M. Willis is collating the various proposals concerning Volume D, and expects to make recommendations in the course of 1988.

#### *Commission on Biological Macromolecules*

The Commission held several meetings during the XIV Congress. At these meetings the activity on protein crystallography was reviewed. It was clear that the field continues to be vigorous and expanding. The need for a policy on the deposition of protein atomic parameters and diffraction data, a much discussed question, was recognized. Consequently a draft policy has been circulated throughout the world in order to ascertain the community's views. After considering these the Commission will produce a policy which will be forwarded to the Executive Committee. It is hoped that journals will accept the agreed policy and thus help ensure the scientific character of protein crystallographic research.

The valuable role of *Acta Cryst.* as an outlet for methodology papers is recognized. There is an opportunity for *Acta Cryst.* to publish papers with more biological content and discussions are taking place to establish how this can be encouraged.

The successful pattern of international meetings on crystallographic techniques and the structure and functioning of biological macromolecules continues. The meeting on crystallization at Strasbourg in July was well attended and focused attention on a problem of major importance for the field. The programme for the Erice meeting (1988) was seen to be a splendid mix of crystallographic techniques and new structural results.

#### *Commission on Charge, Spin and Momentum Densities*

The Commission held two Closed Meetings during the XIV Congress. The discussions were focused on the programme of the Sagamore IX meeting to be held in Luso-Buçaco, Coimbra, Portugal, 26 June-2 July 1988 and on the current and future activities of the Commission.

J. X. Boucherle accomplished a Compilation of Magnetic Form Factors and Magnetization Densities. The Commission intends to provide a forum to discuss the investigations of magnetic properties of condensed matter with X-rays from synchrotron-radiation facilities.

The microsposium on charge, spin and momentum densities at the XIV Congress demonstrated the important progress achieved on the experimental side of the field. In preparation for a possible new project, a two-day workshop on density matrices as intermediates between wavefunctions and experiments will be held in Coimbra prior to the Sagamore IX conference.

#### *Commission on Crystal Growth and Characterization of Materials*

The main accomplishments of the Commission in 1987 were the organization of a microsposium during the XIV Congress and the organization of an international school for developing countries.

The microsposium, on crystal growth and epitaxy of advanced materials, was structured in the form of an Open Commission Meeting. It was aimed at presenting important crystal-growth achievements, such as the preparation of advanced epitaxial structures, seen not so much as a meaningful breakthrough in the modern device technology but as an interesting research field open to crystallographers whenever sophisticated structural and microcompositional assessments of materials are concerned.

Continuing the series of international schools of the IUCr (Erice, Sicily, 1980; New Delhi, India, 1981; Cairo and Alexandria, Egypt, 1983 and 1986; Trieste, Italy, 1986), intended to help the transfer of knowledge and expertise in the general field of crystal growth and materials science to developing countries, the Commission helped to organize the International School on Crystal Growth and Characterization of Materials for Electronics in La Habana, Cuba, 30 November-11 December 1987. The Commission acted as Programme Committee (Chairperson: C. Paorici) and selected the 15 speakers of the school among internationally known experts in the field. The school, co-sponsored by the Cuban Academy of Sciences, was directed by A. N. Christensen (Aarhus University, Denmark) and was attended by 165 Cuban and 36 non-Cuban participants, mostly from Latin-American countries.

It is hoped to organize an international conference in Hungary, in 1989, on fundamental and applied research on epitaxial crystal growth and applications in electronics and other fields.

#### *Commission on Crystallographic Apparatus*

Prior to the XIV Congress, a number of matters which were under consideration by this Commission reached a conclusion: some satisfactory, others not.

(i) The X-ray Attenuation Project (D. C. Creagh) has finished its experimental phase and some of the data have been published [Creagh & Hubbell (1987). *Acta Cryst.* A43, 102-112]. The important results will be incorporated into the forthcoming Volume B of *International Tables for Crystallography*.

(ii) The Radiation Safety Project (S. Martinez-Carrera) will have its major findings summarized in the forthcoming Volume C of *International Tables for Crystallography*.

(iii) The Profile Refinement Project (J. Čermák/M. Zocchi) has been suspended.

(iv) The Single Crystal Lattice Constant Project (S. Martinez-Carrera & G. T. De Titta) has received enquiries from a number of laboratories interested in participating in the project and is now preparing to send out samples for measurement. More laboratories need to become involved in this project.

Subsequent to the XIV Congress, a number of significant organizational changes have occurred, both within the Commission and with other Commissions.

(i) The Commission is to have within it a consultative committee to consider matters concerning experimentation at high pressures and variable temperatures.

(ii) An inter-Commission committee is being set up with the Commission on Neutron Diffraction to discuss problems concerning the use and production of synchrotron radiation.

(iii) Consideration is being given to the formation of a committee involving the Commission and the Commissions on Journals, *International Tables* and Powder Diffraction to attempt to rationalize existing X-ray wavelength data. Correspondence on the matter has taken place between the Chairmen of these Commissions.

(iv) Discussions have taken place with the Chairman of the Commission on Powder Diffraction with a view to that Commission taking over the Profile Refinement Project.

#### *Commission on Crystallographic Computing*

The main activities of the Commission were focused on presentations at the XIV Congress and the subsequent International Winter School on Crystallographic Computing.

At the former the Commission organized an Open Meeting jointly with the Commission on Crystallographic Teaching, around the theme Microcomputers in Crystallography. It appeared to be a very popular subject, attracting a large number of attendees. A Microcomputer Laboratory was also arranged, with about ten microcomputers available for the participants to show and test software. In view of its success it will be repeated at least at the XV Congress and probably on other occasions as well.

In Perth the Commission also held two Closed Meetings at which the policy for the next triennium was determined. The Commission appointed new editors for the section Computer Program Abstracts in *J. Appl. Cryst.* and H. D. Flack conducted a campaign to popularize this section amongst program authors.

The International Winter School on Crystallographic Computing was organized under the leadership of M. R. Taylor and N. W. Isaacs, and was attended by over 100 participants. Excellent practical work sessions were held, making use of many different computer options. The Proceedings of the School will be published in 1988 as Volume 3 in the *IUCr Crystallographic Symposia* series published jointly by the IUCr and Oxford University Press.

#### *Commission on Crystallographic Data*

The Commission monograph *Crystallographic Databases: Information Content, Software Systems, Scientific Applications* was published in July 1987. Edited by F. H. Allen, G. Bergerhoff and R. Sievers, it contains 15 chapters by 28 authors. All the text was submitted in computer-readable form on magnetic tape or *via* electronic mail.

During the XIV Congress the Commission organized computer demonstrations of crystallographic databases, two Open Meetings (one held jointly with the Commission on Journals) and one Closed Meeting. A revised version of the Standard Crystallographic File Structure, SCFS-87, was presented by I. D. Brown. F. H. Allen succeeded G. Bergerhoff as Chairman and five new members were elected.

The Commission is currently discussing proposals for the machine-readable submission of manuscripts to *Acta Cryst.*, with emphasis on the involvement of the crystallographic databases, and on media and formats for information transfer. Some informal assistance has been given in the planning of a one-day Workshop on Inorganic Databases to be held at the Eleventh European Crystallographic Meeting (1988) in Vienna. The report on Recommendations for the Standardization of Unit Cell Descriptions is progressing and will be presented during 1988.

#### *Commission on Crystallographic Nomenclature*

The principal activities of the Commission in 1987 were those of its three hard-working committees, the *ad hoc* Committee on the Nomenclature of Symmetry, the Subcommittee on Statistical Descriptors in Crystallography and the Subcommittee on the Nomenclature of Inorganic Structure Types. A meeting of the Commission in person was held at the XIV Congress.

