

BOOK REVIEWS

Marfunin, A.S. (Ed.) *Advanced Mineralogy Volume 1. Composition, Structure, and Properties of Mineral Matter; Volume 2. Methods and Instrumentations*. Berlin, Heidelberg and New York (Springer-Verlag). Vol. 1: 1994, xxvii + 551 pp. Price DM198.00, ISBN 3-540-57254-6. Vol. 2: 1995, xxi + 441 pp. Price DM198.00. ISBN 0-387-57255-4.

I wonder, have you ever, in your wanderings of the local bookshop, seen those tomes which go under titles like 'The bluffer's guide to wine', or 'How to sham your way as an airline pilot' or somesuch? Maybe you've even bought one? They can provide a veneer of knowledge that is, I am led to believe, very useful at cocktail hour. If you have (heaven help you) succumbed to the temptation to purchase one of those books, then maybe this series is just for you. It covers an expanse of Mineral Physics from Al-avoidance to ZAF corrections in a rather unique encyclopaedic manner. Volume 1 is a feat of editorial organisation, containing as it does around 80 short articles on a wide compass of mineralogy by almost 200 individuals, who are almost all leaders in their respective fields. Volume 2 has about half as many authors and focuses on analytical methods. Each article is generally well written, serving as an introduction to the initiate in that topic. But the overall impression is rather strange; the reader is bombarded with a succession of these introductory (and somewhat heterogeneous, by necessity of authorship variations) and inevitably rather shallow contributions. The coverage of mineralogy is rather piecemeal. For example, in Volume 2 no mention is made of Rietveld methods in the section on 'Diffraction and Structure', but one does find a discourse on the development of the Patterson function in the 1930s. A short article on electron diffraction sitting near the beginning of the book is (puzzlingly) separated from a fine review of electron microscopy by almost all of the rest of the contents (including Mössbauer, NMR, XPS, XAS, FTIR, EPR, optical absorption, EMPA and remote sensing techniques).

I have pondered what the market for these volumes might be. I suspect that they do not cover any one of the many subjects that they tackle in sufficient depth for the reader to become an independent user of any one of the techniques.

But they may serve to help you begin to appreciate what it is your colleagues and collaborators are really up to. The structure of the books is such that it would be difficult to recommend them to a student; they cannot be intended as text books. On the other hand, many of us will have had the experience of being faced, at the beginning of the academic year, with the prospect of teaching a course that requires some preliminary research into methods which may not be wholly familiar. The short articles of these volumes may be just the place to start, possibly helping form the basis of a lecture programme, and providing references for further reading which would be needed to guard against the questions of the more probing student. Physically, the presentation is generally of the minimalist-traditional school, with a large amount of text, but, as I have intimated, some useful reference lists.

On reflection, maybe this series does indeed fulfil a real need. Progress in sciences is made through specialisation, on the whole, with a few wise individuals who draw disparate specialisms together in evolutionary hybrids. These volumes provide the ground of knowledge that is needed if one is to make those steps and develop as a renaissance (wo-)man of Mineral Science. Or maybe they will just help you bluff your way?

S. A. T. REDFERN

Howells, M. F. and Smith, M. *Geology of the Country around Snowdon*. Memoir for 1:50,000 Geological Sheet 119 (England and Wales). London (British Geological Survey), 1997. x + 104 pp. Price £45.00. ISBN 0-11-884523-3.

Having published the results of their primary one-inch mapping of the Snowdon area in 1851, the Geological Survey then stayed away for more than a century. Replacement of the long since out-of-print mapping presented something of a dilemma when, in 1968, the North Wales unit moved west across the River Conway from sedimentary Silurian to largely volcanic Ordovician. The least expensive way forward would have been to make a compilation of the patchwork of academic mapping published over that past century. Such a venture had already

begun by members of the universities of Liverpool and Aberystwyth and with Survey collaboration a 1:25,000 map covering Central Snowdonia was published in 1972. It served the geosciences community well for more than a decade, though it had no accompanying explanation.

There was then some debate as to whether to incorporate this compilation in the regional 1:50,000 sheet coverage or to resurvey at the scale of 1:10,000. Resurvey involved high cost, for it was recognized that the area, with its rugged terrain and complex lithologies, was of such academic interest that the quality of mapping would have at least to match that of the great Tertiary Volcanic mapping by the Scottish Survey in the 1920s. My own doubts as head of the unit at that time were over-ruled, and mapping on a topographic base provided by customised aerial photographs was begun. Had any doubts remained they would have been resolved by the publication of this memoir which rounds off 30 years of intensive and productive activity by the Survey and its supporting academic researchers. It is entirely appropriate that the senior author of the memoir should be M. F. Howells who remained as the core member of the unit from the outset of mapping and has more than a score of joint papers on mainly Snowdonian volcanological topics credited to him in the extensive bibliography.

With much of the volcanic stratigraphy and nomenclature already covered by earlier publications, the memoir has had the space to give a full accounting of the biostratigraphy of the mainly sedimentary Cambrian and early Ordovician successions. Structure, metamorphism and geophysical investigations are also fully covered. The text throughout is succinct and is handsomely illustrated by 29 two-coloured line diagrams. This, together with the good quality of the coloured plates forming the frontispiece and soft cover, makes the memoir a desirable addition to any bookshelf. It might be hoped that the barely adequate quality of some of the 13 black and white plates together with the overprinting error which rendered p. 88 totally illegible are peculiar to this reviewer's copy. E. H. FRANCIS

From isotopic dating through to the sourcing of artefacts, geology and archaeology share many techniques and approaches. However, the two fields probably interface most closely in the study of the processes that shaped the ancient landscape and its relationship with human activity.

The people of the Archaic Period (roughly 8000–2000 BC) were hunter-gatherers who subsisted mainly on small game, fishing and gathering wild fruits and nuts. The Archaic saw increases in population and the development of regional identities, specialised tools and strategies for intensive food collection. These changes precursored the later development of tribal societies or chiefdoms, the use of pottery and eventually the development of agriculture, and are generally considered to have been fostered by environmental pressures caused by climatic and sea-level changes.

Each of the seven papers in this volume reviews the evidence for the Archaic environment in a particular region of North America, from the Rocky Mountains across to the Atlantic Continental shelf. They also focus upon the extent to which the archaeological record as we see it today has been modified by geological processes, covering, exposing or destroying the sites in the intervening period. Thus not only does the archaeological geology provide an understanding of the prehistoric environment and its effect on cultural development, but it also gives an indication of the integrity of the archaeological record: to what extent is the distribution of archaeological remains today an accurate reflection of the past?

The contributions are well written and well illustrated, the reviews are comprehensive and well referenced with bibliographies typically containing ~ 500 entries each. For the reader who wishes to obtain an insight into the multi-disciplined approaches adopted in archaeological geology, it is highly recommended. I. C. FREESTONE

Radhakrishna, B. P. and Vaidyanadhan, R. *Geology of Karnataka*. Geological Society of India, Bangalore, 1997. Paperback, xii + 353 pp. US\$25.00. ISBN 81-85867-08-9.

Bettis, E. A. III. *Archaeological Geology of the Archaic Period in North America*. Geological Society of America Special Paper 297, 1995. 154 pp. Price US\$45.00 (post paid). ISBN 0-8137-2297-7.

This book is the enlarged and revised second edition of a volume first printed in 1994. The structure of the volume, divided into two unequal parts dealing with the geology and then geomorphology, remains the same. The revisions