

Observed and calculated values of $\sin^2 \theta$ are given in Table 1.

Although this interpretation gives only about one quarter of the lines present (Perio's gave less than one tenth), it is felt that it can be accepted in the absence of a better one, as the cell is large and asymmetric and the pattern is rather diffuse.

The evidence for the space group is not very conclusive. For $P2_1/c$ symmetry, ($h0l$) reflections are absent if l is odd. It is not possible to say whether (201), (203) and (105) are present or not as these reflections would occur at $\sin^2 \theta = 0.0262$, 0.1259 and 0.3163 at which points several other reflections coincide (see Table 1). The other systematic absence to be expected is ($0k0$) with k odd. In fact, only one ($0k0$) reflection was observed, (0,10,0), although the others do not coincide with other lines. It is possible that ($h0l$) is also absent when h is even. However, this is not a space-group extinction and, if this

absence is real, it is probably due to some special arrangement of the uranium atoms. It is calculated from density measurements that there are 22 formula UO_3 per unit cell, but this must be either 20 or 24 for reasons of symmetry. As 24 units can be fitted into the unit cell, this value is favoured.

In the absence of a single crystal, no further work on this compound is contemplated.

The author is indebted to Dr E. Wait of A.E.R.E., Harwell, both for the experimental facilities and for valuable discussions, and to Mr G. F. Slattery for his encouragement.

References

- DAWSON, J. K., WAIT, E., ALCOCK, K. & CHILTON, D. R. (1956). *J. Chem. Soc.* 683, 3540.
PERIO, P. (1953). *Bull. société chim. Fr.*, p. 776.

Acta Cryst. (1959). **12**, 951

The crystal structure of ZrO_2 and HfO_2 . By J. ADAM and M. D. ROGERS, *Metallurgy Division, Atomic Energy Research Establishment, Harwell, Didcot, Berkshire, England*

(Received 8 September 1959)

McCullough & Trueblood (1959) pointed out that the crystal structure of baddeleyite (monoclinic ZrO_2) as determined by NÁRAY-SZABÓ (1936) is not correct and published a new description of the structure based on single-crystal data obtained from a natural crystal.

Approximately a year ago while working on the irradiation induced phase transformations in ZrO_2 (Adam & Cox) we have also concluded that the accepted NÁRAY-SZABÓ structure is wrong and made accurate X-ray intensity measurements on chemically prepared ZrO_2 and HfO_2 powder with a counter diffractometer and monochromatic copper $K\alpha$ radiation. Using atomic parameters proposed by McCullough & Trueblood (1959) a satisfactory agreement was obtained between calculated and observed F^2 values for both materials although a few minor discrepancies have been found. This indicates that HfO_2 and ZrO_2 are isomorphous and their structure is basically the same as that of naturally occurring bad-

deleyite. The following unit-cell dimensions have been determined using a Guinier-type focusing camera:

	a (Å)	b (Å)	c (Å)
ZrO_2	5.1454 ± 0.0005	5.2075 ± 0.0005	5.3107 ± 0.0005
	β		
	$99^\circ 14' \pm 0^\circ 05'$		
	a (Å)	b (Å)	c (Å)
HfO_2	5.1156 ± 0.0005	5.1722 ± 0.0005	5.2948 ± 0.0005
	β		
	$99^\circ 11' \pm 0^\circ 05'$		

References

- ADAM, J. & COX, B. *J. Nucl. Energy*. To be published.
McCULLOUGH, J. D. & TRUEBLOOD, K. N. (1959). *Acta Cryst.* **12**, 507.
NÁRAY-SZABÓ, ST. V. (1936). *Z. Kristallogr.* **94**, 414.