The Commission also sponsored Open Meetings of each committee during the XIV Congress. Abstracts of the principal presentations are published in *Acta Cryst.* (1987). A43, C140, C279-281, C305. The Open Meetings were well attended and gave rise to useful discussion. Each committee also met in Perth, several times, as work continued on the reports that all have in progress. These reports are entitled Definition of Symmetry Elements in Space Groups and Point Groups, Statistical Descriptors in Crystallography, and Nomenclature of Inorganic Structure Types. The Commission agreed in Perth that advanced drafts of these reports would be circulated among all interested Chairmen of IUCr Commissions for comment, before submitting them to the normal review process by the Commission itself and the IUCr Executive Committee. Following possible revision

and acceptance, the final reports will be published in *Acta Cryst.*

*Commission on Crystallographic Studies at Controlled Pressures and Temperatures*

This Commission was dissolved by the XIV General Assembly in August 1987.

*Commission on Crystallographic Teaching*

A summer school will be held in Tianjin, People's Republic of China, in September 1988. Many of the Commission members will attend. The Proceedings of the winter school held in Madras, India, in 1985 have now been published [*Direct Methods in Macromolecular Crystallography and Crystallographic Statistics* (1987)]. Edited by H. Schenk, A. J. C. Wilson & S. Parthasarathy. Singapore: World Scientific].

The IUCr Visiting Professor Programme, initiated by H. Schenk, is being implemented. The Commission is considering whether this programme might serve the international crystallographic community better at this time than further schools. This will be assessed at the time of the Tianjin school. However, sites for further schools are also being investigated.

The Commission met twice at the XIV Congress and plans to meet in 1988. Some plans for the XV Congress have been initiated.

The *Historical Atlas of Crystallography* will be published with the assistance of the IUCr. The Pamphlet Series will continue and a new Chairman will be appointed.

The feasibility of using video tapes from various countries around the world is being investigated by H. von Philipsborn. There are difficulties because of different specifications for such tapes in different parts of the world.

*Commission on Electron Diffraction*

The Open Commission Meeting on dynamical electron diffraction in transmission and reflection (THEED, MEED, LEED, RHEED) at the XIV Congress was of a high standard and was well attended. The subject area was also well represented in the main lectures and in many sections of the Congress programme. However, it may be noted that the representations of gas electron diffraction and LEED were disappointingly small.

Two satellite meetings of the XIV Congress were supported by the Commission: the Symposium on the Validity of Structures from Electron Microscopy and the Symposium on Accuracy in Structure Factor Measurements.

The Commission met in person at the XIV Congress. One outcome of this meeting was the proposal that the Commission should help compile a book on electron diffraction techniques within the IUCr *Monographs on Crystallography* series. The need for, and feasibility of, such a book are being explored.

The Commission continues to advise and assist the Editors on those sections of Volumes B and C of *International Tables for Crystallography* that relate to electron diffraction.

*Commission on Neutron Diffraction*

The Commission supported a satellite meeting of the XIV Congress on neutron scattering and applications.

The Commission met during the XIV Congress and discussed plans for future meetings and schools in the next

triennium. There will be two summer schools on neutron scattering in 1988, one at Chalk River, Canada, in June and the other at Harwell, England, in September. Two of the proposed satellite meetings of the XV Congress were endorsed by the Commission, one at Grenoble and one at Saclay, outside Paris. Both will involve neutron and synchrotron radiation, and conventional X-ray techniques.

For details of the joint committee with the Commission on Crystallographic Apparatus see the report of that Commission.

The Commission noted with pleasure that the terms of reference of the newly established Commission on Powder Diffraction included the promotion of useful interactions of the IUCr with the large world-wide body of X-ray and neutron powder diffractionists.

*Commission on Powder Diffraction*

The Commission was established by the XIV General Assembly in Perth. This was an action widely welcomed and considered by many to be long overdue.

In early 1986, the IUCr Executive Committee established an *ad hoc* committee to assess world-wide interest and, subsequently, to prepare specific proposals for the General Assembly to consider in determining whether to establish a Commission on Powder Diffraction. The terms of reference proposed by the committee and the Executive Committee, and accepted by the General Assembly, are:

(i) To advise the IUCr in organizing or sponsoring meetings, schools and IUCr Congress sessions on powder diffraction and related subjects.

(ii) To promote and coordinate scientific exchange between countries in the field of powder diffraction.

(iii) To cooperate with other IUCr Commissions on matters concerning powder diffraction.

(iv) To cooperate with other international bodies interested in powder diffraction and allied subjects.

(v) To promote useful interactions of the IUCr with the large world-wide body of X-ray and neutron powder diffractionists.

(vi) To promote the scientific growth and development of the field of powder diffraction.

Since the members of the *ad hoc* committee became the initial members of the Commission, they were able to meet three times during the XIV Congress to make plans for Commission projects. Among those being given first consideration are a program exchange 'bank', a satellite meeting at the 1990 IUCr Congress in Bordeaux, a workshop on the Rietveld method (to be held between August 1988 and August 1989), a newsletter, a round-robin with the Rietveld method involving both X-ray and neutron data and several samples, new book(s) possibly resulting from workshop(s), and a session on powder diffraction at the Bordeaux Congress.

By the end of the year, work was under way on several of these projects. The first newsletter, under the editorship of R. J. Hill, was nearing completion. The Rietveld workshop, for which IUCr sponsorship will be sought, will be held at the ECN (Netherlands Energy Research Foundation) in Petten, The Netherlands in June 1989. This is where Dr Rietveld did his seminal work and where he still is. The Commission has proposed to the organizers of the Bordeaux Congress that a satellite meeting on powder diffraction be held. Initial consideration was also given to the proposed

round-robin on the Rietveld method. For example, it was ascertained that the US National Bureau of Standards Standard Reference Materials programme would be interested in providing the samples and preserving portions of them. Preliminary consideration was given to the content of the proposed program exchange bank, how it might be operated, and what advantages could be taken of existing program exchange banks, including affiliation.

#### *Commission on Small Molecules*

The Commission on Small Molecules continued its efforts to increase the participation of crystallographers in interdisciplinary meetings and symposia. In this connection, it participated in the organization and supported IUCr sponsorship of two international symposia to be held in 1988. The Commission has also sought to call attention to crystallographic research by encouraging colleagues to arrange for 'microsymposia' in the framework of non-crystallographic national meetings. Sessions of a crystallographic nature were included in national meetings in Canada and Poland in 1987 as a result of these efforts.

The Commission compiled draft guidelines to help members advise colleagues organizing symposia for which IUCr sponsorship would be sought. These guidelines are being considered by the Executive Committee for distribution to other Commissions.

At the request of the President, a survey was conducted to seek opinions of potential authors of *Acta Cryst.* More than one hundred colleagues around the world were requested to evaluate the journal (especially Sections B and C), and to suggest changes in policy that might increase interest in the journal in the scientific community and in the international market without sacrificing scientific quality. The results of the survey were communicated to the Executive Committee and the Commission on Journals.

Under the direction of W. L. Duax, the Commission has been developing an international cooperation programme on intensity data collection, designed to bring together researchers who are able to measure a small number of intensity data sets from crystals provided and characterized by other researchers who do not have access to modern data collection facilities. The programme has resulted in a number of international contacts and potential collaborations. Interested parties are urged to contact Dr Duax for more information. Scientists willing to collect one or two intensity data sets per year are needed to further the programme.

The Commission newsletter continues to be well received. The Commission's policy is that the newsletter be provided to a limited number of colleagues in each country and that it be copied by them and distributed further. The Commission also requests that copies of newsletters produced by crystallographic associations be sent to Dr Duax so that relevant information can be included in the Commission newsletter. Funding from the IUCr was received to help offset distribution costs.

