

including also data on five- and six-coordinated silicon—and of the cation–oxygen bond and its influence on the Si–O bond, the author develops its classification as an extension of the Bragg–Naray–Szabó classical one. The reader will be impressed with the clarity of the numerous figures, even if he previously had the occasion to see many of these in the chapter of the *Handbook of Geochemistry* (Springer-Verlag) devoted to silicon. The last chapter is particularly well developed and interesting: it deals with the influence of non-tetrahedral cations on the relations between the different structural units (rings, branched and unbranched chains, layers, etc.) and on the shape of silicate frameworks.

This book ends with an abundant and up-to-date bibliography (more than 680 references), a table of ionic radii, a subject index and a formula index with more than 1500 natural and artificial compounds.

Concerning the 'pièce de résistance', most mineralogists will probably find this classification very interesting from a theoretical point of view but probably not from a practical one; it is not always easy to remain afloat amongst the different parameters like 'directedness', 'linkedness', 'connectedness', 'branchedness', etc. and it is not certain that, according to the author, 'sechser', 'zehner' or 'zwölfer' periodicities are 'widely accepted' terms. Fortunately the reader is invited to use the shortened form '24 er' in place of 'vierundzwanziger'! Also, perhaps 'the structural formula of a substance should contain as much information about its structure as necessary . . .', but most probably a mineralogist will not be enthusiastic to enter the formula of chesterite as $(\text{Fe,Mg})_{17}\{\text{uB}, 2_{\infty}^1\} [\text{Si}_4\text{O}_{11}] \{\text{uB}, 3_{\infty}^1\} [\text{Si}_6\text{O}_{16}]_2(\text{OH})_6$ in his computer: he will prefer the more classical $(\text{Mg,Fe})_{17}\text{Si}_{20}\text{O}_{54}(\text{OH})_6$. . .

Anyhow, in spite of the arcana of this classification, and even if many minerals were not considered (what about silico-carbonates like tundrite, silico-phosphates like britholite, etc.?), this book constitutes a mine of information on the crystal chemistry of silicates: chemists and mineralogists alike should give it a careful perusal.

F. CESBRON

Dunham, K. C. and Wilson, A. A. *Geology of the Northern Pennine Orefield. Volume 2. Stainmore to Craven* (British Geological Survey Memoir, HMSO, London), 1985. x + 247 pp. 36 figures, 25 tables. Price £15.00.

The North Pennine orefield is one of the classic lead mining districts of the British Isles extending from the Roman Wall on Whin Sill at its northern

extremity to the Craven Limestone Uplands in the South. This memoir is restricted to the southern part of the orefield from Stainmore to Settle and Craven in the South, more commonly known as the Askrigg block.

The text is organised into fourteen chapters. The introductory chapter provides an extremely detailed and fascinating account of the mining history of this once prosperous mining area. The next four chapters (2 to 5) provide an equally detailed review of the stratigraphy of the area whilst chapter 6 discusses the structure and tectonic history of the whole region.

The general characteristics and major structural and stratigraphic controls to lead–fluorite–baryte mineralization in the district are reviewed in Chapter 7 followed by a discussion of the origin and age of the deposits and on the nature and source of the mineralizing fluids. Chapters 8 to 13 provide a comprehensive catalogue and meticulous description of individual mineral deposits, veins and vein systems throughout the region. The final chapter summarises the future prospects for lead, zinc, fluor spar, barium minerals and copper ore in the area.

The memoir is liberally illustrated with informative maps, sections and photographs and the text is well-organised and clearly written. The 13-page locality and subject index is quite outstanding though I would like to have seen a comparable author index, or at least a reference list, at the end of the memoir. Overall, however, this is a first-class publication. The authors are to be commended for upholding the fine tradition of the British Geological Survey in this excellent review. It will prove indispensable to anyone with an interest in the geology, mineralization and mining history of the area and provides a useful reference source for anyone interested in carbonate-hosted epigenetic, Pb–Zn–CaF₂–BaSO₄ mineralization elsewhere in the world.

A. H. RANKIN

Nesbitt, R. W. and Nichol, I., Editors. *Geology in the Real World—the Kingsley Dunham volume*. London (Institution of Mining and Metallurgy), 1986. xvi + 493 pp. Price £28.00.

Sir Kingsley Dunham's contribution to British geology in the broadest sense has been profound and so it was fitting that in April 1985 (the year of his 75th birthday) former Durham students should organise a meeting in his honour.

