Acta Cryst. (1951). **4**, 566

International Union of Crystallography

Report of Executive Committee for 1950

Introduction

During 1950 the Union continued the programme of activities initiated at the First General Assembly at Harvard University in 1948, and was engaged in making arrangements for the Second General Assembly to be held at Stockholm in 1951. The majority of these activities were conducted under the auspices of the several Commissions and are reported in detail below. The number of Adhering Bodies during the year was fifteen, and three other countries gave notice of adhesion as from 1 January 1951. Details of these eighteen countries are given in Table 1.

Work of the Commissions

Comission on Acta Crystallographica

Publication of *Acta Crystallographica* has continued throughout 1950 and Vol. 3 was completed with the appearance of Part 6 in November. An analysis of the first three volumes is given in Table 2. This table shows that the international character of the journal is well established and that there is a steady increase in its size. The rapid growth of the journal has proved a source of some embarrassment to the publishers and has also led to an unfortunate increase in the interval between receipt of a paper and its publication. The whole matter is being actively investigated by the Executive Committee who feel that arrangements must be made for still further expansion if the journal is to maintain its reputation as the world's chief medium for the publication of crystallographic research.

The number of subscribers increased by 50 in 1950 bringing the total to about 900. This is still far short of the number necessary to make the journal self-supporting at its present price, and a considerable increase in price will soon be unavoidable.

Table 1. *Adhering Bodies*

Country	Group*	Secretary of National Committee
Australia	I	R. I. Garrod, Defence Research Laboratories, Private Bag No. 4, P.O. Ascot Vale W. 2, Victoria
Belgium	III	R. Van Tassel, Institut royal des Sciences Naturelles de Belgique, Rue Vautier 31, Brussels
Brazil	I	E. Tavora, Faculdade Nacional de Filosofia, Av. Pres. Antonio Carlos 40, Rio de Janeiro, D.F.
Canada	IV	W. H. Barnes, Division of Physics, National Research Council, Ottawa
Czechoslovakia	I	The Secretary, Czechoslovak National Research Council, Opletalova 19, Prague 2
Denmark	I	A. Tovborg Jensen, Den Kgl. Veterinær- og Langbohøjskoles kemiske Laboratorium, Copenhagen 5
France	VII	V. Luzzati, Laboratoire Central des Services Chimiques de l'État, 12 quai Henri IV, Paris 4
India	I	The Secretary to the Government of India, Department of Scientific Research, North Block, Central Secretariat, New Delhi
Italy	III	G. Giacomello, The University, Rome
Japan	I	T. Ito, National Committee for Crystallography, Science Council of Japan, Ueno Park, Tokyo
Netherlands	IV	E. H. Wiebenga, Bloemsingel 10, Groningen
Norway	I	I. Oftedal, Mineralogisk Institutt, Blindern, Oslo
South Africa	I	The Officer-in-Charge, Liaison Division, South African Council for Scientific and Industrial Research, P.O. Box 395, Pretoria
Spain	IV	M. A. Berger, Instituto 'Alonso de Santa Cruz', Serrano 119, Madrid
Sweden	I	F. E. Wickman, Stockholm 50
Switzerland	I	M. Vaugnat, Muséum d'Histoire Naturelle, Geneva
United Kingdom	VIII	The Secretary of the British National Committee for Crystallography, The Royal Society, Burlington House, London W.1
United States of America	VIII	R. Pepinsky, Department of Physics, Pennsylvania State College, State College, Penn., U.S.A.

* See Statutes 8 and 10 (*Acta Cryst.* (1948), **1**, 275).

Table 2. *Analysis of Volumes* 1, 2 *and* 3 *of* Acta Crystallographica

	Vol. 1, 1948	Vol. 2, 1949	Vol. 3, 1950
No. of pages	348	425	490
No. of articles in English	55	68	65
No. of articles in French	4	4	3
No. of articles in German	2	8	4
Total no. of articles	61	80	72
No. of Short Communications in English	13	20	41
No. of Short Communications in French	1	—	2
No. of Short Communications in German	1	—	2
Total no. of Short Communications	15	20	45
No. of Book Reviews	9	4	13
No. of countries from which authors are drawn	13	11	17

Commission on Structure Reports

The preparation of the volumes of *Structure Reports* for the periods 1947–8 and 1949 continued during the year, and the former volume went to Press, the Executive Committee having accepted a recommendation of the Commission that publication should be entrusted to N. V. A. Oosthoek's Uitgevers Mij. (Netherlands). Publication is expected in June 1951.

Commission on International Tables for X-ray Crystallography

The preparation of *International Tables for X-ray Crystallography* continued throughout the year and Vol. 1 went to Press. Publication of this volume is expected late in 1951.

Commission on Crystallographic Apparatus

Nothing to report.

Commission on Crystallographic Data

The Commission has continued its co-operation with the Joint Committee of the American Crystallographic Association, the British Institute of Physics and the American Society for Testing Materials in the preparation of the *X-ray Diffraction Index*. National Data Commissions have been established in several of the adhering countries, in order to co-operate with the Commission in promoting the collection and publication of crystallographic data.

Commission on Crystallographic Nomenclature

The Commission has been consulted on a number of matters concerning nomenclature. In several cases differences of opinion existed and the Commission decided to refer these questions to the Second General Assembly in 1951.

Joint Commission on Physics Abstracting

Nothing to report.

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

The Commission has continued its discussions on the nomenclature of macromolecules and will present recommendations to the Congress of the International Union of Pure and Applied Chemistry in New York in 1951.