#### *Ad interim Commission on Modulated Structures, Polytypes and Quasi-crystals*

In August 1987 the Executive Committee set up an *ad interim* Commission with the following membership: D. Gratias (France) (Chairman), M. Farkas-Jahnke (Hungary), H. Jagodzinski (Federal Republic of Germany),

A. Janner (Netherlands), P. Krishna (India), D. Kucharczyk (Poland), K.-h. Kuo (People's Republic of China), S. Nakashima (Japan), M. L. Senechal (USA).

#### **Sub-Committee on the Union Calendar**

The Sub-Committee receives and considers requests for IUCr sponsorship and nominal financial support, and makes recommendations to the Executive Committee. Acting on the recommendations made by the Sub-Committee, during 1987 the Executive Committee approved sponsorship of the following schools and meetings, mostly with financial support:

1. Meeting on Applications and Techniques of Small Angle Scattering, Argonne, Illinois, USA, 26-29 October 1987.
2. Conference on Charge, Spin and Momentum Densities (Sagamore IX), Luso-Buçaco, Portugal, 26 June-2 July 1988.
3. Symposium on Materials Research under Microgravity, Espoo, Finland, 19-20 July 1988.
4. Symposium on Molecular Recognition: Its Role in Chemistry and Biochemistry, Sopron, Hungary, 24-27 August 1988.
5. Eleventh European Crystallographic Meeting (ECM-11), Vienna, Austria, 28 August-2 September 1988.
6. International Conference on Defects in Insulating Crystals, Parma, Italy, 29 August-2 September 1988.
7. Summer School on Crystallography and its Teaching, Tianjin, People's Republic of China, 15-24 September 1988.
8. Conference on Radiation Physics (ISRP-4), São Paulo, Brazil, 3-7 October 1988.
9. International Symposium on Computational Methods in Chemical Design. Molecular Modelling, Theory and Experiment, Schloss Elmau, Federal Republic of Germany, 10-14 October 1988.

Other meetings held in 1987 which received Union support before 1987 have been listed earlier in this Report.

The Executive Committee reaffirmed that specific attention be paid to publication in *Acta Cryst.* or *J. Appl. Cryst.* of original papers presented in any meeting sponsored by the IUCr. Therefore the organizers of all IUCr-sponsored meetings should recommend the journals of the IUCr as a suitable channel of publication for the original papers presented at the meeting. If they intend to publish proceedings they have to consider the *IUCr Crystallographic Symposia* series, which is published jointly by the IUCr and Oxford University Press.

Organizers of meetings wishing to seek IUCr sponsorship should submit applications at least six months in advance of the date of the meeting, writing to the Chairman of the Sub-Committee: Dr E. N. Maslen, Crystallography Centre, University of Western Australia, Nedlands 6009, Western Australia, Australia.

Applications for sponsorship of satellite meetings must be submitted through the Chairman of the Organizing Committee of the main meeting.

#### **Representatives on Other Bodies**

##### *International Council for Scientific and Technical Information (ICSTI)*

ICSTI held its 1987 Council Meeting and associated specialized-group meetings in New York, 18-22 May.

Because of overlapping of the specialized sessions, the IUCr representative was able to attend only the Numeric Data Group, the Group on Education and User Needs, and the Chemistry Working Group.

*Numeric Data Group.* Four members had reported on data activities in their fields at the meeting of the group in December 1986. On this occasion two further reports were presented, on chemistry and on data tagging and flagging. Though there were some enthusiasts, the consensus seemed to be that data tagging might have been useful if it had been introduced in the mid-1970's, but with the rapid development of electronic methods of transfer in the meantime there would be little point in introducing it now. Other reports concerned user-friendly software and progress toward the compilation of a Directory of Numerical Databases.

*Group on Education and User Needs.* The group had been set up in 1986 with considerable expressions of support from most ICSTI Members. However, the present meeting was poorly attended, partly because of conflict with simultaneous meetings of other groups. A further attempt to organize a viable group will be made in 1988.

The programme included a day at the American Institute of Physics, with a tour of the data-processing and photo-composition facilities of the AIP (which is responsible for a large fraction of US scientific publishing), and a session organized by the Numeric Data Group, which included papers on electronic dissemination of numeric scientific data, ICSTI Numeric Data Group, ICSTI Directory of Numeric Databases, user-friendliness issues and data tagging.

The Council met on 20 May. Two new Members were elected: the European Patent Office and the International Group of Scientific, Technical and Medical Publishers. The report of the Finance Committee revealed a problem analogous to one that troubled the IUCr in the past: most of the income is in US Dollars, most of the expenditure is in French Francs. The strength of the Dollar in previous years enabled ICSTI to hold dues constant for four years (including 1987), but its present weakness required an increase in Dollar terms from 1988. It was resolved to increase most dues by 20% for 1988; this means little or no increase in their own currencies for most non-US Members. There is no increase at this time for Members in the group which includes the IUCr. Further increases may be necessary for 1989 and 1990.

Framed certificates were presented to two of the Honorary Members (M. S. Day and A. J. C. Wilson) at the Council dinner.

The next meeting of the Council will be held in Rennes, France, in May 1988.

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

There was no CODATA meeting in 1987. The activity was restricted to written reports on meetings of the Executive Committee in January. Some new task groups could be of interest to the IUCr:

- (i) Computer Graphics-Data Capture and Standards;
- (ii) Internationalization of Data Sources in Far-Eastern Countries;

- (iii) Teaching and Training (in the use of databanks).

Further task groups may be proposed. Some new members of CODATA were approved by postal ballot: Czechoslovakia, China (Taipei) and the International Society of Soil Science.

*Committee on Space Research (COSPAR) of the International Council of Scientific Unions*

There was no scientific meeting of COSPAR in 1987, so that the main activity has been the preparation of the scientific programme of the next meeting, in Helsinki, 18-29 July 1988. A symposium on materials research under micro-gravity will be included in the programme. It will summarize the state of the art and future possibilities also for the other scientific disciplines involved in COSPAR (astronomy *etc.*). The highlights of the experiments already performed in space and of the best experiments planned now on earth will be presented, and the programmes of the national agencies concerning the utilization of space stations and other carriers will be discussed.

*Committee on the Teaching of Science (CTS) of the International Council of Scientific Unions*

The CTS met in Paris in 1987. Most of the activities of the Committee are directed to the teaching of science in developing countries where teaching is difficult or impossible because of lack of instruments, and therefore a major task is the development and maintenance of low-cost equipment. The training of technicians is another important activity of the Committee. One of its future goals is popularizing the teaching of science in general. This is considered to be a very important item, essential for the survival of science.

Other activities include the follow up to the meeting organized by the CTS on the theme Science and Technology Education for Future Human Needs, held in August 1985 in Bangalore, India. Another activity concerns microcomputers in teaching and research, a project in which Unesco is also interested. A pilot project has started on the use of microcomputers for crystallographic applications.

*Committee on Science and Technology in Developing Countries (COSTED) of the International Council of Scientific Unions*

The IUCr representative has received virtually no communications from COSTED during 1987.

*Interdivisional Committee on Nomenclature and Standards (IDCNS) of the International Union of Pure and Applied Chemistry*

IDCNS is the central committee through which all provisional recommendations on nomenclature and symbols generated by any IUPAC divisional committee or commission pass for review. A steady stream of recommendations on a wide range of fields of interest to IUPAC are regularly received and, where a crystallographic input appears advisable, commented upon. One recent nomenclature publication that is likely to be of interest to many crystallographers is the *Abbreviated List of Quantities, Units and Symbols in Physical Chemistry*, published in 1987 by Blackwell Scientific Publications for IUPAC. The IUCr recognizes the nomenclature standards set by members of ICSU and other major international bodies, hence copies



of all relevant IDCNS publications on nomenclature are maintained at the IUCr's offices in Chester. The annual meeting of IDCNS in 1987 was held in Boston, Massachusetts at the time of the XIV IUCr Congress, without IUCr representation.