This volume contains the text (47 papers and 4 abstracts) of the presentations made at this meeting. The first of these is an address by Sir Kingsley himself; it has the same provocative title as that of

the whole volume but is in fact more concerned with Sir Kingsley's own geological experiences over several decades. Actually the 'real world' alludes to the 'down-to-earth, field-based quality' of geology rather than to any conflict between academic and practising geologists.

The subject matter of the papers is extremely varied and most topics in geology are covered. However, almost half of the contributions are concerned with mineral deposits and exploration methods. I found several of the papers extremely interesting; for instance I can commend the photographs of a laboratory simulation of the opening of the Red Sea by Girdler, and the interesting discussion on more precise time-scales by House.

Publications such as this provide authors with a forum for synthesising data and developing new theories. Thus there are several 'reviews', 'views', 'thoughts' and 'reflections'. Some of these are novel but some appear to be a reworking of previously published material.

The coverage of this book is probably too broad to warrant purchase by individuals. I can only recommend that everyone looks at the full list of contents to see if there is anything directly relevant to their own interests.

H. M. ALDERTON

O'Donoghue, M. *The Literature of Mineralogy*. London (The British Library, Science Reference and Information Service), 1986. ii + 85 pp. Price £12, soft cover.

This brief guide to mineralogical literature is one of a range of bibliographies, guides, and newsletters, published by the British Library.

Given its unqualified title, and making due allowance for its slimness, one might reasonably expect greater breadth of coverage in a publication from so prestigious an institution; and one may presume that its oddly parochial flavour stems from editorial guidelines, rather than the author's choice. No general reference library can reasonably cover a particular group of related subjects as fully as can a more narrowly specialized library; but a literature guide, as distinct from a short catalogue, ought properly to do more than reflect, for the most part, the forgivable limitations of its parent.

Information is contained in the sixteen classified sections, plus a short list of useful addresses, that are sandwiched between the introduction and an index. Section headings include: 'Major reference monographs'; 'Abstracts'; 'Databases'; 'General comprehensive surveys'; 'Regional mineralogy'; and so on. In each section there are general comments, and selected titles (usually with access-

sion number and classmark) are accompanied by a few words indicating their content or coverage.

Examples of limitation are the absence of the Russian, multi-volume *Mineralii*, edited by Chukrov, from the major monographs; of *Klockmann's Lehrbuch der Mineralogie* (16th edn., 1978), by Ramdohr and Strunz, from the general comprehensive surveys; and of numerous major works, such as Lacroix's *Minéralogie de la France et de ses colonies*, from a regional mineralogy section that over-emphasizes North America. This section would have benefitted from a reference to the still-invaluable 'Catalogue of topographical mineralogies and regional bibliographies', by L. J. Spencer (*Mineral. Mag.* 1948, **28**, 303-32).

We learn (twice, pp. 9, 66) that Chester's *A dictionary of the names of minerals* (1896) is not held by the British Library, without mention that it is held in the Mineralogy Library of the BM(NH). Goldschmidt's *Atlas der Krystallformen* is not owned, although nine of its plates are reproduced to pad out the page total to ninety-six; and a reference to its presence in the Mineralogy Library, BM(NH), is wrongly given (p. 29) as the Palaeontology Library. On this same page we also learn—to our surprise—that some works on crystallography are held by the British Library in 'Humanities and Social Sciences'.

In my opinion, this guide is grossly overpriced. In London alone, there are several excellent libraries—in addition to the British Library proper—to which outside readers are admitted; improved reference to their existence and holdings would greatly increase the usefulness of the next edition.

P. G. EMBREY

Hodgson, A. A. *Scientific Advances in Asbestos 1967 to 1985*. Crowthorne, Berkshire (Anjalena Publications), 1986. 186 pp., 15 figs. Price £56.00.

The two broad categories of commercial asbestos, amphibole and chrysotile, have attracted great attention in the past few decades. The asbestos industry has sought a better understanding of chemical and physical properties in order to improve the manufacture of asbestos-containing products. Over the same period, because of increased alarm over serious health hazards of asbestos dusts there has been more interest in medical and environmental aspects, and a tendency to search for non-asbestos material to substitute in many of its uses.

Reports of research on asbestos are scattered throughout the scientific literature, in Earth-science, industrial, chemical and other journals. In addition, since 1967 there have been four important