Acta Cryst. (1959). **12**, 951

International Union of Crystallography

Fedorov Commemoration, Leningrad, 21–27 May 1959

By invitation of the Academy of Sciences of the U.S.S.R., the Union participated in two Symposia which were held in Leningrad, U.S.S.R., from 21 to 27 May 1959 in commemoration of the 40th anniversary of the death of the great Russian crystallographer E. S. Fedorov. Under the auspices of the Union and the Academy, the meetings were organized by the U.S.S.R. National Committee for Crystallography in cooperation with the Institute of

Crystallography of the Academy of Sciences, the Mineralogical Society of the U.S.S.R., the Leningrad Institute of Mines, and the Fedorov Institute of Crystallography, Mineralogy and Petrography.

Over eight hundred crystallographers and other scientists, mainly from the U.S.S.R., and in addition from fifteen other countries, participated in the meetings. The attendance of several of these scientists from abroad

was made possible by generous financial help received from UNESCO through ICSU.

The actual arrangements for the meetings were in the hands of a special Committee for the 1959 Fedorov Symposia, and of a Local Committee. The first Committee worked under the chairmanship of N. V. Belov; B. K. Vainshtein and I. I. Shafranovskii served as Vice-Chairmen, and S. V. Borisov as Secretary. The membership of the Local Committee was as follows: Iu. S. Terminasov (Chairman), E. O. Shvaikovskaia (Secretary), R. P. Ozerov, N. N. Stulov, V. A. Frank-Kamenetskii and I. I. Shafranovskii (Members). A deep debt of gratitude is due to these Committees for their work in organizing the meetings.

One of the Symposia was devoted to Crystallochemical Analysis and Crystal Chemistry. The main topics were the three fundamental methods—goniometry, crystal optics and X-ray diffraction—and new data on the atomic structure of crystals and in crystal chemistry. This Symposium worked under the guidance of G. B. Bokii.

The second Symposium was on Electron Diffraction, and the topics were structure analysis of solids—techniques as well as applications—and diffraction by gases. The Commission on Electron Diffraction of the Union had laid the basis for the programme of this Symposium, which stood under the guidance of the Chairman of this Commission, L. O. Brockway, and its Russian member, Z. G. Pinsker.

The scientific programme comprised both general lectures and contributed papers. The general lectures, seventeen in total, were given during five consecutive days. One of the general sessions was held at the Leningrad Institute of Mines, where Fedorov had lived and worked for many years; the other general sessions as well as the Opening and the Closing Ceremonies took place in the Conference Hall of the Academy of Sciences. At sixteen section meetings eighty-eight papers of about twenty minutes each were read. These special sessions were held at the Gorki House of Scientists, two or three parallel sessions each day for the first Symposium, and one for the Symposium on Electron Diffraction. Thanks are due to the authorities of the Academy of Sciences, the Leningrad Institute of Mines, and the Gorki House of Scientists for the hospitality received in their buildings.

The Executive Committee of the Union also met in Leningrad during the period of the Symposia, and so did the Commissions on *Structure Reports*, on Crystallographic Data and on Electron Diffraction, and the Programme Committee for the Fifth International Congress and subsequent Symposia. The business transacted at the Executive Committee meeting is summarized at the end of this report.

The Fedorov Symposia were formally opened by the President of the Union, J. WYART, on Thursday evening 21 May. His address was followed by a paper in memory of E. S. Fedorov, which was read by N. V. BELOV, on behalf of himself, G. B. Bokii and I. I. Shafranovskii. Emphasis was laid on Fedorov's foundation of the geometrical theory of crystal structures and his deduction of the 230 space groups of symmetry. Fedorov was one of the first who worked in the field of crystallochemical analysis and who worked out universal optical methods for investigating crystals. The further papers given at this and the other sessions are listed below.

The Closing Ceremonies took place on Wednesday

27 May. At the closing session a new film on the growth of crystals, made in the Institute of Crystallography, was shown and introduced by A. V. SHUBNIKOV. Speeches of thanks were given by N. V. BELOV, G. B. BOKII, L. O. BROCKWAY and J. WYART, who summarized the results and value of the meetings, and expressed thanks to all people who were engaged in the organization.

