cesses which can create these mineral deposits. If I have a gripe, it is that if suffers from a slight lack of clarity. The chapters do not possess separate summaries, and I repeatedly became confused both by the amount of descriptive detail and the manner in which genetic sections are mixed in. For instance, I found the section on Cainozoic synsedimentary lacustrine fluorite extremely interesting, but came away without a clear insight into the chemistry of its formation.

Despite its shortcomings, this book will be of value to those interested in gaining a broad understanding of mineral deposits, and should find a home on the library shelves. It contains a body of useful information which would otherwise remain scattered. However, an uneven, often weighty style and the tendency to mix description with genetic interpretation will hinder its adoption as a general text. The book is illustrated by numerous maps, cross-sections and photographs. There are few obvious typographic errors, although the lists of references contain mis-spellings of some author's names (including my own).

N. J. FORTEY

Earney, F. C. F. *Marine Mineral Resources*. London and New York (Routledge, Chapman and Hall Ltd.), 1990. xxiv + 387 pp., 94 figs. Price £65.00.

In many ways Fillmore Earney's new book is a sequel to his *Petroleum and Hard Minerals from the Sea* published in 1980. By comparing them one is able to see charted the developments in knowledge and technology of the last decade. Much more of the recent work is dedicated to the implications of the emergence of the Law of the Sea (UNCLOS III) Convention of 1982. In addition to detailed descriptions of the known resources and current technologies for their recovery, the author dwells on the new regime, particularly the emergence of the Exclusive Economic Zone concept which gives coastal and island states powers to regulate the economic activity within a zone reaching 200 nautical miles seawards from set base lines and thus take resources from the waters, from the sea bed and from beneath the sea bed. He further discusses the role of the International Sea-bed Authority which will regulate sea-bed mining beyond the limits of EEZs. Very properly he reveals the impact of the recovery of mineral resources from the sea on the economies of those states, often developing countries, but also including Canada, which are currently the leading producers of metallic minerals.

The coverage is global, detailed and backed by up-to-date statistics of reserves and production rates. Particular attention is paid to cases where the ownership of marine mineral resources have been and still are matters of dispute.

At £65 the work is expensive but such is the scholarship and with more than 600 references it should be required reading for all geologists, technologists and indeed administrators concerned with the sea.

A. J. SMITH

Hodgson, A. A. (editor). *Alternatives to Asbestos—the Pros and Cons*. John Wiley & Sons (on behalf of the Society of Chemical Industry), 1989. xiv + 195 pp. Price £43.50.

The need for a book on alternatives to asbestos arises from the growing awareness of the serious health hazards involved with inhalation of its fine particles and more specifically from the recommendations of the report of the U.K. Health and Safety Commission's Advisory Committee on Asbestos (1979). Key recommendations from the report involve substitution by other materials as far as practical, weighing advantages and disadvantages of asbestos and potential substitutes including their potential health risks, performance of the finished product, and the costs associated with changing from asbestos to a substitute.

The present survey is in three contributed chapters: 1. The alternative raw material (60 pp) by the editor A. A. Hodgson. 2. The feasibility of substitutes (88 pp) by A. Pye, and 3. The health aspects (28 pp) by P. E. Elmes.

Chapter 1 encompasses glass fibres, mineral wools, synthetic and natural organic fibres, some specific minerals (mica, vermiculite and other clays, talc, pyrophyllite and wollastonite), expanded rhyolite glass (perlite), diatomite, and carbon, refractory and metallic fibres. Consideration is given to chemical and physical properties, manufacturing methods, uses, costs and availabilities. Asbestos itself is not treated in detail but the reader is directed towards other publications.

Chapter 2 deals with substitution in the six major product groups: fibre-reinforced cements, building materials and insulation, friction products, heat-resisting textiles, reinforced plastics and packings and jointings. No single material is a universally suitable substitute. Almost by definition, anything that completely reproduces the desirable properties would also present the undesirable hazards. However, among the most viable alternatives are: cellulose fibre reinforced cement, vermiculite insulation sprays and coatings, insulation with man-made 'mineral' fibre

(glass wool, rock wool and slag wool), and aluminized glass fibre textiles.

Chapter 3 deals with health risks from asbestos and from its alternatives since the latter as well as asbestos may contain durable and respirable fibres. The medical conditions, pleural plaques, asbestosis, pleurisy, pleural thickening, lung cancer and mesothelioma are briefly explained, and for each potential substitute, particle size, shape, durability, *in vitro* and *in vivo* experiments, and epidemiology are considered. This chapter is perhaps too short to do justice to its topics.

Readers may have a sense of déja vu, explicable on account of a recent publication with similar title 'Alternatives to asbestos and asbestos products', 2nd Edn., 1987 (reviewed *Min. Mag.*, 1989, **53**, 516–7). This differs in being entirely by A. A. Hodgson and having an even shorter treatment of medical aspects. Each of the publications is well written and produced and is a valuable reference text, but there is a great deal of commonality, and a gap of longer than two years between them would have been preferable. Yet another book on asbestos (Skinner *et al.*, 1988) was reviewed in *Min. Mag.*, 1989, **53**, 663–4.

J. ZUSSMAN

Pichler, H. *Italienische Vulkangebiete V. Mte Vúlture, Äolische Inseln II, (Salina, Filicudi, Alicudi, Panarea), Mti. Ibléi, Capo Pássero, Ústica, Pantelleria und Linosa.* Berlin and Stuttgart (Gebrüder Bomtraeger), 1989. x + 272 pp., 11 maps. Price DM 54.00.

A useful field guide for an assortment of localities of volcanological interest in southern Italy and the Mediterranean. For the majority of localities an overview of the geology, petrology and mineralogy is supplied along with a road log and a geological map (fold out). Extremely useful for those groups wishing to venture beyond the easily accessible Aeolian Islands [covered in Part III of this series (Lipari, Vulcano and Stromboli)] to the more westerly islands of Ustica, Alicudi and Filicudi (calc-alkaline and potassic volcanics). Details of Linosa and Pantelleria between Sicily and the African mainland are also supplied. Localities on the Italian mainland include Mte Vulture east of Naples and the Iblean Hills and Capo Passero in southeastern Sicily. A good bibliography up to 1988 is supplied for each locality. Very useful guide that requires a group member to be fluent in German—if not, use the maps, sketches and photographs as a field guide.

M. A. MENZIES

Mercer, I. F. *Crystals*. London (Natural History Museum Publications), 1990. 60 pp. Price £4.95.

This illustrated guide combines a wealth of coloured photographs and diagrams with the minimum of explanatory text in a stunning introduction to the role of crystals in the natural world. It was particularly written to inform museum visitors, but could not fail to inspire any young naturalist to want to know more. Shapes and structures, optical properties, occurrence and uses are all highlighted, but it is the many beautiful photographs which will make the greatest impression on the reader. The author and his team of photographers and advisers have done a superb job.

A. HALL