International Council of Scientific Unions

The Union was represented by R. C. Evans at a meeting of the Executive Board of the International Council of Scientific Unions held in August 1950 at Bern in the laboratory of the new President of the Council, A. von Muralt. The report of the Policy Committee on the policy to be adopted in admitting new Unions was discussed at length. Arising from this report there was support for the view that a new Union should be admitted if it could not properly be attached to any of the existing Unions, if it had a history of several years of scientific achievement and if it was supported by a substantial number of countries. Finally, it was decided to refer the whole discussion to the Statutes Committee.

There was also discussion on the possibility of broadening the regional basis of the Council, and it was felt to be very desirable to encourage greater participation in its affairs by non-European countries. In pursuance of this policy, the 1951 meeting of the Executive Board will be held in Washington.

Second General Assembly and International Congress

Preparations for the Second General Assembly and International Congress, to be held in Stockholm in 1951, proceeded throughout the year. A Programme Committee was established to make detailed arrangements, and in March a circular was distributed inviting offers of papers and suggestions for topics on which specialized symposia might be held. After consideration of the replies, the Programme Committee recommended that the Congress should be followed by two symposia on 'Advanced Techniques in Structure Determination' and 'Electron Diffraction in Liquids and Gases'. It was also decided to include in the programme a visit to Uppsala University and an excursion to localities of geological interest.

Finances

The audited accounts of the Union for the year 1950 have already been published (*Acta Cryst.* (1951), **4**, 287). These accounts once again emphasize how deeply the Union is indebted to UNESCO and to British industrial and other sources for subventions of £2427 and £856 respectively during the year. No subventions for *Acta Crystallographica* were received in 1950 and expenses exceeded receipts from sales by £1606; this deficit was met from balances brought forward from earlier years. Expenses of preparing *Structure Reports* fell short of income from subventions by £195 and this, also, was met from balances brought forward.

Membership of Committees, Commissions and other bodies

The membership of Committees, Commissions and other bodies on 31 December 1950 was the same as in 1949 (see *Acta Cryst.* (1950), **3**, 391) except as follows:

Commission on Structure Reports

Add J. M. Bijvoet (Netherlands)

Commission on Crystallographic Nomenclature

Delete M. A. Peacock (Canada)

Second General Assembly and International Congress

Under the patronage of His Majesty the King of Sweden, and by kind invitation of the Swedish National Committee for Crystallography, the Second General Assembly and International Congress of the Union was held in Stockholm from 27 June to 3 July 1951. The Congress was followed by two Symposia held on 4 and 5 July and by a geological excursion during the period 6–12 July. About 340 crystallographers and some 70

passive members were present at the Congress and the following countries were represented: Algeria, Argentine, Australia, Austria, Belgium, Brazil, Canada, China, Czechoslovakia, Denmark, Egypt, Finland, France, Germany, India, Israel, Italy, Japan, Netherlands, New Zealand, Norway, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States of America.

The Opening Session was held on 27 June in the presence of His Majesty the King. A. WESTGREN welcomed the visitors and the Congress was declared open by the MINISTER OF EDUCATION, MISS HILDUR NYGREN. The proceedings terminated with a short address by SIR LAWRENCE BRAGG on the history of X-ray crystallography.

The Closing Session was held on 3 July. SIR LAWRENCE BRAGG expressed the warm thanks of the Union to A. Westgren, F. E. Wickman and the other members of the Local Committee, and to the members of the Congress Bureau for their invaluable work in organizing the meeting, and also to the following supporters for most generous financial assistance:

The State of Sweden
The City of Stockholm
The University of Stockholm
The University of Uppsala
Asea
Avesta Jernverks AB
AB Bofors
Bolidens Gruv AB
Bultfabriks AB Hallstahammar
Fagersta Bruks AB
Höganäs-Billesholms AB
Kooperativa Förbundet
Sandvikens Jernverks AB
Stora Kopparbergs Bergslags AB
SKF
Trafik AB Grängesberg-Oxelösund
Uddeholms AB

LADY BRAGG thanked Mrs Pravitz and the other members of the Ladies Committee for their activities on behalf of the passive members, and A. GUINIER proposed a vote of thanks to the retiring Officers and Commission members. Telegrams were sent to His Majesty the King expressing appreciation of his interest in the Congress, and to UNESCO expressing gratitude for their continued support of the activities of the Union and for their very generous assistance towards the expenses of the Assembly and the Symposia.

Second General Assembly

Detailed minutes of the General Assembly have been sent to the Secretaries of the National Committees in the adhering countries. The following is a summary of the principal business transacted:

(1) *By-Laws*

By-Law 6 was amended as follows:

For 'three ordinary members' substitute 'four ordinary members'.

(2) *Adhering Bodies*

Adhesion of the following fourteen countries was approved (in addition to the four whose adhesion had been approved at the First General Assembly): Australia (Group I), Belgium (Group III), Brazil (Group I), Czechoslovakia (Group I), Denmark (Group I), France (Group VII), India (Group I), Italy (Group III), Japan (Group I), Netherlands (Group IV), South Africa (Group I), Spain (Group IV), Sweden (Group I), Switzerland (Group I).

(3) *Commission on* Acta Crystallographica

A report of the Commission was discussed and approved. Arising from this report, the following recommendations of the Commission were accepted:

(*a*) That from the beginning of Vol. 5 the price be increased to £5 per volume (to be quoted only in sterling), but that private subscribers who are members of Societies approved by the Executive Committee be offered a preferential subscription rate of £3 on giving an undertaking that they will retain the journal for their personal use.