For the visitors from abroad many facilities had been arranged which made their stay in Leningrad most pleasant and interesting. Special mention should be made of the valuable and friendly help received from about a dozen interpreters, and in particular from Mr N. A. Kotlov of the Academy of Sciences. A special programme of social events was organized for the participants in the Symposia, and included the following: an excursion to the Museum of the Leningrad Institute of Mines (22 May); a reception in the City Hall and a sightseeing tour through the City of Leningrad (23 May); a visit to the Hermitage Museum and an excursion by bus to the Karelian isthmus (24 May); a visit to the Leningrad State University (25 May); an excursion to the Central Prospecting Museum and a trip by pleasure boat to Petrodvoretz (26 May); and a visit to the Russian Museum and a farewell banquet at the hotel Europa (27 May).

Scientific Programme of the Symposia

At the Fedorov Symposia the following papers were read and were followed by informal discussions:

General Lectures

- N. V. BELOV, G. B. BOKII & I. I. SHAFRANOVSKII (U.S.S.R.). In memory of E. S. FEDOROV.
 J. D. BERNAL (U.K.). The principles of molecular crystal-chemistry.
 B. N. DELAUNAY (U.S.S.R.). Theory of reduction.
 J. WYART & G. SABATIER (France). Formation d'un magma granitique au dépens de sédiments pélimitiques et les phases en équilibre avec ce magma.
 R. PEPINSKY (U.S.A.). Progress in the preparation of an encyclopedia of chemical and physical crystallography.
 N. V. BELOV (U.S.S.R.). Chapter B of the crystal chemistry of silicates.
 I. I. SHAFRANOVSKII (U.S.S.R.). Ways of further development of crystal-chemical analysis.
 I. NITTA (Japan). Crystal-chemical aspects of molecular rotation in solids.
 D. HODGKIN (U.K.). Later stages of the X-ray analysis of vitamin B_{12} , and the distribution of water molecules in the wet and air-dry crystals.
 A. I. KITAIGORODSKII (U.S.S.R.). Strains and conformations of organic molecules.
 D. HARKER (U.S.A.). Progress toward a knowledge of the crystal structure of the protein ribonuclease.
 W. H. ZACHARIASEN (U.S.A.). Crystal chemistry of uranyl compounds.
 B. K. VAINSHEIN (U.S.S.R.). Some problems of the theory of crystal-structure analysis.
 L. O. BROCKWAY (U.S.A.). A critical review of electron diffraction by gases.
 Z. G. PINSKER (U.S.S.R.). Some problems of crystal chemistry of interstitial phases.
 A. V. SHUBNIKOV & V. F. PARVOV (U.S.S.R.). Formation of crystals (film).
 J. D. BERNAL (U.K.). A recent theory of liquids.

