

In Part II the minerals are described, using tables of properties of individual species (with an optical orientation diagram for most) embedded in a general discussion of each mineral group. These discussions are illustrated by excellent stereoscopically paired drawings of the structures that give a vivid and valuable 3-D picture (these stereoscopic drawings are also a feature of Part I of the book).

The authors are to be congratulated on using SI units, in the face of American conservatism on this issue. Estimates of effective ionic radii by both Shannon and Prewitt and Whittaker and Muntus are conveniently listed in an Appendix.

M. H. BATTEY

Shelley, D. *Optical Mineralogy* (Second edition). Amsterdam, Oxford, and New York (Elsevier), 1985. xviii + 322 pp., 175 figs., 40 colour photos. Price (hardback) US. \$37.50.

The flavour of this revised version is much the same as the 1975 edition of *Manual of Optical Mineralogy* (MM 40-800), but the chapter on principles has been enlarged to include a more thorough treatment of retardation, interference figures, and dispersion of the optic axes. The section on techniques is expanded to fill three chapters instead of one, and the use of the spindle-stage is now included.

The division of the book is roughly half on principles, techniques and determinative tables, with the second half being devoted to descriptions of individual minerals or mineral series. The mineral descriptions have been brought up to date and there are more orientation diagrams than hitherto, but information on paragenesis is brief in the extreme.

The text and line drawings are clear and attractively presented and a fold-out chart for interference colours is appended; there are some 130 references and a useful index. In this edition a separate section of 40 photomicrographs in colour (many of them matched pairs respectively in plane- and crossed-polarized light) is included, but unfortunately they are of postage-stamp size and much less useful than if they had been, say, twice as large. This criticism apart, this book can be strongly recommended for first- or second-year undergraduate use; in the reviewer's experience, the first edition was the most popular of several elementary texts for explaining to students the mysteries of optic axial figures and the construction of oriental diagrams, and it is good to have it again available.

R. A. HOWIE

Fander, H. W. *Mineralogy for Metallurgists: an Illustrated Guide*. London (Institution of Mining and Metallurgy), 1985. xx + 77 pp., 213 figs. Price £33.00.

This slim volume is dominated by 136 colour photomicrographs of ore samples, mostly ores in their natural state but some which have also been subjected to beneficiation processes. Each plate is annotated, with brief additional comments highlighting aspects of the mineralogy which could be relevant to the upgrading processes. In addition there is a brief text introducing the methods of study and the types of mineral deposits encountered.

The book was conceived as a textbook for students of metallurgy and as a reference for writers of reports and papers. The photographs are well produced and cover a wide range of ore deposits. Even though the coverage was not meant to be comprehensive there is a distinct bias in the types of deposit covered—perhaps reflecting the author's experiences in Australia. For instance, Au and Sn/W deposits are well represented (making up almost 50% of the total) whilst Ni, Pt, Cr, and U minerals are virtually absent. Although the photos all have scales, the conditions under which they were taken are not always apparent.

I am doubtful whether this volume will serve the needs of a student text in metallurgy or as a reference work. There is not enough detail relating the illustrations to the metallurgical processes which are to be employed and the coverage is not comprehensive enough. The high price for so little information would exclude it from consideration as a student text.

However, notwithstanding its shortcomings, and as someone engaged in teaching mineralogy, I will find this an extremely useful publication for students of geology and mineralogy. It is always an uphill struggle convincing students of the need for detailed descriptions in ore microscopy. This volume is a useful visual representation of the importance of textures and mineralogy in the metallurgical industry and is therefore recommended for all geology libraries. Ironically this does not appear to be the market it was originally aimed at!

D. H. M. ALDERTON

Wolfe, J. A. *Mineral Resources, a World Review*. New York and London (Chapman and Hall), 1984. xvi + 293 pp., 50 figs. Price £10.95.

This claims to be an unusual book and it certainly is. The first part (87 pages) consists of what the