*Commission on the Structure and Dynamics of Condensed Matter of the International Union of Pure and Applied Physics*

The main activity of this Commission is to give preliminary examination to applications for sponsorship by IUPAP of conferences within its field of interest, and to make appropriate recommendations to IUPAP. The work is done by correspondence.

*Conference Committee of the European Physical Society*

The meeting of the Committee on 15 May 1987 in Amsterdam was attended by the then IUCr representative, M. Nardelli. Reports were given on the 7th EPS General Conference, held in Helsinki in 1987, and on preparations for the 8th EPS General Conference to be held in Amsterdam in 1990.

The general guidelines for EPS Divisional Conferences were considered and a short text of guidelines was approved. Guidelines for preparing and presenting a talk at a scientific meeting were also approved. Although there were some discussions of visa problems it was decided to take no action.

The Committee considered requests for sponsorship and approval of EPS-sponsored/organized conferences. In 1986 the EPS organized 10 conferences and sponsored 24 conferences, 11 schools and 4 study conferences. By 5 May 1987 the Committee had already accepted 8 EPS-organized conferences and 32 sponsored conferences, 19 schools and 3 study conferences. The 'approved' meetings are those organized by or through an EPS Division, Section or Inter-Divisional Group. For a meeting to be sponsored by the EPS the Conference Committee has to examine the arrangements for the meeting and formally agree to it being sponsored by the EPS. There are no financial implications in such sponsorship. Only meetings held in a country which is a member of the EPS are eligible for sponsorship.

The IUCr representative appointed at the XIV Congress to succeed M. Nardelli, A. Kálmán, was invited to attend the meeting of the Condensed Matter Division of the EPS in Petit-Lancy, Switzerland, on 11 December 1987.

*International Organization of Crystal Growth (IOCG)*

During 1987, the IOCG has carried out formal activities mainly concerned with the Ninth International Conference on Crystal Growth (ICCG-9) and the Seventh International Summer School on Crystal Growth (ISSCG-7), both of which will be held in 1989. ICCG-9 will be held 20-25 August 1989 at Sendai, Japan. The proceedings will be published as a special issue of the *Journal of Crystal Growth*. ISSCG-7 will be held 26-31 August 1989 in Japan.

During 1987 the IOCG has also formally established two prizes, the IOCG Frank Prize and the IOCG Laudise Prize, to honour individuals who have made significant contributions to the field of crystal growth. These prizes will be awarded at the IOCG conferences that are currently held every three years. The funds to support these prizes will normally be raised as part of the registration fees at the IOCG conferences.

Two further national associations joined the IOCG in 1987, namely the new Indian Association for Crystal Growth, and the USSR National Committee for Crystallography.

*Joint Committee on Powder Diffraction Standards-International Centre for Diffraction Data (JCPDS-ICDD)*

The JCPDS was accepted as a Scientific Associate of the IUCr at the XIV General Assembly. An IUCr representative (R. A. Young) was then appointed. Professor Young is also Chairman of the newly established Commission on Powder Diffraction and the JCPDS nominates a representative to serve as a member of that Commission. It is hoped that these appointments will ensure a good inter-relationship and exchange of information between the IUCr and the JCPDS.

The purpose of the JCPDS is to gather, cull, edit and disseminate useful diffraction data, mostly powder data useful for phase identification, in the international arena. It is a substantial organization with 22 employees, its own building in Swarthmore, Pennsylvania, USA, and more than 100 members in 10 countries. The work of gathering includes collection of data from the literature, encouraging and accepting contributions of data from all sources, and encouraging production of powder diffraction data in areas where the database has been identified as being particularly insufficient. In some cases, the encouragement takes the form of a grant. Some 48 000 powder diffraction patterns are now 'published' (i.e. are in the databases that are now available) and another 2880 are approved for publication. About 2000 patterns are added to the databases each year.

The IUCr has a special arrangement with the JCPDS to review and archive all powder diffraction data which are critical to any paper accepted for publication in an IUCr journal. These data get special attention so that they are speeded through the JCPDS editorial process and each pattern is assigned a JCPDS number which can be included in the paper without delaying it.

The JCPDS tries to stay at the forefront in the technology and methods of formatting, packaging, and accessing the data, to recognize present and future needs for diffraction data not now in the JCPDS databases, to maintain a broad view of what constitutes diffraction data and include relevant non-diffraction data along with the diffraction data when possible. It offers 37 products which are, generally, different packagings of the main database and selected subsets thereof. A new packaging which is particularly interesting is the CD ROM (compact disc, read only memory). The amount of information that can be stored on a single disc far exceeds that in the entire database. The JCPDS has sub-committees and task groups involving more than 140 people and concerned with topics such as nomenclature, classification and, especially, identification and production of data that would be desirable but are non-existent.

The IUCr representative attended the JCPDS meeting held in October 1987. Such meetings are held twice a year. Reports were presented from the many task groups. At the Technical Committee meeting motions were brought from various sub-committees and task groups. Generally these dealt with recommendations which a group wanted the Technical Committee to make to the board for funding of new or expanded projects dealing with support for database

entries, format studies, testing, start up *etc.* These motions approved by the Technical Committee were then presented to the Board. It is this role of overseeing and approving the work of the sub-committees and task groups that makes the Technical Committee of interest to the IUCr. It is the organizer and leader of all of the volunteer technical work.

The JCPDS wishes to change the fact that it is generally regarded as a USA organization, although it has many foreign members and takes part in many international meetings outside the USA, including the last two IUCr Congresses. At the Board meeting there was discussion, as there has been before, of the possibility of setting up a European JCPDS entity, but no decisions were taken.

#### *Asian Crystallographic Association (ASCA)*

The Asian Crystallographic Association was accepted as a Regional Associate of the IUCr at the XIV General Assembly. An IUCr representative (S. R. Hall) was then appointed. The objectives of the Association are to promote and coordinate crystallographic research and teaching in the Asian region. ASCA was constituted at earlier meetings in Perth and is currently composed of the following member countries and regions: Australia, People's Republic of China, Hong Kong, India, Japan, Korea, Malaysia, New Zealand, Pakistan, Philippines, Sri Lanka, Taiwan and Thailand.

The ASCA Council representatives for 1988-1990 are P. M. Colman, G. J. Gainsford, R. P. Gunawardane, S. R. Hall, A.-U. Haq, J. Harada, S. Hoshino, T. F. Lai, K. Lal, F.-m. Miao, A. H. Othman, Y. J. Park, W. Patalinghug, P. Phavanantha, M. A. Viswamitra, Y. Wang. The elected Executive is S. R. Hall (President), M. A. Viswamitra (Vice-President) and J. Harada (Secretary-Treasurer).

Initial ASCA activities will centre around a twice-yearly newsletter and a general survey of the types of crystallographic research going on in the region. Later, when there is sufficient interest and finances, the ASCA hopes to organize specialized workshops and meetings to promote collaborative research and teaching projects.

#### *European Crystallographic Committee*

The European Crystallographic Committee met on 17 August at Perth, during the XIV IUCr Congress.

Reports on the preparations for future European Crystallographic Meetings (ECM) were presented. ECM-11 will be held in Vienna, 28 August-2 September 1988. ECM-12 will be held in Moscow, 20-29 August 1989. There will be no ECM in 1990, since it is the year of the XV Congress in Bordeaux. ECM-13 will be held in Ljubljana, Yugoslavia, 25-30 August 1991. Three invitations had been received for ECM-14 (1992) from the Federal Republic of Germany, the Netherlands and the UK. The invitation to meet in the Netherlands was accepted. There was preliminary discussion of the possibility of meeting in the German Democratic Republic in 1994, there being no ECM in 1993 the year of the XVI Congress in Beijing. It was agreed to suggest to ECM organizers that the registration fee should be limited to one-fifth of the IUCr Unit Contribution (at present SwFr 890), namely about SwFr 180.