*Special Sessions**Crystal Chemistry, Section a*

- C. H. MACGILLAVRY & J. H. PALM (Netherlands). The crystal structure of NaCl-urea-hydrate and the influence of urea on the crystallization habit of rock-salt.
- G. B. BOKII, L. O. ATOVMIAN, VAN AN-PU, G. A. KUKINA & T. S. KHODASHOVA (U.S.S.R.). New data on the crystal chemistry of the complex compounds of ruthenium, osmium and platinum.
- I. G. ISMAIL-ZADE (U.S.S.R.). Crystal structures of some ferro-electric compounds of the types $A(B_1, B_2)O_3$ and $(A_1, A_2)Nb_2O_6$.
- A. V. ABLOV & T. I. MALINOVSKII (U.S.S.R.). The crystal structure of zinc dichloro-diparatoluidine.
- A. J. C. WILSON, on behalf of D. F. GRANT, R. HINE, J. R. G. RICHARDS & D. ROGERS (U.K.). Some short distances involving OH-groups in organic compounds.
- V. I. SIMONOV (U.S.S.R.). The crystal structure of seidozerite.
- M. A. PORAI-KOSHITS, G. N. TISHCHENKO & L. O. ATOVMIAN (U.S.S.R.). The crystal structures of Co, Ni, Cu, Pt complex compounds of the MeA_2X_2 type.
- E. A. SHUGAM & V. M. LEVINA (U.S.S.R.). The crystal and molecular structure of nickel diethyldithiocarbamate $Ni[S_2CN(C_2H_5)_2]_2$.
- G. S. ZHDANOV, V. V. ZUBENKO, M. M. UMANSKII & Z. I. EZHOVA (U.S.S.R.). Thermal expansion and crystal structure.
- D. HARKER (U.S.A.). The three-dimensional distribution of errors in the Fourier series for the electron density caused by errors in the X-ray diffraction data.
- I. M. RUMANOVA (U.S.S.R.). New types of Fourier projections in crystal structure analysis.
- W. PARRISH (U.S.A.). X-ray counter methods.
- N. P. TRIFONOV & B. M. SHCHEDRIN (U.S.S.R.). The application of universal computers to X-ray structure analysis.
- W. PARRISH (U.S.A.). Precision lattice-parameter determination.
- L. S. ZEVIN, Z. K. ZOLINA, V. V. ZUBENKO, D. M. KHEIKER & M. M. UMANSKII (U.S.S.R.). Precision determinations of lattice constants.
- G. E. R. SCHULZE (G.D.R.). Interatomic distances and atomic radii quotients in Laves phases.
- G. E. BACON (U.K.). The influence of neutron-diffraction data on the crystal chemistry of hydrates.
- F. HANIĆ & J. MICHALOV (Czechoslovakia). Die Kristallstrukturen von Zeunerit $Cu(UO_2)(AsO_4)_2 \cdot 8H_2O$ und Kupfersalicilat-tetrahydrat $Cu(C_6H_4OH.COO)_2 \cdot 4H_2O$.
- W. B. PEARSON (Canada). Crystal chemistry of normal valence compounds.
- N. A. TOROPOV & R. G. GREBENSHCHIKOV (U.S.S.R.). The crystal-chemical similarity of SiO_2 and BeF_2 , and of silicates and fluoroberyllates.
- N. A. TOROPOV, H. S. NIKOGOSIAN & A. I. BOIKOVA (U.S.S.R.). X-ray and crystal-optical investigation of the dehydration products of hillebrandite.
- J. M. ROBERTSON (U.K.). A study of thermal motion in hydrogen-bonded crystals.
- A. I. KITAGORODSKII, V. M. KOZHIN, N. IA. KOLOSOV, LIAN DUN-CHAI, IU. V. MNIUKH & R. M. MIASNIKOVA (U.S.S.R.). Conditions of formation and structure of solid solutions of organic substances.
- A. I. KITAGORODSKII, IU. T. STRUCHKOV, T. L. KHOTSIANOVA, M. E. VOL'PIN & D. N. KURSANOV (U.S.S.R.). The crystal structures of tropylium perchlorate and iodide.
- P. A. AKISHIN & L. V. VILKOV (U.S.S.R.). Electron-diffraction study of some halogenated organic compounds, and regularities in the carbon-halogen interatomic distances.
- O. V. STAROVSKII (U.S.S.R.). The structure of ferrocene disulphochloride.