(*b*) That authors in Italian-, Spanish- and Portuguese-speaking countries be permitted to append brief summaries in their own language at the end of papers in one of the four official languages.

(4) *Commission on* Structure Reports

A report of the Commission was discussed and approved, and the Commission was congratulated on the appearance of *Structure Reports for 1947–1948*, the first volume to be published under the auspices of the Union. A recommendation of the Commission that consideration be given to the reporting of non-structural crystallographic papers was referred to the Executive Committee for further investigation.

(5) *Commission on* International Tables

A report of the Commission was discussed and approved and an incomplete specimen copy of Vol. 1 was displayed. Arising from the report the following recommendation was accepted:

That Vol. 1 be sold at a price of £5. 5*s*. 0*d*., but that arrangements be made for the volume to be sold in single copies only for the personal use of crystallographers at the specially reduced price of £2. 10*s*. 0*d*.

A recommendation of the Commission that consideration be given to the question of publishing monographs was referred to the Executive Committee for further investigation.

(6) *Commission on Crystallographic Apparatus*

Some discussion took place on the necessity for such a Commission but the view was generally expressed that there was a need for an international Commission on apparatus, and a programme of activities was proposed.

A recommendation of the Commission that consideration be given to the establishment of a separate Commission on Computing Devices was referred to the Executive Committee for further investigation.

(7) *Commission on Crystallographic Data*

A report of the Commission was discussed and approved.

(8) *Commission on Crystallographic Nomenclature*

A report of the Commission was discussed and approved. Arising from the report the following recommendations were accepted:

(*a*) That the structure-factor formula should normally

be expressed in terms of exp [$2\pi i$] and the electron-density formula in terms of exp [$-2\pi i$]; that if the mathematically acceptable alternative with i replaced by $-i$ in *both* expressions be used the fact should be emphasized; and that under no circumstances should both exponents be allowed to have the same sign.

(*b*) That the use of the *b* axis as the unique axis in the monoclinic system should continue to be regarded as the standard practice; that the use of the *c* axis as the unique axis is acceptable where there is a special reason for this setting, in which case the reason should be stated; that if any confusion is likely to arise the full Herman–Mauguin symbol should be used, e.g. *P*112; and that the transformation between the settings should be

		b unique		
		a	**b**	**c**
	a′	1	0	0
c unique	**b′**	0	0	1
	c′	0	$\bar{1}$	0

(*c*) That the symbol Å be used as an abbreviation for the Ångström unit in the publications of the Union.

Other recommendations of the Commission were tabled without action.

(9) *Commission on Macromolecules of the International Union of Pure and Applied Chemistry*

A report of the representative of the Union was discussed and approved.

(10) *Joint Commission on Physics Abstracting*

A report of the representative of the Union was discussed and approved. Arising from this report there was some discussion of the adequacy of existing abstracts in the field of crystallography. It was felt that in some abstracts the coverage was inadequate while in others the crystallographic papers were dispersed in a way that made reference difficult. The most important considerations were deemed to be rapid publication, full coverage and convenience of reference, and it was felt that relatively short indicative abstracts were adequate.

(11) *Proposed Joint Commission on Solid-State Physics*

It was agreed that the Union would welcome an invitation from the International Union of Pure and Applied Physics to co-operate in the formation of a Joint Commission on solid-state physics.

(12) *Election of Officers and of Commissions*

Officers and members of Commissions and other bodies were elected as follows:

Executive Committee

President:	J. M. Bijvoet (Netherlands)
Vice-Presidents:	G. Hägg (Sweden)
	J. Wyart (France)
General Secretary:	R. C. Evans (U.K.)
Editor:	P. P. Ewald (U.S.A.)
Ordinary Members:	J. D. Bernal (U.K.)
	Sir K. S. Krishnan (India)
	E. Onorato (Italy)
	A. L. Patterson (U.S.A.)

Acta Crystallographica *Advisory Board*

Sir Lawrence Bragg (U.K.)
M. von Laue (Germany)
C. Mauguin (France)
P. Niggli (Switzerland)
L. Pauling (U.S.A.)
R. W. G. Wyckoff (U.S.A.)

Commission on Acta Crystallographica

Chairman:	P. P. Ewald, Polytechnic Institute of Brooklyn, 99 Livingston Street, Brooklyn 2, N.Y., U.S.A.
Other Members:	R. C. Evans (U.K.)
	I. Fankuchen (U.S.A.)
	J. Wyart (France)

Commission on Structure Reports

Chairman:	A. J. C. Wilson, Physics Department, University College, Cardiff, Wales.
Other Members:	N. C. Baenziger (U.S.A.)
	C. S. Barrett (U.S.A.)
	J. M. Bijvoet (Holland)
	A. Guinier (France)
	G. Hägg (Sweden)
	F. W. Matthews (Canada)
	I. Nitta (Japan)
	H. O'Daniel (Germany)
	J. M. Robertson (U.K.)

Commission on International Tables

Chairman:	K. Lonsdale, Chemistry Department, University College, London W.C. 1, England.
Other Members:	M. J. Buerger (U.S.A.)
	N. F. M. Henry (U.K.)
	C. H. MacGillavry (Netherlands)
	J. S. Kasper (U.S.A.)