G. S. D. King (Belgium) was elected President, K. Huml (Czechoslovakia) Vice-President and G. Filippini (Italy) was re-elected Secretary.

#### **International Council of Scientific Unions**

The General Committee of the International Council of Scientific Unions met in Rome, Italy, 29-30 October 1987. The meeting was attended by Th. Hahn, the IUCr representative on ICSU. ICSU is in a grave financial situation, partly due to exchange rate problems and partly due to the withdrawal of several countries from Unesco, which has led to financial problems for Unesco and a reduction in the financial support for ICSU from Unesco. The major activity of ICSU in the next decade will be the International Geosphere-Biosphere Programme concerned with 'global change', but at present this programme does not appear to be relevant to the IUCr. Another new programme is the International Space Year 1992. The IUCr may be able to participate in this programme, with respect to microgravity materials-science experiments. ICSU and the Third World Academy of Sciences (TWAS) are developing a Lectureship Programme, which is likely to be similar to the IUCr Visiting Professor Programme being developed by the IUCr Commission on Crystallographic Teaching.

#### **Finances**

The audited accounts for the year 1987 are given at the end of this Report. For comparison, the figures for 1986 are provided in italics. The accounts are presented in Swiss Francs.

The Unesco rates of exchange, as issued by the ICSU Secretariat, have been used in the preparation of these accounts. As a consequence of the many fluctuations in exchange rates during the year, the following procedure has been adopted for the accounts. Assets and liabilities in currencies other than Swiss Francs at 31 December 1987 have been translated into Swiss Francs in the balance sheet at the rate operative at that date. For the income and expenditure accounts, transactions have been translated into Swiss Francs by applying the rates of exchange appropriate to the individual dates of these transactions. As a consequence of the fluctuations in exchange rates, a loss has arisen on the assets of the Union, in terms of Swiss Francs, amounting to SwFr 223 540. This loss has been divided amongst the Fund Accounts in direct proportion to the balances on these accounts at 31 December 1987. It should be noted that this loss in Swiss Francs is not a real loss of money, but rather a loss on paper resulting from the accounts being expressed in Swiss Francs.

As on previous balance sheets, the investments have been valued according to their quotations at the end of the year. Their appreciation in value, together amounting to SwFr 23 248, has not been entered in the General Fund but has been included in the assets on the balance sheet, to avoid annual fluctuations in value influencing the General Fund account. At the end of 1987 the Union held investments of SwFr 465 000, £480 000, US \$503 970 and ECU 100 000 in bonds.

The total of SwFr 1 531 438 with the banks at the end of the year was represented by Dfl 681 992, US \$222 and ECU 94 072 with the Amsterdam-Rotterdam Bank, US \$38 660 with the National Westminster Bank USA, US \$76 230 with Merrill Lynch, £266 924 with the National Westminster Bank and SwFr 88 156 with the Union Bank of Switzerland.

The balance sheet shows that the assets of the Union, excluding stocks of unsold publications but including the loss of SwFr 223 540 resulting from fluctuations in rates of exchange, have increased during the year, from SwFr 3 807 899 to SwFr 4 011 504.

No new fund accounts were established in 1987. Transfers of SwFr 120 000 and SwFr 30 000 were made to the Publications and Journals Development Fund from the *Acta Crystallographica* Fund and the *Journal of Applied Crystallography* Fund, respectively, and transfers of SwFr 80 000 and SwFr 20 000 were made to the Research and Education Fund from the *Acta Crystallographica* Fund and the *Journal of Applied Crystallography* Fund, respectively. A transfer of SwFr 62 000 was made to the Ewald Fund from the General Fund.

Beneath the detailed figures of the expenditure and income for each fund account, the balance at 1 January, the difference between income and expenditure for the year and the fluctuations in rates of exchange during the year are given, showing how the balance at 31 December is obtained.

The General Fund account shows a surplus of SwFr 27 831, before the transfer of SwFr 62 000 to the Ewald Fund as mentioned above, as compared with a surplus of SwFr 216 674 in 1986 before transfers to other fund accounts. The administrative expenses were SwFr 182 953 in 1987 as compared with SwFr 192 458 in 1986. Of this amount, SwFr 55 620 was charged to the publications of the Union.

The Fourteenth General Assembly and Congress in Perth, Western Australia, was a major source of expenditure, SwFr 131 594, more being spent than for previous Congresses because the location was so far from Europe and North America. SwFr 59 655 was given to the Congress organizers for travel grants, and a further SwFr 22 088 was paid in travel grants to the Union's Commissions, whilst the costs of the Executive Committee and Finance Committee meetings held at the time of the Congress were SwFr 42 749 and SwFr 7102 respectively. Additional support of SwFr 21 983 was provided to assist young scientists to attend the Congress, and was charged to the Research and Education Fund account.

SwFr 16 642 was spent on supporting other scientific meetings, and SwFr 3658 was required for travel expenses of Union representatives on other bodies. The cost of the March 1987 Finance Committee meeting was SwFr 9753. The Union received SwFr 8814 from the Unesco subvention to ICSU. The subscriptions from Adhering Bodies were SwFr 131 720. Interest on bank accounts and investments credited to the General Fund was SwFr 189 763.

The President's Fund account received a donation of SwFr 408 during 1987, whilst no grants were paid from the fund.

The *Acta Crystallographica* account for 1987 shows a surplus of SwFr 348 171, before the transfer of SwFr 200 000 to other fund accounts, as compared with a surplus of SwFr 497 089 in 1986 before similar transfers.

The subscription rates were maintained unchanged from 1986 and have now been unchanged since 1984. Although more pages were published in 1987 than in 1986, the costs per page were less, when expressed in Swiss Francs, because of falls in the value of the Pound Sterling and the US Dollar as compared with the Swiss Franc. A similar situation arose

in 1986, when the costs per page were less than in 1985, but of course this cannot always be the case.

The number of paid subscriptions to all sections of *Acta*, including 129 personal subscriptions in 1986 and 121 in 1987, decreased from 1149 in 1986 to 1144 in 1987. However, the number of paid subscriptions to the separate sections of the journal increased from 227, 131 and 123 in 1986 to 237, 146 and 124 in 1987 for Sections A, B and C, respectively. The cost of the technical editing office has been divided between the *Acta Crystallographica* and the *Journal of Applied Crystallography* accounts in percentages based on the number of text pages published during the year, namely 88% and 12% respectively for 1987. The technical editing costs for *Acta Crystallographica* were SwFr 270 873 in 1987, excluding the costs of office refurbishment, as compared with SwFr 232 098 in 1986. The journal's accounts have also been charged with administrative expenses as in previous years and as shown in the General Fund.

The *Journal of Applied Crystallography* account shows a surplus of SwFr 105 339, before the transfer of SwFr 50 000 to other accounts, as compared with a surplus of SwFr 110 760 in 1986. The number of subscriptions, including 113 personal subscriptions in 1986 and 116 in 1987, decreased from 1050 in 1986 to 1044 in 1987.

The *Structure Reports* account shows a deficit of SwFr 5941 as compared with a surplus of SwFr 22 069 in 1986. Sales were much lower in 1987, with only an A Series volume being published as compared with a B Series and an A Series volume in 1986. Editorial expenses were lower but the level of these expenses does fluctuate from year to year. Publishing and editorial expenses in 1987 were SwFr 23 081 and SwFr 32 672 respectively, as compared with SwFr 38 811 and SwFr 86 670 in 1986. The net income from sales was SwFr 49 812 in 1987 as compared with SwFr 147 550 in 1986.