Crystal Chemistry, Section b

- IU. S. TERMINASOV & SH. KH. IAR-MUKHAMEDOV (U.S.S.R.). X-ray study of the mechanism of the fatigue in metal single-crystals at room and low temperatures.
- IA. S. UMANSKII, L. KH. PIVOVAROV & K. V. VARLI (U.S.S.R.). The change of mosaic structure in the process of alloy aging and strengthening.
- D. BATSUR', V. I. IVERONOVA & G. P. REVKEVICH (U.S.S.R.). The nature of extinction in metal powders.
- L. S. PALATNIK & V. A. FINKEL' (U.S.S.R.). On the structures of multicomponent metal compounds.
- V. V. SEMENOV (U.S.S.R.). The principles of compiling a reference book for X-ray determination of metals and alloys.
- E. I. GLADYSHEVSKII, P. I. KRIPIAKEVICH & IU. B. KUZ'MA (U.S.S.R.). Crystal structure of ternary compounds in the systems Cr-Ni-Si and Cr-Co-Si.
- D. R. DASGUPTA & A. L. MACKAY (U.K.). The topochemistry of the iron oxide-hydroxide system.
- G. DONNAY & J. D. H. DONNAY (U.S.A.). A new hypothesis to account for solid-state transformations of feldspars.
- K. BOLL-DORNBERGER, E. HÖHNE & KULPE (G.D.R.). Zur Struktur des Lautits ($CuAsS$).
- V. A. FRANK-KAMENETSKII (U.S.S.R.). Isomorphous replacements and mixed-layer intergrowths in clay minerals.
- V. B. TATARSKII (U.S.S.R.). Determination and investigation of crystals by the immersion method.
- V. F. ALIAVDIN (U.S.S.R.). Goniometrical determinative tables for orthorhombic minerals.
- J. D. H. DONNAY & G. DONNAY (U.S.A.). Proposed tables for magnetic space groups.
- R. E. RUNDLE & P. VOSSOS (U.S.A.). Halogen bridges and magnetic properties of crystals.
- B. N. DELAUNAY & N. N. SANDAKOVA (U.S.S.R.). The theory of stereohedra.
- N. M. BASHKIROV (U.S.S.R.). The Fedorov theory of stereohedra.
- N. L. SMIRNOVA (U.S.S.R.). Possible superstructures formed by the distribution of *A* and *B* atoms in the octahedral holes of the hexagonal close-packing.
- Z. V. ZVONKOVA (U.S.S.R.). The nature of the mutual influence of atoms; crystal-chemical investigation.
- A. S. POVARENENYKH (U.S.S.R.). Concerning the influence of non-bonded electrons on crystal properties.
- N. N. BABAD-ZACHRIAPIN & G. V. IUKHNEVICH (U.S.S.R.). Some problems of iso- and heteropolycompound crystal-chemistry.
- A. V. STEPANOV (U.S.S.R.). On bonding forces in the elements of groups IV and V of the periodic system.
- E. H. WIEBENGA (Netherlands). The structure of polyhalogen complexes.

Crystal Chemistry, Section c

- W. KLEBER (G.D.R.). Epitaxie von *d*-Campher auf organische Träger.
- V. SYNEČEK (Czechoslovakia). The precision determination of the ideal intensity-curve for small-angle diffraction.
- S. NOVAK (Czechoslovakia). An automatic structure-factor computer.
- F. LIEBAU (G.D.R.). Über die Kristallstrukturen einiger Schichtsilikate des Formeltype $Me_n(\text{Si}_2\text{O}_5)_n$, ein Beitrag zur Frage der Si-O Bindung.
- R. PEPINSKY (U.S.A.). The use of anomalous dispersion for direct X-ray analysis of non-centric crystal structures.
- R. PEPINSKY (U.S.A.). Crystal-structure mechanism of the ferro-electric behaviour of $(\text{glycine})_3 \cdot \text{H}_2\text{SO}_4$.
- I. V. GAVRILOVA (U.S.S.R.). A new method of growing large crystals of pentaerithritol for X-ray monochromators.
- G. S. ZHDANOV, I. N. VENEVTSEV, S. P. SOLOV'EV & V. V. IVANOVA (U.S.S.R.). Internal fields in the orthorhombic modification of BaTiO_3 .
- V. L. INDENBOM (U.S.S.R.). Phase transitions without altering the number of atoms in the unit cell.
- I. S. ZHELUDEV (U.S.S.R.). Symmetry of tensors of the second order, and some problems of the point symmetry of physical objects.
- A. S. SONIN & I. S. ZHELUDEV (U.S.S.R.). Space symmetry and ferro-electric phase transitions.
- I. S. REZ (U.S.S.R.). On the crystal chemistry of piezoelectricity.
- I. B. BOROVSKII (U.S.S.R.). Some characteristic features of the electronic structure of superconducting alloys.