Commission on Crystallographic Apparatus

Chairman:	A. Guinier, Conservatoire des Arts et Métiers, 292 Rue St Martin, Paris 3, France.
Other Members:	J. L. Amoros (Spain)
	M. J. Buerger (U.S.A.)
	E. G. Cox (U.K.)
	G. Hägg (Sweden)
	W. Parrish (U.S.A.)
	H. P. Rooksby (U.K.)
	E. H. Wiebenga (Netherlands)

Commission on Crystallographic Data

Chairman:	F. W. Matthews, Canadian Industries Ltd., McMasterville, Quebec, Canada.
Other Members:	F. A. Bannister (U.K.)
	D. Harker (U.S.A.)
	T. Ito (Japan)
	C. H. MacGillavry (Netherlands)
	J. Rose (France)
	J. N. van Niekerk (South Africa)
	A. J. C. Wilson (U.K.)
	E. A. Wood (U.S.A.)

Commission on Crystallographic Nomenclature

Chairman: W. L. Bond, Bell Telephone Laboratories, Murray Hill, N.J., U.S.A.

Other Members: F. A. Bannister (U.K.)
H. Brasseur (Belgium)
J. D. H. Donnay (U.S.A.)
W. De Keyser (Belgium)
K. Lonsdale (U.K.)

Joint Commission on Physics Abstracting of the International Council of Scientific Unions

Representative: A. J. C. Wilson, Physics Department, University College, Cardiff, Wales.

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

Representative: C. W. Bunn, I.C.I. (Plastics) Ltd., Black Fan Road, Welwyn Garden City, Herts, England.

In accordance with By-Law 15 these Commissions are given full freedom in arranging their internal structure and work, and are free to co-opt further members. Crystallographers interested in the activities of any of these Commissions are cordially invited to make contact with the appropriate Chairman.

(13) *Unit Contribution*

The unit contribution (Statute 10) for the period to the Third General Assembly was fixed as the gold equivalent of £10.

(14) *Auditors*

Messrs Slater, Dominy and Swann were reappointed auditors to the Union for the period to the Third General Assembly.

(15) *Fortieth Anniversary of the Discovery of X-ray Diffraction*

It was agreed that the Union should in 1952 mark the fortieth anniversary of the discovery of X-ray diffraction, and the matter was referred to the Executive Committee for detailed consideration.

(16) *Third General Assembly*

It was agreed that the Third General Assembly should be held in 1954 in some country on the continent of Europe.

Second International Congress

(1) The principal business of the Congress was conducted in a number of morning and afternoon sessions at each of which short papers on related topics were read. At each session the presentation of the papers was followed by an informal discussion. The contributions to the several sessions were:

Metal Structures

C. W. Tucker, Jr. The crystal structure of the β-phase of uranium.

J. Thewlis. The structure of metallic uranium.

G. J. Dickins & A. M. B. Douglas. The structure of σ-phase alloys.

G. B. Bergman & D. P. Shoemaker. The crystal structure of a σ-phase, FeCr.

S. Samson. Ungewöhnliche Gruppierungen der Atome in den metallischen Phasen $Mg_2Cu_6Al_5$ und Mg_2Zn_{11}.

A. M. B. Douglas & A. D. I. Nicol. The X-ray investigation of the valencies of transition metals in aluminium-rich alloys.

K. Robinson. The structure of Mn_3SiAl_9 and its relationship to other intermetallic compounds.

Y.-C. Tang, L. Pauling & J. H. Sturdivant. The structure of alloys of lead and thallium.