The *International Tables* account shows a surplus of SwFr 3958, as compared with a surplus of SwFr 31 276 in 1986, because of the much larger publication expenses incurred in 1987 for printing the second, revised edition of Volume A. Editorial expenses were SwFr 21 547. The net income from sales of SwFr 71 611 derived mostly from the sale of 400 copies of Volume A.

The Book Fund includes the sales of the remaining publications of the Union. SwFr 648 was received from the sale of *Crystallographic Databases*, which was compiled by the Commission on Crystallographic Data and was published just in time for copies to be available at the XIV Congress. SwFr 103 was received from the sale of 10 copies of *Fifty Years of X-ray Diffraction*. SwFr 164 was received from the sale of 13 copies of *Symmetry Aspects of M. C. Escher's Periodic Drawings*, as well as SwFr 277 royalties for the Japanese edition of this book. SwFr 163 was received from the sale of 7 copies of Volume I and 6 copies of Volume II of *Early Papers on Diffraction of X-rays by Crystals*. SwFr 373 was received from the sale of 9 copies of *Fifty Years of Electron Diffraction*. SwFr 1234 was received from the sale of 93 copies of the Seventh Edition of the *World Directory of Crystallographers*, which was published in 1986. Sales of sundry publications yielded SwFr 18.

As usual, the *Molecular Structures and Dimensions* account shows no surplus, because this account was charged

with a contribution (SwFr 3231) towards the publication costs of Volume 15, the last volume to be published, in 1984. Because no other volume has been published since the sales income has fallen even lower than in previous years, being SwFr 3966 as compared with SwFr 7613 in 1986.

The income for the Publications and Journals Development Fund account and for the Research and Education Fund account came entirely from transfers from other fund accounts. The expenses of SwFr 222 in the former account for communication with databases relate to the technical editing of the journals. For the latter account the main expense was SwFr 35 212 for financial support to young

scientists, to enable them to attend scientific meetings sponsored by the Union.

1987 was the first year of major expense for the Ewald Fund, which was established in 1986 with the receipt of a bequest and a donation from the Ewald family and the transfer of a comparable amount from the General Fund. The main expenses were the payment of the US \$20 000 prize and the cost of commissioning and making the medals. The fund was credited with interest at a nominal rate of 8% on the balance in the fund during the year as decided by the Executive Committee in 1986, and with a transfer of SwFr 62 000 from the General Fund. The balance in the fund at 31 December 1987 was SwFr 160 706.



## General Fund Account for the year ended 31 December 1987

	Swiss Francs		Swiss Francs	
	1987	1986	1987	1986
Subscriptions to ICSU and ICSU bodies				17,333
Administration expenses:				130,830
General Secretary and Treasurer: honorarium and secretarial assistance	11,374	8,540	8,814	46,761
Audit and accountability charges	15,441	13,919	131,720	238,315
Legal and professional fees	4,104	1,257	88,749	
Postage and sundries	2,944	2,139	101,014	
Travelling expenses	3,555	4,713		
Bank charges	3,006	1,279		
Executive Secretary's Office: Salaries and expenses	140,481	134,678		
Office refurbishment	1,059	25,477		
Depreciation of office equipment	989	456	55,620	58,465
		192,458		
Thirteenth General Assembly and Congress:				
Publication of Report				
Fourteenth General Assembly and Congress:				
Finance Committee	7,102			
Programme Committee		12,295		
Executive Committee	42,749			
Travel grants	59,655			
Travel grants to Commissions	22,088		12,295	
Meeting of the Executive Committee			19,974	
Finance Committee expenses			6,035	
Travel expenses of IUCr				
Representatives on other bodies	3,658	5,921		
Commission expenses	851	4,201		
Sponsorship of meetings	16,642	27,032		
Donation to COSTED		1,930		
Loss on redemption of investment				
Transfers to other Funds:				
Publications and Journals Development Fund		50,000		
Research and Education Fund		50,000		
Ewald Fund	62,000	83,595		
		183,595		
<i>Excess of income over expenditure carried to balance sheet</i>			34,169	
			420,086	491,704
				491,704

*Excess of expenditure over income carried to balance sheet*

Figures showing how the balance at 31 December is obtained are given on the following page

## Calculation of the balance for the General Fund Account at 31 December 1987

Balance at 1 January	801,077	915,083
Difference between income and expenditure	-34,169	33,079
Fluctuations in rates of exchange	-40,480	-147,085
Balance at 31 December	<u>726,428</u>	<u>801,077</u>

## President's Fund Account for the year ended 31 December 1987

	Swiss Francs		Swiss Francs	
	1987	1986	1987	1986
Grants	—	85	408	504
<i>Excess of income over expenditure carried to balance sheet</i>	408	419	408	504
	<u>408</u>	<u>504</u>	<u>408</u>	<u>504</u>
Balance at 1 January	15,573	18,013		
Difference between income and expenditure	408	419		
Fluctuations in rates of exchange	-844	-2,859		
Balance at 31 December	<u>15,137</u>	<u>15,573</u>		
			Donations received	
			1987	1986
			408	504
			<u>408</u>	<u>504</u>

**Acta Crystallographica Account for the year ended 31 December 1987**

	Swiss Francs		Swiss Francs	
	1987	1986	1987	1986
Publication expenses:				
Printing and binding Volume 43 (1986 Volume 42)	479,154	403,869	1,396,249	1,439,019
Distribution and postage	67,625	68,461	24,159	33,934
Airfreight costs	19,100	25,606	37,419	39,814
	<u>565,879</u>	<u>497,936</u>	<u>1,459,155</u>	<u>1,512,767</u>
Net loss on reprints Printing, Acta Supplement to Volume A43	17,813	—	99,429	103,087
Printing Index to Volume 41	—	11,555	1,359,726	1,409,680
Printing Index to Volume 42	17,261	—	379	—
Editorial expenses:				
Editorial honoraria	27,794	28,769		
Secretarial assistance	11,003	13,138		
Postage and sundries	19,770	17,130		
Commission meeting	14,673	—		
Technical Editing:				
Salaries and expenses	261,017	221,195		
Computer expenses	9,856	10,903		
Office refurbishment	2,795	65,731		
Depreciation of office equipment	4,495	2,925	359,791	—
Administration expenses	41,164	43,309		
Transfers to other Funds:				
Publications and Journals	120,000	100,000		
Development Fund	80,000	100,000		
Research and Education Fund	—	200,000		
	<u>148,171</u>	<u>297,089</u>	<u>1,360,105</u>	<u>1,409,680</u>
<i>Excess of income over expenditure carried to balance sheet</i>				
Balance at 1 January	1,577,901	1,570,529		
Difference between income and expenditure	148,171	297,089		
Fluctuations in rates of exchange	-91,108	-289,717		
Balance at 31 December	<u>1,634,964</u>	<u>1,577,901</u>	<u>1,360,105</u>	<u>1,409,680</u>



*Journal of Applied Crystallography* Account for the year ended 31 December 1987

	Swiss Francs		Swiss Francs	
	1987	1986	1987	1986
Publication expenses:				
Printing and binding Volume 20 (1986 Volume 19)	77,160	77,797	273,603	283,067
Distribution and postage	8,996	8,911	11,368	7,953
Airfreight costs	3,985	3,963	5,697	6,099
	<u>90,141</u>	<u>90,671</u>	<u>291,241</u>	<u>297,119</u>
Net loss on reprints	2,745	—	—	—
Editorial expenses:				
Editorial honoraria	5,513	6,385	19,932	20,370
Secretarial assistance	1,367	—	—	—
Postage and sundries	5,433	5,542	—	—
Commission meeting	9,562	—	—	—
Technical Editing:				
Salaries and expenses	35,593	36,018	—	—
Computer expenses	1,343	1,775	—	—
Office refurbishment	381	10,700	—	—
Depreciation of office equipment	601	462	—	—
Administration expenses	—	—	—	—
Transfers to other Funds:				
Publications and Journals	—	—	—	—
Development Fund	30,000	—	—	—
Research and Education Fund	20,000	—	—	—
	<u>13,721</u>	<u>14,436</u>	<u>271,309</u>	<u>276,749</u>
Excess of income over expenditure carried to balance sheet	55,339	110,760	430	—
	<u>271,739</u>	<u>276,749</u>	<u>271,739</u>	<u>276,749</u>
Balance at 1 January	329,591	279,347		
Difference between income and expenditure	55,339	110,760		
Fluctuations in rates of exchange	-20,318	-60,516		
Balance at 31 December	<u>364,612</u>	<u>329,591</u>		