Electron Diffraction

- J. J. TRILLAT (France). Étude, par diffraction et microscopie électronique, des modifications de structures produites par le bombardement ionique de métaux ou de cristaux.
- B. K. VAINSHTEIN (U.S.S.R.). New determinations of hydrogen-atom positions and the accuracy of electron-diffraction structure analysis.
- J. M. COWLEY (Australia). Electron-diffraction structure analysis of single crystals.
- S. MIYAKE & K. FUJIWARA (Japan). On high-energy electron-diffraction methods.
- Z. G. PINSKER (U.S.S.R.). Electron-diffraction structure analysis with the use of kinematic and dynamic scattering.
- M. HORSTMANN, G. MEYER & H. A. RAETHER (G.F.R.). Measurements of the intensity of elastically and inelastically scattered electrons in thin aluminium foils.
- N. M. POPOV (U.S.S.R.). 400 kV electron-diffraction camera and microscope, and the prospects of its use for the study of structures.
- B. B. ZVIAGIN (U.S.S.R.). The contribution of electron diffraction to the crystal chemistry of clay minerals.
- L. S. PALATNIK & V. M. KOSEVICH (U.S.S.R.). Electron-diffraction study of metastable crystal structures occurring at the boundary between thin metal films.
- S. A. SEMILETOV (U.S.S.R.). Electron-diffraction study of the structures of semi-conductors.
- S. MIYAKE (Japan). Review of recent electron-diffraction work in Japan.

- K. H. BRAUER (G.D.R.). Precision lattice-constants determination by electron diffraction.
- L. O. BROCKWAY (U.S.A.). The structures of molecules of the types CH_3X and CF_3X .
- O. C. A. BASTIANSEN (Norway). Recent development of electron-diffraction gas work in Norway.
- P. A. AKISHIN, N. G. RAMBIDI, V. P. SPIRIDONOV & V. N. NAUMOV (U.S.S.R.). Electron diffraction by gases at high temperatures.
- L. S. BARTELL (U.S.A.). The structure of isobutene and comments on effects of intramolecular Van der Waals' forces.
- V. SCHOMAKER (U.S.A.). Electron-diffraction studies of the structures of the hexafluorides of tungsten, osmium, iridium, uranium, neptunium and plutonium at several electron wavelengths, with special attention to the phase-shift anomaly.

Commission on Crystallographic Data

On 26 May the Commission held an open meeting on questions connected with the documentation of crystallography. The session was opened by the Chairman of the Commission, J. D. BERNAL, who spoke about the importance of documentation and emphasized the need for international cooperation in this work. He defined documentation service as comprising three phases: (1) preliminary announcement of papers (*Bulletin Signalétique*); (2) *Crystal Data* (single-crystal and powder data); and (3) *Structure Reports*. J. WYART spoke next and discussed the organization of the French abstracting service, the *Bulletin Signalétique*, which concentrates on producing, with a minimum of time-lag, short announcements for laboratory workers. O. KENNARD then reviewed the present state of crystallographic documentation, and discussed some future trends. She spoke in particular about the organization of data collecting for *Crystal Data* and the *Bond Distance Tables*. The last speaker was G. B. BOKII who described the U.S.S.R. abstracting services for physics and chemistry, and proposed that a list of titles of crystallographic papers be published annually to cover the preceding year. A lively discussion followed during which in particular full consideration was given to the possibility of carrying out the last proposal.

Meeting of Executive Committee

The Executive Committee of the Union held its statutory intermediate meeting in Leningrad on 20, 21 and 22 May. The following is a summary of the more important items of business transacted.

1. A list of proposed amendments to the Statutes and By-Laws was discussed and approved for circulation to the National Committees.
2. It was agreed that a request from the Deutsche Mineralogische Gesellschaft that the membership of this Adhering Body be changed from one 'for the German Federal Republic' into one 'for both States of Germany', and that its adhesion to the Union be changed from one in Group VI into one in Group VIII, could and should be brought before the Fifth General Assembly for further action.
3. Four applications for adhesion to the Union, received from the Polskiej Akademii Nauk, the Royal Society of

New Zealand, the Israel Crystallographic Society, and the (Argentine) Consejo Nacional de Investigaciones Científicas y Técnicas respectively, were discussed and considered to be in good order for presentation to the Fifth General Assembly.

