

the N_I-N_{II} axis. The distances $N_{II}\cdots Cl$ are shorter than those of $N_I\cdots Cl$, and this fact suggests that N_I is the $-NH_2$ group and N_{II} the $-NH_3^+$ group. It is a characteristic of this crystal that the cations are linked by the hydrogen bonds of the type $N^+H\cdots N$ with a distance of 2.95 Å and these form infinite spiral chains along the c axis.

Finally, it is interesting to note that in the iso-electronic crystal of hydroxylammonium chloride (Jerslev, 1948) there is no hydrogen bond of the type $N^+H\cdots O$.

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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).

Advances in Physics

Messrs. Taylor and Francis announce the publication, as from January 1952, of a new quarterly periodical, *Advances in Physics*, which is to appear under the editorship of N. F. Mott as a supplement to the *Philosophical Magazine*. It is the policy of the journal to publish critical review articles covering a wide range of physical subjects, but those in any one part will be confined to a restricted field. The first issue is of particular interest to crystallographers, being devoted to three articles on solid-state physics: 'The Mean Free Path of Electrons in Metals' by E. H. Sondheimer, 'The Generation of Vacancies by Moving Dislocations' by F. Seitz and 'Crystal Growth and Dislocations' by F. C. Frank.

The journal is published in the same format as the *Philosophical Magazine* and the first issue consists of 109 pages. The price is 15s. per part or 55s. per annum.

Charts for X-ray Crystallography

A previous note under this title (*Acta Cryst.* (1950), **3**, 482) listed short descriptions of a number of charts used in X-ray crystallography, and invited comments on their use and on the probable demand for such charts. As a result of replies received the X-ray Analysis Group of the British Institute of Physics has now obtained supplies of the following items and these may be purchased from the Institute at the address given below. For this purpose charts will be known by reference numbers with the prefix PC (the figures in parenthesis following each item below refer to the description of the chart in the previous note).

- PC 1. Equatorial (Wulff) stereographic net (half circle); 5 in. diameter on tracing paper; 2° intervals (1 (1)(a)).
 PC 18. Equatorial (Wulff) stereographic net (whole circle); 5 in. diameter; 2° intervals (1 (2)(a)).
 PC 30. Equatorial (Wulff) stereographic net (whole circle); 30 cm. diameter on thin card; 1° intervals (1 (1)(c)). It is difficult to reproduce a chart of this size with the necessary accuracy

and definition, and differences in length between the two principal diameters of about 0.2% may be found. In addition, in extreme conditions of temperature or humidity further changes of dimensions of about the same order may occur. It is hoped to be able to make a further announcement later about a more accurate reproduction of this chart.

- PC 4. Greninger chart for back-reflexion photographs; 2° intervals; specimen-film distance 3 cm. (C. S. Barrett, *Structure of Metals*, p. 170. New York: McGraw Hill, 1943) (1 (1)(e)).
 PC 14. Bernal ξ , ζ chart for flat film; specimen-film distance 4 cm. (J. D. Bernal, *Proc. Roy. Soc. A*, **113**, 117, 1927) (2 (1)(a)).
 PC 2. Bernal ξ , ζ chart for cylindrical film of diameter 6 cm. (2 (1)(b)).
 PC 5. α , ω , θ (or ρ , φ , θ) chart for cylindrical film of diameter 6 cm., for orientation purposes. Here α (or ρ) is the angle between the axis (A) of oscillation and the normal (N) to the reflecting planes; ω (or φ) is the angle between the plane containing A and N and that containing A and the incident X-ray beam; and θ is the Bragg angle (2 (2)(b)).
 PC 31. Weissenberg chart for cylindrical film of diameter 6 cm.; 9 cm. traverse=180° (chart to cover 13.5 cm.) (M. J. Buerger, *X-ray Crystallography*, p. 268. New York: Wiley, 1942) (2 (1)(e)).
 PC 32. As PC 31 but for film of diameter 5.73 cm. and with 240° traverse (2 (1)(g) (ii)).
 PC 16. Constant- ρ chart for 6 cm. diameter Weissenberg camera (N. Wooster & W. A. Wooster, *Phil. Mag.* (7), **37**, 262, 1946) (2 (1)(f)).
 PC 17. Constant- θ chart for 6 cm. diameter Weissenberg camera (N. Wooster & W. A. Wooster, *Phil. Mag.* (7), **37**, 262, 1946) (2 (1)(f)).
 PC 34. Cochran chart on a scale of 1 reciprocal unit=10 cm., for combined correction for Lorentz and polarization factors (including Cox-Shaw-Tunell corrections) for normal-beam Weissen-

berg photographs (W. Cochran, *J.Sci.Instrum.* 25, 253, 1948) (2 (2)(c) (i)).

