system of classifications with cross-referencing that will allow fuller use to be made of these excellent volumes.

To return to the volume under review: an interesting feature is the emergence of the increasing application of techniques other than the X-ray method to crystallographic problems. For instance, a rapidly developing technique is that of nuclear-magnetic-resonance studies on crystals. One reference is made to it in Volume 13 (1950) whereas eleven cases are mentioned in the present one. The number of neutron-diffraction studies listed in Vol. 17 is more than double that in the previous one and there is almost a proportionate increase in the use of microwave-spectral studies. While such techniques have gone much further in their applications today, it is noticeable that X-ray investigators tend to overlook recording the optical properties of their specimens as revealed by the decline in the numbers of such examinations listed in this volume compared with Vol. 16.

A marked feature of *Structure Reports*, and not only the present volume, is the tendency to a paucity of adequate structure representations. Surely more could be done to represent completed structures by good crystallographic illustration. There is no uniformity in this respect and this perhaps is a fault not so much of the abstractors as of the authors who could establish better cooperation with abstractors and provide the latter with the relevant illustrations. Such refinements would undoubtedly increase the costs of *Structure Reports*, but if they are to serve their purpose adequately and not degenerate into mere catalogues some compromise should be sought in the representation of completed structure determinations.

Naturally, the structure determinations in any one field, in one year, do not form a continuity and it would be unfair to single out any particular contribution in a field as diverse as crystallography. It should be realized however that in 1953 Crick & Watson at Cambridge, Wilkins at King's College, London, and the late Miss Franklin at Birkbeck College, London, were responsible for the major crystallographic break-through that resulted in the structure determination of deoxyribonucleic acid — the carrier of genetic information. In pointing out this single item one is naturally led to ask whether the section editors of *Structure Reports* could not include brief summaries indicating the significant contributions in any one year. As *Structure Reports* must of necessity appear in retrospect, this would not be a difficulty imposed on Section Editors, and even if they were accused of personal bias such summaries would still be invaluable to those browsing through the volumes. Here there is scope for imagination and ingenuity in the concise presentation of such articles and would make these valuable volumes all the more attractive.

However, in spite of this minor criticism, both Section Editors and the General Editors are to be complimented on the high standards maintained in the presentation of *Structure Reports* in a remarkably clear manner. The printing and diagrams, such as they are, are excellent and the volume takes its deserved place with those of its predecessors.

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Theory of elasticity of an anisotropic elastic body. By S. G. LEKHNITSKII, San Francisco: Holden-Day Inc., 1963. Translated by P. FERN. Edited by J. J. BRANDSTATTER. Pp. 404. Price $10·95. Originally published as *Teoriia Uprugosti Anisotropnovo Tela.* Moscow and Leningrad: Government Publishing House for Technical Theoretical Works.

This is a monograph which treats systematically a number of problems concerned with the elastic deformation of anisotropic bodies. Apart from crystals a number of structures, such as corrugated plates and membranes, which are constructed from isotropic materials are elastically anisotropic. Also reinforced structures containing with a preferred orientation are elastically anisotropic. Thus the work is of importance to missile and aircraft designers, to mining engineers, geophysicists and architectural engineers.

The six chapters deal with (1) the general theory of the elasticity of an anisotropic body, (2) simple cases of elastic equilibrium, (3) and (4) the state of stress of an anisotropic body bounded by a cylindrical surface when the stress is constant along a generator, (5) the state of stress of an anisotropic cantilever deformed by a transverse force, (6) the symmetric deformation and torsion of a body of revolution.

The treatment is at a uniformly high level throughout. The problems are treated purely analytically in a systematic and comprehensive manner. The book is intended for theoreticians rather than practising technologists. There is little direct application of the analysis to actual problems. The translation appears to be excellent and the production of the book has resulted in very clear text, equations and figures.

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Kristallchemie. By W. KLEBER. Pp. 128 with many Figs. Leipzig: Teubner. 1963. Price DM 9·30.

The title of this work is misleading, for it is in no sense a systematic presentation of the principles of crystal chemistry. Rather is it a discussion of certain isolated topics in the field, often demanding of the reader a considerable knowledge of structural chemistry for its proper comprehension. Yet the reader with this knowledge will find much that is elementary and much with which he is familiar.

The first chapter (half the book) is devoted to a discussion of the packing of spheres, and it is shown that many structures can be described as a close-packed assembly of atoms of one kind with other atoms in the interstices. Such a description of some structures is undoubtedly illuminating, but there are many others of which the important features are obscured when described in this way: what is significant about the zincblende structure, for example, is not that the zinc atoms lie in

the interstices of a cubic close-packed array of sulphur atoms, but that the covalent bond demands tetrahedral coordination about the atoms of both kinds. Many other examples could be quoted of structures of which the descriptions are too brief to be comprehensible, and only those readers already familiar with the many structure types considered will be able to follow the author's discussion of isomorphism, polymorphism and structural transformations with which the chapter ends.

In the second chapter (32 pages) the concept of a structure in terms of coordinating polyhedra is introduced and the role of radius ratio is discussed. (There is, however, no tabulation of atomic and ionic radii although in the preceding chapter a whole page is devoted to a list of Laves phases.) An account of the different types of interatomic binding follows, but this is very brief and the structural characteristics associated with these bond types are not described. Chapter 3 (9 pages) is devoted to a conventional discussion of the elementary lattice theory of simple structures.

The final chapter (20 pages), entitled *Bauverbände*, describes structures (mostly silicates) in terms of the concept of *Baueinheiten* introduced by Laves in 1930. The value of this concept is a matter of opinion, but it is certain that it cannot be fully appreciated without a much more detailed account of the crystal chemistry of the silicates than is here given.

In brief, the work contains an interesting account of a number of isolated structural topics, but the choice of these topics is so arbitrary and the level of presentation so variable that it is difficult to understand for what class of reader the book is intended.

Printing and binding are adequate but undistinguished. Fig. 1·1 is upside down and Fig. 3·12 (of wurtzite) is most confusingly drawn: only very careful consideration reveals that the bonds which appear to unite certain pairs of zinc atoms do not in fact do so. The folio of page 80 is missing.

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