4. To the great regret of the Executive Committee the Editor of *Acta Crystallographica*, P. P. Ewald, had requested to be released from his task by the end of 1959. As successor to him A. J. C. Wilson was appointed, and W. B. Pearson was appointed to succeed A. J. C. Wilson as General Editor of *Structure Reports*.

5. It was decided that the prices for the first six volumes of *Acta Crystallographica* be readjusted as from 1 January 1960, and that as from the same date the ordinary prices of most volumes of *Structure Reports* should also be increased, but that this publication should be made available at reduced prices to individuals for their personal use. (See *Acta Cryst.* (1959), **12**, 825).

6. The proposed publication of Apparatus and Technique Reports was discussed in detail. It was felt that

review articles would be more useful than literature abstracts. No definite decision was, however, reached on the way of publication of such articles, but it was agreed that a beginning should be made with soliciting them.

7. It was agreed that the Union should prepare a second edition of the *World Directory of Crystallographers*. (See also *Acta Cryst.* (1959), **12**, 826).

8. Following a report received from the *ad-hoc* Committee on Computing Methods, it was agreed that a proposal should be brought before the Fifth General Assembly to set up a Commission on Computing Methods.

9. An *ad-hoc* Committee was set up with L. O. Brockway as chairman, to study the question of the organization and the operations of the Commissions.

10. The proposals and recommendations from the Programme Committee for the Fifth International Congress and subsequent Symposia were discussed with this Committee and approved.

11. The time-table for meetings after the Cambridge Congress in 1960 was considered.

Acta Cryst. (1959). **12**, 955

International Union of Crystallography

Fifth General Assembly, International Congress and Symposia Cambridge, England, 15-24 August 1960

The *First Notification* of the Cambridge meetings was widely distributed in March and April 1959, and as a result about 800 requests have been received for copies of the *Booklet of General Information* which will be issued in October 1959. Anyone who wishes to receive a copy of the Booklet *and has not already informed* Dr W. H. TAYLOR, at the Crystallographic Laboratory, Cavendish Laboratory, Free School Lane, Cambridge, England, should do so at once.

The *Booklet of General Information* contains details of the scientific programme and of the procedures to be followed in Registration for membership of the Congress and in submitting papers for the consideration of the Programme Committee. It includes sets of the forms which should be completed and returned by intending members as soon as possible, and in any case so as to be received by Dr W. H. Taylor (at the address given above) not later than 1 March 1960. *It is emphasised that the Programme Committee will not be able to consider the inclusion in the scientific programme of papers offered after the closing date of 1 March 1960, nor will the Congress Executive undertake to find residential accommodation for members requesting registration after that date.*

The following is a summary of some of the information included in the Booklet.

(1) General Information

Congress Headquarters will be in buildings adjacent to the Cavendish Laboratory, Free School Lane, Cambridge, and the usual services will be provided there, including reception rooms, lounges and a banking service.

Most Congress members, women as well as men, will reside in Colleges, which provide simple accommodation

and all meals for an inclusive charge of approximately 40s. per person per day. No double rooms are provided in Colleges, nor can children be accepted. Block reservations have also been made in a number of Hotels, but the number of rooms available is strictly limited since Cambridge is a small city and living accommodation is in great demand during the summer. Accommodation arranged by the Congress Executive will not be available before the afternoon of Sunday, 14 August, nor after the morning of Thursday, 25 August.

Social events and excursions will be arranged for all members during the period of the Congress, and on Sunday, 21 August, and in addition there will be a programme of visits and excursions for non-active members during the technical sessions.

The membership fees are £5 (five pounds sterling) for crystallographers, £3 for students, and £3 for non-scientific members accompanying the active (scientific) members.

