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.