PC 35. As PC 34 but for equi-inclination Weissenberg photographs (2 (2)(c) (ii)).

PC 33. Sets of five Bunn charts, each 2×4 ft. (C. W. Bunn, *Chemical Crystallography*, Chap. 6. Oxford: Clarendon Press, 1945) (3 (1)):

- (i) For tetragonal crystals $5.0 > c/a > 1$.
- (ii) For tetragonal crystals $0.224 < c/a < 1$.
- (iii) For hexagonal crystals $10 > c/a > 0.9$.
- (iv) For hexagonal crystals $0.1 < c/a < 0.9$.
- (v) For layer lines of single-crystal rotation photographs of crystals having rectangular cell bases.

Prices

PC 30 on thin card: 20 copies for 30 shillings.

PC 33 per set of five charts: 35 shillings.

All others on bleached transparent paper: 20 copies for 18 pence.

A small number of copies of PC 31 and PC 32 are also available on (opaque) white paper at the same price.

Orders, which should quote the chart reference number(s), e.g. PC 1, PC 33 etc., should be sent to:

The Institute of Physics,
47 Belgrave Square,
London S.W. 1, England.

Additional items may be made available later.

Acknowledgments

The X-ray Analysis Group wishes to thank the following persons, laboratories or firms for permission to reproduce charts: Cambridge University Press; Cavendish Laboratory, Cambridge; Crystal Structures Ltd.; G.K.N. Group Services Ltd.; Imperial Chemical Industries Ltd.; The Institute of Physics; Department of Mineralogy and Petrology, Cambridge; Unicam Ltd.

Acta Crystallographica

The reduced subscription rate for personal subscribers to *Acta Crystallographica* (see *Acta Cryst.* (1952), 5, 153) is now available also to members of the following British Spanish and Swiss societies:

The Faraday Society, the Mineralogical Society.

Asociación Española de Cristalografía.

Société suisse de Mathématique, Société suisse de Physique, Société suisse de chimie, Société suisse de Minéralogie et de Pétrographie.

Joint Commission on Electron Microscopy

The International Council of Scientific Unions has established a Joint Commission on Electron Microscopy. The International Union of Pure and Applied Physics is the 'mother Union' for this Commission, and other Unions have been invited to appoint representatives. The Executive Committee of the International Union of Crystallography has nominated as its representative R. W. G. Wyckoff (National Institute of Health, Bethesda 14, Maryland, U.S.A.) with whom crystallographers interested in the work of this Commission are invited to communicate.

Structures of Solidified Liquids and Gases

Prof. Fankuchen and Dr Post have compiled a list of some fifty structure investigations of solidified gases and liquids which have been completed in recent years or are being carried out at present. They also list a number of laboratories carrying out X-ray structure analysis at low temperatures. This first list, which is to be followed by further lists at suitable intervals, can be obtained by those interested by writing to Prof. Fankuchen, Polytechnic Institute of Brooklyn, Brooklyn 2, N.Y., U.S.A.

The crystal structure of 2-metanilamido-5-Br-pyrimidine: correction

In the above article by Singer & Fankuchen (*Acta Cryst.* (1952), 5, 99) the following phrase should be added after the word "agreement" in the penultimate line of the text on p. 100: "includes all reflections within range of radiation even though too weak to have been observed".

Commission on Crystallographic Apparatus

The Apparatus Commission of the International Union of Crystallography has decided to establish a central information bureau on apparatus and experimental methods of interest to crystallographers. The bureau proposes to undertake the following activities:

(1) The collection and classification of documents about apparatus and experimental methods (X-ray, optical, electronic etc.).

(2) The preparation of a list of the documents available. This will be distributed at four-monthly intervals to the National Committees of the adhering countries.

(3) The provision of micro-film copies of these documents. This service is made possible through the co-operation of the Centre National de Recherche Scientifique (18 Rue Pierre Curie, Paris 5^e, France) to whom orders should be addressed.

The efficient operation of the information bureau will be possible only if it can rely on the support of manufacturers and research workers. The bureau therefore appeals

to manufacturers to send notices and catalogues of all crystallographic apparatus available;

to crystallographers to send reprints of papers dealing with instrumentation or experimental methods, and also any manuscripts, internal reports or original notes not intended for publication but which the authors are willing to make available to the bureau. This request applies not only to new work but also to any documents of current interest.

All documents should be sent, in duplicate if possible, to

Monsieur le Professeur A. Guinier,
Conservatoire des Arts et Métiers,
292 Rue Saint Martin,
Paris 3^e, France.

A. GUINIER
Chairman of the Commission

International Union of Crystallography

As from 1 January 1951 the Japanese National Committee has raised the status of Japan's membership of the Union from Group I to Group IV.