R. Kiessling. Investigations on ternary systems contaning boron.

E. Hellner. Polyflusspattypen und ihre Enstehung.

G. I. Finch & K. Leu. Surface oxidation and reduction of metal single crystals.

N. Karlsson. Oxides with the structure of high-speed-steel carbide.

H. Nowotny. Metallstrukturen in den Systemen Ti–Sb, Bi, Pb; V–Sb; Mn–As; Pd–Zn, Cd; Pt–Zn, Cd.

Minerals

J. W. Jeffery. The crystallography of the calcium silicates and their hydration products.

H. D. Megaw. Crystal structure of afwillite.

S. W. Bailey, R. B. Ferguson & W. H. Taylor. Recent work on the felspars.

T. Ito & R. Sadanaga. An X-ray study of lamellar structure of anorthoclase and microcline felspar.

H. Sörum. Structures of the intermediate plagioclase felspars.

F. Laves & J. R. Goldsmith. On the superstructure in anorthite.

A. J. Frueh, Jr. The crystal structure and polymorphism of claudetite (monoclinic As_2O_3).

B. Mason. The crystal structures of the antimony oxide minerals.

T. Ito, N. Morimoto & R. Sadanaga. The crystal structure of milarite, $K_2Ca_4Be_4Al_2Si_{24}O_{60}.H_2O$.

H. Seifert. Zur Kristallstruktur der Minerale der Euxenit–Blomstrandin-Gruppe.

J. Mélon & J. Toussaint. Bialite et tavistockite.

J. Mélon & J. Toussaint. Données nouvelles sur quelques minéraux du Congo Belge.

H. Brasseur. Données nouvelles sur des minéraux uranifères du Congo Belge.

D. M. C. MacEwan & K. Norrish. The effect of orientation on the diffraction intensities from clays.

B. M. Oughton & G. W. Brindley. Structures and thermal transformations of the chlorites.

G. W. Brindley & I. Méring. Disorder in clay-mineral structures.

A. P. Sandrea. Microanalyse spectrale d'absorption sur des minéraux de terres rares.

Inorganic Structures

H. P. Rooksby & N. C. Tombs. Studies of the structures of oxides of the transition elements.

A. Magnéli. Crystal chemistry of tungsten oxides and related compounds.

H. P. Rooksby & E. G. Steward. Structures of alkaline earth tungstates of general composition, R_3WO_6.

B. Aurivillius. Mixed bismuth oxides with $Bi_2O_2^{2+}$ layers and sheets of perovskite-like structure.

W. H. ZACHARIASEN. On the identification and crystal structure of some protactinium compounds.
K. SCHLYTER & L. G. SILLÉN. Lanthanum fluoride: crystal structure and anomalous mixed crystals.
A. UNMACK. The structure of bayerite.
W. NOWACKI & R. SCHEIDEGGER. Die Kristallstruktur von basischem Kupfernitrat, $Cu_4(NO_3)_2(OH)_6$.
V. LUZZATI. The crystal structures of HNO_3, $HNO_3.H_2O$, and $HNO_3.3H_2O$.
I. LINDQVIST. The structure of polymolybdates.
P. M. DE WOLFF. Structure determination of $MgHal_2.3Mg(OH)_2.8H_2O$ from powder photographs.
E. STANLEY. The structure and epitaxy of the mixed salts $NaK_5Cl_2(S_2O_6)_2$ and $NaK_2Cl(S_2O_6)$.
G. LUNDGREN. The crystal structure of some basic salts of thorium and tetravalent uranium.
M. EDSTRAND. On antimony oxyhalides.
K. AURIVILLIUS. X-ray investigations on cinnabar and montroydite.
I. NITTA, H. TADOKORO & K. OSAKI. The crystal structure of sulphamic acid.
K. H. JACK. The crystal structures of VF_3, CoF_3, MoF_3 and TaF_3.
K. FAJANS. Internuclear distances and deformation of ions in perovskite structures.
H. GRENVILLE-WELLS. The graphitization of diamond at high temperatures.
L. RIVOIR & P. SMITH. The structure of thallous sulphate.

Organic Structures

J. ZUSSMAN. The structure of hydroxyproline.
J. DONOHUE & K. N. TRUEBLOOD. The crystal structure of L-hydroxyproline.
B. R. PENFOLD. The structure of α-pyridone.
J. M. ROBERTSON. The crystal structure of tropolone ($C_7H_6O_2$) and some of its derivatives.
C. J. BROWN. Crystal structure of di-*p*-xylylene.
R. PEPINSKY, M. V. KING & H. DE VRIES. The crystal structures of colchicine and ergine.
W. NOWACKI & H. BÜRKI. Die Kristallstrukture eines Purinhomologen ('Xantazol').
J. L. AMORÓS. On the HCl–l glutamic acid.
A. McL. MATHIESSON. Crystal structure of methionine.
I. NITTA, H. MATSUDA & K. OSAKI. The crystal structure of quinhydrone.
I. FANKUCHEN, B. POST & R. SCHWARTZ. Some X-ray diffraction studies at low temperatures.
W. N. LIPSCOMB, L. KATZ, K. TAUER & M. E. MILBERG. Single crystal studies of diketene, methanol, and ethylene dichloride.
R. A. PASTERNAK. The crystal structure of pentachlorocyclohexene, $C_6H_5Cl_5$.
M. SHAHAT. The structure of maleic and fumaric acids, $(CH.COOH)_2$.
T. ODA, M. ATOJI & T. WATANABÉ. The crystal structure of the cubic modification of hexachloroethane.
B. JERSLEV. Determination of the crystal structure of 'anti' *p*-chlorobenzaldoxime.
Y. C. TANG & J. H. STURDIVANT. The crystal structure of the hexamethylenetetramine complex with manganous chloride.
M. FONT-ALTABA. Crystal structure of saccharine and metal derivatives.
D. E. C. CORBRIDGE & E. G. COX. The structures of some co-ordination compounds of metals with tripyridyl.
G. I. FINCH & H. WILMAN. Diffraction of electrons by organic material.
Y. SAITO & T. WATANABÉ. On the transition which occurs in crystals of beryllium oxyacetate at about 40° C.
G. M. J. SCHMIDT. The crystal structure of organic compounds showing 'molecular overcrowding'.

Proteins and Related Structures

J. D. BERNAL. Considerations on present state of protein structure research.
M. F. PERUTZ. Recent progress in the X-ray and spectroscopic study of some crystalline proteins.
C. H. CARLISLE & H. SCOULOUDI. The crystal structure of ribonuclease.
W. L. BRAGG, E. R. HOWELLS & M. F. PERUTZ. The arrangement of polypeptide chains in haemoglobin.
K. DORNBERGER-SCHIFF. Crystallographic criteria for the quantitative comparison of the observed intensities with intensities calculated on the basis of protein models.
J. BROOMHEAD, D. HODGKIN & J. WHITE. The examination of the crystal structure of vitamin B_{12}.
D. WRINCH. Some indications regarding protein structure from X-ray diffraction data.
A. F. WELLS. A protein-like azo compound.
E. W. HUGHES & H. L. YAKEL. Current X-ray investigations of simple peptides.
D. P. SHOEMAKER, R. E. BARIEAU, J. DONOHUE & C.-S. LU. The crystal structure of DL-serine.
S.-I. MIZUSHIMA & T. SHIMANOUCHI. On the molecular structure of proteins.
M. SHIMIZU. X-ray studies on the process of fiber formation in silk.
C. H. CARLISLE. Methods in protein structure determination.