**Structure Reports Account for the year ended 31 December 1987**

	1987	Swiss Francs 1986	1987	Swiss Francs 1986
Publication expenses:				
Printing and binding				
Volumes 51A and 52A				
(1986 Volumes 48B and 52A)				
Typing of manuscripts	16,619	31,606	41,762	172,484
	6,462	7,205	25,549	27,533
	30,304	38,811	67,311	200,017
Editorial expenses:				
Editorial honoraria	—	82,686	17,499	52,467
Office equipment	2,368	3,984	—	—
Travel and sundry expenses	—	—	—	—
Less Publisher's commission on sales	—	86,670	—	—
Excess of expenditure over income carried to balance sheet	—	22,069	—	—
	55,753	147,550	55,753	147,550
Balance at 1 January	110,460	108,673		
Difference between income and expenditure	-5,941	22,069		
Fluctuations in rates of exchange	-5,517	-20,282		
Balance at 31 December	99,002	110,460		

**International Tables Account for the year ended 31 December 1987**

	1987	Swiss Francs 1986	1987	Swiss Francs 1986
Publication expenses:				
Reprinting Volume A	46,106	17,791	69,596	58,588
Editorial expenses:				
Editorial honoraria	7,470	8,250	6,897	9,560
Secretarial assistance, postage and office equipment	6,327	4,791	19,858	24,745
Technical Editing	7,750	3,591	96,351	92,893
Less Publisher's commission on sales	—	16,632	24,740	27,194
Excess of income over expenditure carried to balance sheet	3,958	31,276	—	—
	71,611	65,699	71,611	65,699
Balance at 1 January	176,461	177,585		
Difference between income and expenditure	3,958	31,276		
Fluctuations in rates of exchange	-9,523	-32,400		
Balance at 31 December	170,896	176,461		

## Book Fund Account for the year ended 31 December 1987

	Swiss Francs		
	1987	1986	
Publication Expenses:			
<i>Crystallographic Databases</i>	5,795	—	—
<i>World Directory of Crystallographers</i> ,			
7th Edition	—	21,222	648
Printing and distribution	—	3,380	103
Honorarium	—	24,602	164
			163
			373
<i>Excess of income over expenditure</i>			
<i>carried to balance sheet</i>	—	248	1,234
			18
	<u>5,795</u>	<u>24,850</u>	<u>22,994</u>
			<u>35</u>
			<u>168</u>
			<u>—</u>
			<u>24,850</u>
Balance at 1 January	11,440	13,292	
Difference between income and expenditure	-2,815	248	
Fluctuations in rates of exchange	-455	-2,100	
Balance at 31 December	<u>8,170</u>	<u>11,440</u>	

	Swiss Francs		
	1987	1986	
Sale of copies, net of			
Publisher's commission on sales			
<i>Crystallographic Databases</i>	648	—	—
<i>Fifty Years of X-ray Diffraction</i>	103	295	295
<i>Escher Drawings</i>	164	614	614
<i>Early Papers</i>	163	263	263
<i>Fifty Years of Electron Diffraction</i>	373	481	481
<i>World Directory of Crystallographers</i> ,			
7th Edition	1,234	22,994	22,994
Sundry Publications	18	35	35
Royalties	277	168	168
<i>Escher Drawings</i>			
<i>Excess of expenditure over income</i>	2,815	—	—
<i>carried to balance sheet</i>			
	<u>5,795</u>	<u>24,850</u>	<u>24,850</u>

## Molecular Structures and Dimensions Account for the year ended 31 December 1987

	Swiss Francs		
	1987	1986	
Publication expenses:			
Salaries	3,231	6,893	5,360
Administration expenses	735	720	10,665
<i>Excess of income over expenditure</i>			
for the year:			
University of Cambridge	—	—	3,966
IUCr carried to balance sheet	—	—	1,394
			<u>3,052</u>
			<u>7,613</u>
			<u>—</u>
			<u>3,966</u>
			<u>7,613</u>
Balance at 1 January	5,861	6,937	
Difference between income and expenditure	—	—	
Fluctuations in rates of exchange	-309	-1,076	
Balance at 31 December	<u>5,552</u>	<u>5,861</u>	

## Publications and Journals Development Fund Account for the year ended 31 December 1987

	Swiss Francs		Swiss Francs	
	1987	1986	1987	1986
Expenses:				
Compscripts	—	2,007	—	50,000
Communication with databases	222	1,609	120,000	100,000
<i>Excess of income over expenditure carried to balance sheet</i>	149,778	146,384	30,000	—
	<u>150,000</u>	<u>150,000</u>	<u>150,000</u>	<u>150,000</u>
Balance at 1 January	366,651	287,587		
Difference between income and expenditure	149,778	146,384		
Fluctuations in rates of exchange	-27,259	-67,320		
Balance at 31 December	<u>489,170</u>	<u>366,651</u>		
			Transfers from other Funds:	
			General Fund	
			<i>Acta Crystallographica</i>	
			<i>Journal of Applied Crystallography</i>	

## Research and Education Fund Account for the year ended 31 December 1987

	Swiss Francs		Swiss Francs	
	1987	1986	1987	1986
Expenses:				
History of the Union	1,149	7,615	—	50,000
Young Scientists' Support	35,212	50,093	80,000	100,000
<i>Excess of income over expenditure carried to balance sheet</i>	—	57,708	20,000	—
	<u>63,639</u>	<u>92,292</u>	<u>100,000</u>	<u>150,000</u>
Balance at 1 January	292,000	253,322		
Difference between income and expenditure	63,639	92,292		
Fluctuations in rates of exchange	-18,772	-53,614		
Balance at 31 December	<u>336,867</u>	<u>292,000</u>	<u>100,000</u>	<u>150,000</u>
			Transfers from other Funds:	
			General Fund	
			<i>Acta Crystallographica</i>	
			<i>Journal of Applied Crystallography</i>	

## Ewald Fund Account for the year ended 31 December 1987

	Swiss Francs		Swiss Francs	
	1987	1986	1987	1986
Prize	28,701	—	17,288	56,400
Cost of medals	12,514	—	14,506	9,788
Administration and expenses	3,802	6,704	62,000	83,595
Excess of income over expenditure <i>carried to balance sheet</i>	48,777	143,079		
	<u>93,794</u>	<u>149,783</u>	<u>93,794</u>	<u>149,783</u>
Balance at 1 January	120,884	—		
Difference between income and expenditure	48,777	143,079		
Fluctuations in rates of exchange	-8,955	-22,195		
Balance at 31 December	<u>160,706</u>	<u>120,884</u>		

**Statement of Source and Application of Funds  
Year ended 31 December 1987**

	Swiss Francs	
	1987	1986
Source of funds		
Excess of income over expenditure for the year	427,145	876,695
Fluctuations in rates of exchange	-223,540	-699,164
	203,605	177,531
Adjustment for items not involving the movement of funds:		
Depreciation	6,084	3,843
Fluctuations in rates of exchange on office equipment and investments	128,511	87,812
	338,200	269,186
Total generated from operations	338,200	269,186
Decrease in debtors and accrued income (including subscriptions)	223,261	13,925
Increase in creditors, accrued charges and income received in advance	—	27,966
Proceeds of redemption of investment	69,259	—
	630,720	311,077
Application of funds		
Decrease in creditors, accrued charges and income received in advance	-16,356	—
Purchase of office equipment	-15,368	-7,352
Purchase of investments	-970,407	-1,246,521
	-371,411	-942,796
Movement in net liquid funds	-371,411	-942,796

Net liquid funds include cash at banks and with Union officials.