(2) The General Assembly

The General Assembly is concerned with the formal business of the Union. Official delegates to the Assembly are nominated by the National Committees. The opening session of the General Assembly will be held on Monday morning, 15 August, the closing session on Saturday afternoon, 20 August. On both these occasions there will be appropriate ceremonial, in which Congress members will participate, in addition to formal business.

Correspondence concerning the General Assembly and the formal business of the Union should be addressed to the General Secretary of the Union, Dr D. W. SMITS,

Laboratorium voor Anorganische en Fysische Chemie,
Bloemsingel 10, Groningen, The Netherlands.

(3) The Congress

Sessions of the Congress will be held from Monday afternoon (15 August) to Friday afternoon (19 August). The programme includes the following:

- (A) A special Congress Discourse, by Prof. Sir LAWRENCE BRAGG, on 'The growth in the power of X-ray analysis'.
- (B) Five General Lectures, on the following topics:
- (1) 'Magnetic alignment', by J. H. VAN VLECK.
 - (2) 'Theory of metals', in the form of a debate by N. F. MOTT, L. PAULING, J. C. SLATER.
 - (3) 'Structure of crystalline proteins' by M. F. PERUTZ.
 - (4) 'The crystal chemistry of silicates, Chapter 2', by N. V. BELOV.
 - (5) 'Theory and practice of direct methods of structure analysis', by B. K. VAINSHTEIN (with co-authors A. I. KITAIORODSKII, I. M. RUMANOVA, and Z. V. ZVONKOVA).
- (C) Sessions for the presentation and discussion of contributed papers on a wide range of topics. The Executive Committee of the Union has given its strong support to the Programme Committee's proposal that the Rapporteur System should be used for papers on certain topics in order to reduce

the number of simultaneous sessions. Details of the procedure to be followed are given in the *Booklet of General Information*.

- (D) Exhibitions of equipment, publications and research techniques or procedures.

(4) The Symposia

Two Symposia are planned, on the following topics:

- (I) Thermal motion in crystals and molecules.
- (II) Lattice defects and the mechanical properties of solids.

For each Symposium a general Introductory Lecture will be given on the morning of Saturday, 20 August. Symposium I is expected to occupy two days (22 and 23 August); for Symposium II—which is arranged in association with the International Union of Pure and Applied Physics—three days are allocated (22–24 August). No simultaneous sessions will be arranged for either Symposium, and the time-table will be such that each afternoon will be free for informal discussion, the principal (invited) speakers being available for this purpose.

Intending members are urged to study the details given in the Booklet of General Information, and to follow the procedures set out there for registration and contribution to the scientific programme. Early completion and return of the appropriate forms will be helpful to the Congress Executive and Programme Committee.

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 Editor (P. P. Ewald, Polytechnic Institute of Brooklyn, 333 Jay Street, Brooklyn 1, N.Y., U.S.A.) or to the Technical Editor (R. W. Asmussen, Chemical Laboratory B of the Technical University of Denmark, Sølsgade 83, Copenhagen K, Denmark)

Acta Crystallographica

By permission of the Executive Committee of the International Union of Crystallography the present Editor of this Journal is retiring as such with the end of the current Volume (12). His place will be taken by Professor A. J. C. Wilson, University College, Cardiff, Great Britain (Telegraphic address: Wilson Coleg Cardiff). No change takes place regarding the Co-editors, and authors are requested to submit their manuscripts to them as usual, but to direct correspondence intended for the General Editor to Professor Wilson in so far as it is concerned with papers to be published in Vol. 13 and after. Manu-

scripts in German should also be addressed to Professor Wilson.

Structure Reports

Professor Wilson's appointment as Editor of *Acta Crystallographica* entails his resignation as General Editor of *Structure Reports*. The Executive Committee of the International Union of Crystallography has appointed Dr W. B. Pearson, Division of Pure Physics, National Research Council, Ottawa 2, Canada, as his successor. Correspondence concerning vols. 16 (1952) and 18 (1954) should be addressed to Professor Wilson, all other correspondence to Dr Pearson.