Random and Deformed Structures

G. I. FINCH & D. N. LAYTON. The Beilby layer.
H. WILMAN. The deformation of crystals.
H. SEIFERT. Neue Untersuchungen über Kristalldeformationen.
P. M. DE WOLFF. Diffraction phenomena caused by asynchronous random-layer structures.
T. MATSUBARA. Theory of diffuse scattering of X-rays by local lattice distortions.
J. KAKINOKI & Y. KOMURA. The intensity of X-ray diffraction by a one-dimensionally disordered crystal.
R. E. FRANKLIN. The structure of graphitic carbons.
S. GOLDSZTAUB & R. KERN. Étude optique des imperfections des cristaux.
H. JAGODZINSKI & G. S. BAGCHI. Die Beugung von Röntgenstrahlen in zwei- und dreidimensional fehlgeordneten Kristallen.

Cold-worked Metals

C. J. B. CLEWS & E. A. CALNAN. The development of deformation textures in metals.
J. H. AULD & R. I. GARROD. X-ray line broadening from cold-worked iron.
P. GAY & P. B. HIRSCH. An X-ray micro-beam study of cold-worked metals.

G. K. Williamson. The effect of cold work on the diffraction pattern of metals.
J. O. Linde. Investigation of the critical shear stress for single crystals of metallic solid solutions.
J. N. Eastabrook & A. J. C. Wilson. The diffraction of X-rays by distorted-crystal aggregates.
L. Rivoir & R. Calvo. Asterism phenomena in bent specimens of polycrystalline aluminium.

Martensite, etc.

C. S. Barrett. Martensitic transformations.
J. J. Trillat & S. Okétani. Recherches, par diffraction électronique, sur la cémentation du fer.
K. H. Jack. Structural transformations in the tempering of carbon-martensitic steels.
T. Ll. Richards. Habit planes of the austensite–martensite transformation.
Z. Nishiyama & S. Nagashima. An X-ray investigation of ageing of Mg-rich Mg–Pb alloys.
A. Guinier. Sur l'interprétation des diagrammes de diffusion des alliages durcissants.
G. Shinoda & Y. Amano. Mechanism of precipitation of α from β in 60:40 brass.

Order–Disorder Phenomena

F. N. Rhines & J. B. Newkirk. The order–disorder transformation viewed as a classical phase change.
I. G. Edmunds, R. M. Hinde, C. A. Taylor & H. Lipson. Order–disorder changes in $AuCu_3$.
J. Fournet. Développement de la théorie d'Yvon des transformations ordre–désordre dans les alliages. Applications à CuZn et $AuCu_3$.
K. H. Jack. Order, disorder and changes of interstitial-atom ordering in Fe–N alloys.

Various X-ray Techniques

J. H. Grenville-Wells. Applications of a divergent-beam technique.
E. Prince, G. N. Ramachandran & W. A. Wooster. Determination of the elastic constants of crystals from the thermal diffuse scattering of X-rays.
Y. Cauchois. Bent-crystal aluminium techniques.
H. Brasseur. Détermination rapide et précise du c/a des apatites.
A. R. Weill. Étude aux rayons X de l'hétérogénéité des précipitations dans un alliage Au–Ag–Cu. Analyse d'un objet égyptien en 'electrum'.
F. W. Matthews. The identification of organic compounds by X-ray diffraction patterns.

Instruments

J. L. Amorós. New Spanish crystallographic equipments.
C. Legrand. Chambre Debye–Scherrer adaptée à l'étude des fibres par la méthode du rayonnement strictement monochromatique.
A. Taylor. An improved direct-reading X-ray micro-densitometer.
W. A. Wooster. The design of microphotometers for X-ray structure analysis.
G. Shinoda & T. Tomura. An X-ray counting rate meter with automatically variable time constants.
W. J. Oosterkamp, W. J. H. Beekman & A. Verhoeff. X-ray diffraction apparatus with rotating tubes.
S. Goldsztaub. Tube à rayons X à foyer ponctuel de grande brillance.
R. Pepinsky & K. Drenck. Instrumentation for micro single crystal X-ray analyses.
L. Bouttier & V. Luzzati. A low-temperature single-crystal technique.
W. N. Lipscomb & W. J. Dulmage. Low-temperature techniques and single-crystal studies of pentaborane and hydrogen cyanide.
H. T. Evans, Jr., E. A. Hamacher & W. Parrish. Some recent advances in Geiger-counter techniques applied to crystal analysis.
C. Stora. Étude théorique de l'influence, en faisceau divergent, des conditions expérimentales sur la formation des raies de Debye–Scherrer.
N. Wooster. The representation of crystal structures and molecules by models.
H. Brasseur. Utilisation de la méthode de Bragg–Brentano par l'emploi d'ampoules à foyer fin.

Computing Aids

M. M. Woolfson & H. Lipson. Photoelectric structure-factor machine.
D. McLachlan, Jr. Mechanical and optical aids in Fourier computations.
A. W. Hanson, C. A. Taylor & H. Lipson. Optical methods in X-ray analysis.
G. v. Eller. Un nouvel appareil pour la résolution par voie optique des séries de Fourier à plusieurs dimensions.
M. Font-Altaba. On a new device for the calculation of structure factors and Fourier synthesis.
Å. Åkeson. Mechanical and electrical aids in Fourier and structure-factor computations.
C. A. Beevers. A planimeter-type machine for summation of Fourier series.