## Notes to the Financial Statements

### 1. Accounting Policies

*(a) Accounting convention*

The financial statements are prepared under the historical cost convention.

*(b) Rates of exchange*

Unesco rates of exchange as issued by the ICSU Secretariat are used in the preparation of the financial statements.

Assets and liabilities held in currencies other than Swiss Francs at the balance sheet date are translated into Swiss Francs at the rates operative on that date.

In each of the income and expenditure accounts, transactions in currencies other than Swiss Francs are translated by applying the rates of exchange appropriate to the individual dates of the transactions.

Profits and losses arising from the fluctuations in rates of exchange during the year are divided between the fund accounts with credit balances in direct proportion to those balances at the closing balance sheet date.

*(c) Publication costs*

Publication, editorial and administrative expenses of publications are charged in the appropriate income and expenditure account as and when incurred.

*(d) Stocks of unsold copies of Union publications*

Stocks of unsold copies of publications are not valued for accounting purposes.

*(e) Expenditure on premises*

Expenditure on renovation and refurbishing is charged against the appropriate income and expenditure accounts in the year in which it is incurred.

*(f) Depreciation*

(i) Office equipment is depreciated on the straight line basis at a rate of 20% per annum.

(ii) Office computer equipment is fully depreciated in the year of purchase.

### 2. Rates of exchange

The assets of the Union are recorded in the financial statements in Swiss Francs but are held in currencies which are considered to be appropriate to the Union's requirements. It therefore follows that the effect of fluctuations in exchange rates will normally only arise at the year end when the figures are reported in Swiss Francs.

The rates of exchange operative at the balance sheet date compared with the Swiss Franc were as follows:

	1987	1986
Netherlands Guilders	1.3750	1.3393
Danish Crowns	4.7059	4.4643
Pounds Sterling	0.4080	0.4167
US Dollars	0.7353	0.5952
European Currency Unit (ECU)	0.6891	0.5730
Australian Dollars	1.0661	N/A

The total assets of the Union at 1 January 1987 (SwFr 3,807,899) would have had the value of US \$2,266,461 or £1,586,752 if expressed in those currencies. At 31 December 1987 these assets (SwFr 4,011,504)

would have had the value of US \$2,949,659 or £1,636,694, respectively, being an increase of US \$683,198 or £49,942 from the previous year.

### 3. Taxation

As an association incorporated in Switzerland, the Union is exempt from Swiss Federal and Geneva Cantonal tax.

Under the terms of the United Kingdom/Switzerland Double Taxation Agreement dated 8 December 1977, investment income arising within the United Kingdom under present circumstances will not be subject to United Kingdom tax.

Other investment income received from countries with which Switzerland has a Double Taxation Agreement is exempt from tax.

### 4. Investments

	Holding at cost 1 January 1987	Additions during the year	Swiss Francs Redemptions/ repayments during the year	Fluctuations in rates of exchange	Holding at cost 31 December 1987
Deposited for safe custody with the Union Bank of Switzerland					
SwFr 25,000 (4.5% Swiss Federal 1983-1995)	24,615	—	—	—	24,615
Sw Fr 250,000 (4.75% Swiss Confederation 1984-1994)	258,748	—	—	—	258,748
Sw Fr 190,000 (5.625% International Bank for Reconstruction and Development)	—	208,442	—	—	208,442
Deposited for safe custody with Amsterdam-Rotterdam Bank NV					
ECU 100,000 (9.5% New Zealand 1985-1992)	174,520	—	—	-28,618	145,902
Held by Rothschild Asset Management Limited					
£200,000	479,962	—	—	10,234	490,196
£100,000 (Old Court International Reserves Limited)	—	231,160	—	13,938	245,098
Held by Merrill Lynch (Corporate Government Securities)					
US \$120,000 TIGR.SER15-89RG	170,612	—	—	-32,508	138,104
US \$200,000 TIGR.SER15-98RG	134,225	—	—	-25,574	108,651
US \$55,000 TIGR.SER18-88RG	83,853	—	—	-15,977	67,876
US \$50,000 TIGR.SER18-98RG (Certificates of Deposit)	33,560	—	—	-6,394	27,166
US \$50,000 C.D. Goldome	85,561	—	-69,259	-16,302	—
US \$30,000 C.D. Lomas Bank (Mutual Funds/Unit Investment Trusts)	—	40,800	—	—	40,800
US \$45,246 GSIF 1B GNMASRS	—	84,009	-8,871	-15,135	60,003
US \$9,606 US Federal Sec. FDS	—	168,037	—	-32,017	136,020
Deposited for safe custody with National Westminster Bank PLC, Manchester					
£100,000 (10.5% Treasury Stock 1989)	236,399	—	—	5,041	241,440
£20,000 (13.75% Treasury Stock 1993)	—	58,157	—	3,443	61,600
£20,000 (14.5% Treasury Stock 1994)	—	58,749	—	3,478	62,227
£20,000 (15.25% Treasury Stock 1996)	—	64,952	—	3,845	68,797
£20,000 (15.5% Treasury Stock 1998)	—	64,972	—	3,847	68,819
	<u>1,682,055</u>	<u>979,278</u>	<u>-78,130</u>	<u>-128,699</u>	<u>2,454,504</u>

Investments are noted in the balance sheet at their market value at 31 December 1987. The difference between cost and market value has been shown as an adjustment in order that the investments can be stated at cost. This prevents the fluctuations in value from influencing the General Fund.

**5. Bank Interest**

	Swiss Francs	
	1987	1986
National Westminster Bank PLC		
USA Money Market Account	1,801	2,697
Manchester Deposit Account	2,141	5,661
Manchester SMMO Account	51,405	133,524
Amsterdam-Rotterdam Bank NV		
Current Guilder Account	71	265
Guilder Savings Account	2,961	3,890
Guilder 1 month deposits	18,927	17,065
ECU 1 month deposit	5,323	7,575
ECU deposit account	2,215	105
US\$ Accounts	1,917	54,104
Union Bank of Switzerland		
Current Account	86	427
Merrill Lynch		
CMA Account	9,314	868
Interest from Munksgaard	19,273	21,827
Interest on officers' petty cash accounts	86	95
	<u>115,520</u>	<u>248,103</u>
Allocated to Ewald Fund	14,506	9,788
Balance left in General Fund	101,014	238,315
	<u>115,520</u>	<u>248,103</u>

**6. Investment Interest**

	Swiss Francs	
	1987	1986
4.5% Swiss Federal 1983-1995	731	731
4.75% Swiss Confederation 1984-1994	7,225	13,656
5.625% International Bank for Reconstruction and Development	14,465	—
9.5% New Zealand 1985-1992	15,421	15,885
C.D. Goldome	6,288	—
GSIF IB GNMASRS	6,429	—
10.5% Treasury Stock 1989	13,161	16,089
13.75% Treasury Stock 1993	3,190	—
14.5% Treasury Stock 1994	4,938	—
15.25% Treasury Stock 1996	3,957	—
15.5% Treasury Stock 1998	4,730	—
Withholding tax recoverable	8,214	400
	<u>88,749</u>	<u>46,761</u>