

International Union of Crystallography

Establishment of a President's Fund

At the Tenth General Assembly of the Union, held in Amsterdam in August 1975, the then President of the Union, Professor Dorothy Hodgkin, suggested that a fund might be set up, in memory of past Presidents, for use in emergencies and under special or difficult circumstances, to help crystallographers to take part in the activities of the Union. The fund would be operated by the President and by the General Secretary and Treasurer. Professor Hodgkin's suggestion was well received.

Professor Hodgkin has been given the Fankuchen Award for 1977 of the American Crystallographic Association and has donated part of this award to initiate the President's Fund. Members of the crystallographic community are invited to send donations to the fund to the Executive Secretary, International Union of Crystallography, 13 White Friars, Chester CH1 1NZ, England.

Molecular Structures and Dimensions

The International Union of Crystallography and the Cambridge Crystallographic Data Centre announce the publication of the latest volume in this series: Volume 8, entitled *Bibliography 1975–76, Organic and Organometallic Crystal Structures*. It contains references to 2762 structural studies covering over 300 journals. To facilitate searches two new indexes – a permuted compound name index and a permuted formula index – have been added.

The price of the new volume is 70 Netherlands guilders (about US \$28 at current rates of exchange), the same price as for Volume 6 and Volume 7. Personal copies may be purchased at a reduced price of 50 Netherlands guilders. Copies are available directly from Bohn, Scheltema & Holkema, Emmalaan 27, Utrecht, The Netherlands. Alternatively, orders may be placed with Polycrystal Book Service, PO Box 11567, Pittsburgh, PA 15238, USA, or with any bookseller.

Notes and News

Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. The notes (in duplicate) should be sent to the Executive Secretary of the International Union of Crystallography (J. N. King, International Union of Crystallography, 13 White Friars, Chester CH1 1NZ, England).

International Symposium on Biomolecular Structure, Conformation, Function and Evolution

Madras, India, 4–7 January 1978

Professor Dorothy Hodgkin will be visiting the University as Sir C. V. Raman Visiting Professor and will preside over the symposium, which will form part of the Silver Jubilee Celebrations of the Department of Physics (Crystallography and Biophysics) of the University of Madras. The topics to be covered include protein folding, nucleic acid conformations, structure–function relationships, protein crystallography, structure and conformation of medically important (and other) biomolecules, experimental studies of solution conformations and applications of electron microscopy, neutron diffraction and other techniques to biomolecular assembly and supermolecular structures. A Winter School on some aspect of biological molecules will be held 9–14 January 1978. For further information write to Professor R. Srinivasan, Department of Physics (Crystallog-

raphy and Biophysics), University of Madras, Guindy Campus, Madras 600025, India.

Co-operation Schemes for Crystallographers in Developing Countries

The attention of crystallographers in developing countries, and also other crystallographers interested in helping their colleagues in these countries, is drawn to the announcement of the introduction of special co-operation schemes which was published recently in the 'Notes and News' section of the Union's journals [*Acta Cryst.* (1977), **A33**, 251; **B33**, 317. *J. Appl. Cryst.* (1977), **10**, 76] under the heading **European Crystallographic Committee**. Professor Feil and Dr Kennard would be grateful to anyone who is able to bring these schemes to the attention of the crystallographers for whom they are intended or can give them further publicity in any way.

Book Reviews

Treatise on solid-state chemistry. Vol. 3. Crystalline and noncrystalline solids. Edited by N. B. HANNAY. Pp. 774 + xvi. New York: Plenum, 1976. Price \$42.00 (£29.40).

Volumes 1 and 2 of this treatise edited by Bruce Hannay were concerned with the unifying principles of chemical bonding and structure and with the effect of moderate concentrations of simple defects on physical properties. Much of the material in them would be familiar, at least in

outline, to physicists and chemists working in any branch of solid-state science, even to crystallographers. This third volume is more unorthodox, being a collection of chapters by different authors on classes of solids not covered by simple structural descriptions. For crystallographers familiar mainly with relatively perfect lattices, the array of unusual materials is fascinating, all of them posing considerable problems in the elucidation of structure and many of them significant both physicochemically and technically.