Symmetry, etc.

D. Rogers. The determination of symmetry elements, crystal classes and space groups by the new X-ray methods of intensity statistics.
W. Nowacki. Beziehungen zwischen der Symmetrie des Kristall-, Fourier- und Patterson-Raumes.
P. Niggli. Fourier and Patterson diagrams and Tables of Characters of the space groups.
J. Clastre. Détermination sans calculs d'une structure cristalline à partir de la fonction de Patterson, par la méthode des superpositions photographiques.
J. Garrido. Sur l'unicité des solutions dans la détermination des structures cristallines.
L. Rivoir & M. Abbad y Berger. The application of pseudo-extinctions in the determination of crystalline structures.

Crystal Growth

R. E. Franklin. Crystallite growth in graphitizing and non-graphitizing carbons.
W. M. Conn. The adaptation of a large solar furnace to precise determinations of melting-points and crystal growth.
G. I. Finch & H. Wilman. The mechanism of crystal growth and epitaxy.
G. I. Finch & D. N. Layton. The growth and structure of electrodeposits.

G. BORELIUS. Crystallization of supercooled liquid selenium.
H. SEIFERT. Kristallstrukturelle Deutung der Trachtbeeinflussung des NaCl durch Glykokoll.
L. A. THOMAS. The hydrothermal synthesis of quartz for piezoelectric purposes.
O. MELLIS. On the orientation of crystals in recrystallized fibrous gypsum.
D. R. HALE. Growth patterns on synthetic quartz crystals.

Neutron Diffraction and Ferroelectrics

G. E. BACON. Neutron diffraction at Harwell: measurement with single crystals.
C. G. SHULL. Magnetic crystallography and neutron diffraction.
I. NITTA, T. WATANABÉ, S. SEKI & R. KIRIYAMA. Thermal transition in pentaerythritol.
R. KIRIYAMA & H. IBAMOTO. Dielectric phenomena of $K_2SnCl_4.H_2O$ and $K_2HgCl_4.H_2O$ single crystals.
R. PEPINSKY & B. C. FRAZER. X-ray studies of ferroelectric crystal transitions.

Electron Diffraction

H. WILMAN. The Kikuchi-line electron diffraction pattern in structure analysis.
Y. KAINUMA. On the theory of Kikuchi-lines.
S. MIYAKE, K. KOHRA & M. TAKAGI. On the nature of specular reflexion of electrons from crystal surfaces.
K. KOHRA. On electron diffraction by non-centrosymmetrical crystals.
G. HONOJO, K. MIHAMA & S. MIYAKE. Fine structure of electron-diffraction spots due to submicroscopic crystal shape.
J. M. COWLEY & A. L. G. REES. Fine structure in electron-diffraction patterns of crystalline solids.
R. UYEDA & Y. KAINUMA. Glide-plane as a cause of asymmetric electron-diffraction patterns in certain crystals.
G. I. FINCH & P. D. WEBB. Diffraction of 150 kV electrons.

Thermal Diffuse Scattering

Informal papers.

Miscellaneous

Y. CAUCHOIS. X-ray spectroscopy and electronic structures of crystals.
W. NOWACKI. Verteilung der Kristallstrukturen über die 219 + 11 Raumgruppen.
P. GAY & P. B. HIRSCH. Asymmetric reflexions from crystals.
G. H. BORRMANN. Zur vektoriellen Absorption der Röntgenstrahlen in Kristallen.
G. I. FINCH & R. T. SPURR. Mechanical wear and lubrication.

Patterson Projections

Informal papers.

(2) Throughout the Congress a programme of social events was organized for the members. On 27 June a reception was held in the showrooms of Svenska AB Philips. On 28 June a visit was paid to the Royal Palace and Theatre of Drottningholm where a performance of eighteenth-century music and ballet was followed by a reception. On 29 June the sessions were held at Uppsala University, where the laboratories were visited; lunch was served in Östgöta Nation, tea in the University and dinner in the Castle. On 1 July there was a boat excursion to the Stockholm Archipelago, and on 2 July members were entertained by the City of Stockholm to a reception and display of folk dancing in the Town Hall.

(3) A further programme of social events was arranged for the passive members. This included a boat trip and visits to welfare institutions and to the Old City in Stockholm, to the home of von Linné (Linnæus) at Uppsala, and to typical Swedish country houses and farms.

Symposia

The procedure at the Symposia followed closely that at the Congress and at each session the presentation of papers was followed by informal discussion. The contributions to the two Symposia were:

Advanced Techniques in Structure Determination

A. L. PATTERSON. The information contained in a vector map.
C. A. BEEVERS. The interpretation of the Patterson synthesis.
V. LUZZATI. Some remarks about Patterson functions.
R. GAY. Le problème du passage direct du Patterson à la structure.
DOROTHY WRINCH. Some remarks on Fourier transforms and vector maps in structure determinations.
D. MCLACHLAN, Jr. The determination of crystal structures without a knowledge of the phases of the Fourier coefficients.
J. GARRIDO. La détermination directe des structures cristallines.
D. ROGERS. Direct determination of isomorphous structures by means of modified difference-Patterson maps.
M. J. BUERGER. A new approach to crystal-structure determination.
W. COCHRAN. Generalized crystal-structure projections.
J. KARLE & H. HAUPTMAN. A statistical method for determining interatomic vectors.
A. J. C. WILSON. Theory and use of statistical methods in the determination of symmetry and structure.
D. ROGERS & E. STANLEY. The interpretation of the results of intensity statistics when the intensities contain random and systematic errors.
C. A. TAYLOR & H. LIPSON. The use of optically derived Fourier transforms.
OLGA KENNARD. The use of molecular transforms in the determination of the structure of vitamin A acetate.
G. H. BORRMANN. Die Absorptionsminima der Röntgenstrahlen in Kristallen.
S.-I. MIZUSHIMA, T. SHIMANOUCHI K. KURATANI, M. TSUBOI & T. MIYAZAWA. Application of polarized infra-red radiation to structure determination.
R. PEPINSKY. X-RAC, its construction and application to structural problems.
A. D. BOOTH. The application of electronic digital computing machines to structure determination.
J. M. BENNETT & J. C. KENDREW. Crystallographic computations with a high-speed digital electronic computor.

V. Schomaker & J. Donohue. Some recent developments in the use of punched cards and IBM machines for crystal-structure determinations.
E. G. Cox & Maryon W. Dougill. A detailed analysis of anhydrous oxalic acid.
E. W. Hughes. Phase determination for certain structure types.
D. Sayre. Some new phase-determining relationships and their application to the structure of hydroxyproline.
W. Cochran. Remarks on Sayre's method of crystal structure analysis.
J. A. Goedkoop, C. H. MacGillavry & R. Pepinsky. Phase-determining relations based on knowledge of the electron density in parts of the unit cell.
D. Harker. Direct methods of structure determination applicable to crystals with very large unit cells.
W. Cochran. Steepest descents and similar methods.
J. S. Rollett. An application of $(F_o - F_c)$ syntheses to the structure of dimethyl-triacetylene.
V. Vand. Examples of application of the steepest-descents method to crystal-structure determination.
V. Luzzati. Convergence and error of the Fourier method.
D. W. Cruickshank. The accuracy of structure determination.
D. W. Cruickshank. Some relations between Fourier and least-squares methods.
V. Schomaker & D. P. Shoemaker. Remarks on the theory and practice of three-dimensional Fourier, least-squares, and Patterson analysis.
J. A. Goedkoop. On the theory of crystal-structure determination by the variation of parameters.

Electron Diffraction in Liquids and Gases

L. S. Bartell & L. O. Brockway. Performance of the new Michigan electron-diffraction unit.
L. E. Sutton. A survey of electron-diffraction research in Oxford since 1947.
S. H. Bauer & Miriam Michnik. The diffraction of electrons by thin gold films. Use of a rotating sector for the determination of background intensities.
I. Karle. The probability distribution of interatomic distances.
O. Bastiansen & H. Viervoll. Remarks on the method of electron diffraction in use in Oslo.
A. Gilchrist. Preliminary account of a method of presenting electron-diffraction patterns on a cathode-ray tube, using a photomultiplier.
L. S. Bartell & O. L. Brockway. Electron distribution in atoms determined from electron diffraction by gases.
L. Bru & P. Rodriguez. Analogies between diffraction of light and electron diffraction by gas molecules.
Y. Morino. The effect of thermal vibration on the intensity of electron-diffraction halos.
C. J. Finbak. The experience of electron diffraction applied to structure investigation of liquids by monochromatic X-rays.
R. L. Livingston. A comparison of molecular parameters determined by electron diffraction and by spectroscopy.
L. O. Brockway & A. C. Bond. The molecular structures of three methyl silanes.
S. H. Bauer & F. A. Keidel. The structures of toluene, phenyl-silane, and dichloro-diphenyl-silane as determined by electron diffraction. Atom form factors for carbon and silicon.
P. W. Allen. The molecular structures of acetone and the acetyl halides.
H. Mackle. The molecular structure of some carbonyl compounds.
S. H. Bauer & K. P. Coffin. The determination by electron diffraction of the structures of several compounds of boron.
K. Hedberg, V. Schomaker & M. E. Jones. The molecular structures of some boron hydrides and related compounds.
J. Kakinoki, K. Katada & T. Ino. An electron-diffraction study of films of certain organic polymers in the amorphous state.

Geological Excursion

During the period 6–12 July twenty-nine members from nine countries took part in an excursion to localities of geological interest in central and northern Sweden.

The places visited included Sundsvall, Alnö Island, the Varuträsk pegmatite, the museum and works of the Boliden Mining Company, the iron-ore deposits at Gellivare (Malmberget) and at Kiruna (Kiirunavaara and Luossavaara), and Narvik. The warm thanks of the Union are due to H. von Eckermann, E. Grip, O. Ödman, P. Quensel, F. E. Wickman and the staffs of the Boliden Mining Company, the Kooperativa Förbundet, and the Kiirunavaara–Luossavaara Company for much preparatory work in organizing the expedition, for acting as leaders at the various localities and for most generous hospitality, all of which contributed to the success of a memorable excursion.

Notes and News

Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. Copy should be sent direct to the British Co-editor (R. C. Evans, Crystallographic Laboratory, Cavendish Laboratory, Cambridge, England).

Structure transition and antiferromagnetism in magnetite: correction

The Editors regret that errors occur in Fig. 1 of the above article by Tombs & Rooksby (*Acta Cryst.* (1951), **4**, 474). In the process of reproduction the shape of some of the lines has been accidentally distorted and their relative intensities do not very faithfully correspond with the original. In the legend the photographs should have been described as those of Fe_3O_4.