and the like, is well understood, and substantial advances have been made in extending this approach to ionic crystals, although these are less commonly used as load-bearing materials.

The explicit aim of this book is to provide a survey of the current state of knowledge about plastic deformation of simple ionic crystals, with the ultimate objective of understanding the processes controlling yield stress, strain hardening, and related phenomena. The range of crystals chosen for description seems rather restricted; however, simpler materials provide a basis which allows extension to more difficult systems. Problems of anisotropy are avoided since attention is confined to crystals of cubic symmetry, in materials with coordination numbers 8, 6 or 4, as exemplified by the halides of periodic table Groups I*a* and II*a*, those of Ag, Pb, and occasionally Tl, and with some attention also to MgO.

Initial chapters give a brief introduction to structure and bonding in ionic crystals, followed by an outline of plastic deformation and the processes of glide, twinning, kinking, and the preferred directions for these processes. More complex combinations such as 'pencil glide' are treated, also structural relations of glide planes, cleavage planes and elastic constants. Subsequent sections describe in more detail the part played by dislocations in ionic crystals, starting with the basic types of screw and edge dislocations and explaining the significance of jogs and kinks. Chapters 5 and 6 deal with the techniques of observing the incidence of such imperfections in ionic crystals, with sample preparation and quality, with cleavage and with impurity effects. A more complex level is reached by Chapter 7, with the interaction of dislocations in boundaries and other arrays and with nucleation, multiplication and mobility of dislocations. This leads to a review of indentation hardness testing, bending of crystals, and the deformation under axial load of both single crystals and polycrystalline materials.

Overall, this work surveys some of the mechanical properties of simple ionic crystals at a level suitable for someone starting research in this field. It does this clearly, providing extensive reference to recent literature. Anyone requiring an introduction to this field will find it a useful book.

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Low-temperature X-ray diffraction: apparatus and techniques. By R. RUDMAN. Pp. xvi + 344, Figs. 71, Tables 9. New York: Plenum, 1976. Price US $42.00.

A review of this book, by M. R. Truter, has been published in the November 1977 issue of *Acta Crystallographica*, Section B, pages 3623–3624.

Electron microscopy in the study of materials. By P. J. GRUNDY & G. A. JONES. Pp. 175. London: Edward Arnold, 1976. Price (cloth) £8.00, (paper) £3.75.

A review of this book, by M. Rozsíval, has been published in the December 1977 issue of *Journal of Applied Crystallography*, pages 509–510.

Books Received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

Physics of semiconductors. Edited by F. G. FUMI. Pp. xxiii + 1328. Amsterdam: North Holland, 1976. Price $95.00, Dfl 250.00.

This book contains the full proceedings of the 13th International Conference of this title, held in Rome, in August 1976: about 300 papers, covering all aspects.

Crystal field effects in metals and alloys: Proceedings of the international conference held in Zürich, Sept. 1976. Edited by A. FURRER. Pp. xiv + 365. Plenum Press, 1977. Price US $37.50.

This book contains about sixty papers on theoretical and experimental aspects of the physics of crystal field effects, particularly for rare earth alloys and intermetallic compounds.