Although intended for advanced workers, the style and content in all but one of the chapters are such that an

experienced non-specialist reader should have little difficulty in grasping the main features of the classes of materials described and in seeing their importance to solid-state chemistry. The methods of production and of analysis are usually very clearly summarized. In most chapters, the numerous references cited provide more than adequate further reading, though some authors have given titles in the references (very helpful) and others not, while there is considerable variation in the coverage of the literature. The authors of some chapters have managed to include papers as late as 1975 and 1976 (I even noticed one for 1977!) and it seems a pity that in four chapters most of the references are only up to 1972 for fields of study that are clearly expanding rapidly.

Of the five chapters on inorganic materials, the first concerns metastable phases produced by rapid quenching from vapour or liquid, mainly as thin films, and mainly as either amorphous phases or as crystalline phases of elements, alloys and supersaturated solid solutions. Metastable phases are important in 'seeing behind' a phase diagram, and in providing us with materials of desired compositions so that we are not limited to phases produced only under equilibrium conditions. The chapter excels in making such significance clear and in giving some idea of the range of physical properties attainable. The limitations of some standard X-ray crystallographic techniques are well brought out – for instance, unit cells of two phases in the Al–Ge system derived from powder patterns have been discussed in eight papers: none of the cells were even remotely related to the final structure determined from single-crystal data.

A chapter on inclusion compounds is of an equally high standard, covering a range of host structures that can accommodate guest ions, atoms or molecules in variable amounts. The accommodation provided can be three-dimensional cages (clathrates), two-dimensional planes (intercalation compounds) or one-dimensional tunnels. The importance of all these to a kind of molecular engineering is well brought out by the wide range of magnetic, electrical and optical properties cited.

The chapter on ordered and disordered extended defects is perhaps slightly disappointing in dealing mainly with defects involving composition changes, leading to crystallographic shear planes. Nevertheless the elucidation and description of the structures is of great interest crystallographically. The treatise as a whole pays scant attention to stacking faults in layer structures and none to the existence of polytypes, a topic I would have expected to appear in this volume.

The final inorganic chapters are on interstitial phases (in hydrides, carbides and nitrides), of interest because of their great intrinsic hardness, and on amorphous and glassy materials. Both are again written in an interesting style, but the latter chapter is disappointingly brief for an area of such importance, compared with the space given to polymers.

Of the four chapters on organic materials, two on polymers occupy well over a third of the book. This gives the

volume a lack of balance, particularly since there are areas of overlap between the two chapters even to the extent of using identical photographs in a couple of places to describe the same phenomena. This said, both chapters (one on the morphology of crystalline synthetic polymers and the other on the rate of crystallization of linear polymers with chain folding) are very readable accounts of a vast field giving a good picture of the present state of the subject and discussing many outstanding problems.

The last two chapters are on organic molecular crystals, the first entirely on anthracene because its electronic properties are so important in photobiology and radiation chemistry. A background of solid-state physics as given in Volumes 1 and 2 is necessary to grasp much of this chapter. The last chapter concerns charge-transfer complexes like TCNQ–TFF, and I had hoped to learn something of these because of their potentiality as superconductors. I confess, however, that I found the chapter arid and unreadable, couched largely in the language of molecular quantum mechanical theory. I hasten to say that other readers with a good background in the field may well find this chapter one of the most valuable in the book, since it is very clearly right up to the minute in its appraisal of the current position and its analysis of outstanding problems: the literature cited contains many 1976 entries.

Overall, in spite of its lack of balance, this is a volume that would be of great value to solid-state chemists and crystallographers, both for those thinking of entering one of the fields and for those seeking a picture of the immense range of fascinating materials and structures now being studied.

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Crystal structure and chemical bonding in inorganic chemistry. Edited by C. J. ROOYMANS and A. RABENAN. Pp. x + 246. Amsterdam: North Holland, 1975. Price: Dfl 45.00 (US \$18.75).

A review of this book by M. Lundberg has been published in the March issue of *Acta Crystallographica*, Section A, p. 349.

Kristalle. By J. BOHM. Pp. 166, Figs. 143 + 9 colour photographs. Berlin: VEB Deutscher Verlag der Wissenschaften, 1975. Price (cloth) DM 20.

A review of this book, in English, by C. J. Brown has been published in the May issue of *Acta Crystallographica*, Section A, p. 525.