

pp. 263–359 (Foraminifera, Radiolaria, oxygen isotope ratios in fossils, bacterial sulphate reduction, radiocarbon chronology); Sediments, pp. 363–532 (chemical composition, sulphide minerals, goethite–haematite relations, isotopes of S, Pb, and U, comparison with other ironstone and iron formations); Economic and legal implications, pp. 535–56 (average assays in *Atlantis II* Deep deposits are Fe 29, Zn 3.4, Cu 1.3, Pb 0.1 %, Ag 54 ppm and Au (probably) 0.5 ppm); Summary, pp. 557–71; Indexes, pp. 575–600 (author, Latin name, and subject).

The large format ($8\frac{1}{4} \times 11$ in.) provides good clear maps, tables and text figures. It is an extremely up-to-date, if expensive, compilation of data that is widely scattered through the literature. [M.A.70–85] T. W. B.

SPRY (ALAN). *Metamorphic Textures*. Oxford (Pergamon Press Ltd.), 1969. viii + 350 pp., 65 figs., 31 pls. Price, hard cover 60s. (\$10.00); soft cover 50s. (\$8.00).

Metamorphic Textures is the first modern book on this rapidly expanding field, treating the subject rather as a series of structural transformations of crystals than as a succession of chemical reactions.

The author collects together most of the relatively modern work, and presents the information in a concise and orderly manner with clear and ample illustrations together with a very comprehensive bibliography. A very careful distinction has been made between those terms of a descriptive nature and those having a genetic connotation.

The chapters on grain boundaries, mineral transformations, and crystallization are excellent, information from the metallurgical and ceramic fields being often drawn upon, although the reviewer is left with the impression that the chapter on preferred orientations is not sufficiently well illustrated, nor is enough crystallochemical bond information given.

Although not within the subject covered by the title of the book, readers interested in the subject of metamorphic textures may feel that a section on carbonate diagenesis would have been useful.

The chapter on regional metamorphism is thorough and very comprehensive, but unfortunately the author completely misinterprets the work of Powell and Treagus on the geometrical form of inclusions within 'snowball' garnets. [M.M.36–453]

The book is the only one of its kind covering this rapidly expanding field of study, and the style is suitable for final year university students and those engaged in this field of research. The extensive bibliography and very reasonable price ensure that this volume will become invaluable to all metamorphic petrologists.

J. W. OLDHAM

LENZEN (G.). *The History of Diamond Production and the Diamond Trade*. Translated from the German by F. Bradley. London (Barrie and Jenkins), 1970. xvi + 230 pp., 21 figs., 12 pls. Price 80s.

This English translation of a work originally published in 1966 represents the first attempt to relate the history of diamond production to economics. The author is well

fitted to this task, being a qualified mineralogist and gemmologist who has taken a doctorate in political science and history. Diamond deposits were first worked in India thousands of years ago and indeed India was the only source for diamonds until the eighteenth century, when Brazilian, and later, African deposits were found. The major part of the book is devoted to a detailed critical history of the production and trade in these countries, leading up to the twentieth-century concentration of the industries in monopolies and cartels. The development of the various finishing techniques is also described. But the most fascinating aspect of this book is the author's painstaking efforts to unravel the consolidated balance-sheets of diamond-producing syndicates to obtain the actual cost as opposed to relying on official trade figures. Without exception the fundamental production and market political conceptions of De Beers are shown to be based on Rhodes's dictum that the dominating features should be the continual adaptation of the rough-diamond supply to the fluctuating demand. The average price per carat of rough diamonds appears to stay fairly steady at around 2.8 times the cost of production. The impact of synthetic diamonds is discussed briefly in a postscript: in 1965 the price per carat of synthetic diamonds and that per carat of natural diamonds of mesh size 30–400 were approximately the same at around \$2.70. The possibility of synthetic gem diamonds should offer no threat to the diamond trade but it is essential that those in the trade become more familiar than they have been in the past with the expertise and the instruments necessary for their distribution. The book has name and geographical index but sadly lacks a subject index. References are given in the text simply by number and it is infuriating to find that, for example, references 161, 162, and 163 all read 'J. B. Tavernier, l.c., p. 141' which one eventually finds refers back to reference 3, three pages earlier. These points notwithstanding this is a book which should be read and digested by all interested in diamonds.

R. A. HOWIE

HALLIMOND (A. F.). [1890–1968]. *The Polarizing Microscope*, 3rd ed. York (Vickers Instruments), 1970. xii+302 pp., 162 figs., 4 pls. (3 in colour). Price £4. 4s.

Although the earlier editions [M.A. 10–352, 12–233] contained accounts of the construction and use of a new series of microscopes, the present account relating to an extended series may be applied to polarizing microscopes in general. The subject matter has been almost doubled in length: a useful summary (27 pp.) of the customary crystal optics is given in the last chapter, although it might seem more appropriate to place this nearer the beginning of the book before chapters dealing with such topics as the use of the interference figure and the determination of path difference and of extinction. The use of reflected light is considered in detail, with chapters on the theory for reflected light, the use of reflected polarized light in mineralogy, the theory of measurement of rotation and path difference (in both reflected and transmitted light), and on microphotometry and the determination of reflectance. Microhardness is also dealt with, both from the point of view of its measurement by indentation and of the problems in polishing: as might be expected from this author, the chapter on mounting and polishing specimens is particularly thorough, with detailed descriptions of