

deterioration when removed from their natural context, and do require special conditions of storage. This has led to an increasing awareness of the needs for the conservation of geological materials of all kinds, rocks, fossils, minerals, thin and polished sections, and cores, as well as any accompanying documentary matter. Clearly therefore this book is a welcome addition to the scant literature concerned with the conservation of geological materials.

The book covers a range of topics, including: the stability of minerals; conserving light-sensitive minerals and gems; temperature and humidity sensitive mineralogical and petrological specimens; native elements, oxides, sulphides, and sulphosalts and other minerals; pyrite; meteorites; the lunar sample collection; hazards for the mineral collector, conservator and curator; and in appendix form the effects of construction materials on rock and mineral collection, and also the collecting and processing of minerals and rocks. The editor clearly states in his preface that the aim of the book was 'to emphasise more the principles of care through the identification and explanation of basic mineral instabilities rather than describe specialised treatment methods for preservation', and anyone considering buying the book should be fully aware of this. It is not a practical manual detailing procedures to be adopted. To me, this was a disappointment. While I fully accept the editor's statement that 'materials, processes and techniques used in the conservation of specimens and artifacts alter and evolve on a continuous basis', I feel that those few persons around who do have some knowledge and experience of geological conservation should be prepared to share that 'state of the art' with the many curators and collectors who have no such expertise. This would serve as a first measure to halt the rapidly decaying state of many collections.

Another quibble concerns topics covered, and their general imbalance. Considerable attention is paid to the particular case of minerals, and quite rightly so, but other areas are only poorly covered. For example, the collection of rocks and their conservation is all but absent. While aesthetically less appealing, rocks are still scientifically very important, and present their own specific problems, for example the collection and conservation of shales, of wet or un lithified specimens, particularly polished ore sections. While it could be argued that these are rather specialised materials, none could surely be classed as being anywhere near as specialised as the collection and conservation of lunar materials, which is allocated 12 pages.

Overall, therefore, I was somewhat disap-

pointed with the book, but as I said at the outset, there is very little literature concerned with the care and maintenance of geological materials. I would therefore urge those responsible for such collections to have access to this book.

R. E. BEVINS

Parker, A. J., Rickwood, P. C. and Tucker, D. H., Eds. *Mafic Dykes and Emplacement Mechanisms*. Rotterdam, Brookfield (A. A. Balkema), 1990. x + 541 pp. Price £42.00.

This is a collection of 48 papers edited by A. J. Parker, P. C. Rickwood and D. H. Tucker, the convenors of the 1990 international conference on which the collection is based. It represents publication No. 23 of I.G.C.P. Project 257.

The editors state that the papers document progress made, over a period of 5 years, in the understanding of various aspects of mafic dykes and dyke swarms. As recognised by the editors, the works have been somewhat artificially grouped into sections on; (1) emplacement mechanisms, (2) geochemistry, petrology and mineralisation, (3) palaeomagnetism, (4) crustal tectonics—Gondwana, and (5) crustal tectonics—Laurasia. The majority of contributions fall into the last two sections [M.A. 92M/4720-4767].

As befits the product of an international conference, authors from 16 different countries are represented. Papers are by workers from every inhabited continent, as well as Iceland. However, more than 60% are by people from the U.K., India, Canada and Australia. Canadian workers appear to hold a near monopoly on palaeomagnetic research. Denmark and the U.K. are the only E.C. countries represented.

Most of the papers are about basaltic and lamprophyric dykes, but there is at least one piece of work on syn-plutonic mafic dykes in a granitoid batholith. Very few papers are theoretical in nature, only two, and these are both by Australian authors. Most of the rest are case studies. Not having read the 1987 book spawned by the previous international dyke conference, I should probably shrink from pronouncing on the degree to which progress has indeed been made in the five-year period. Undaunted by awareness of my own ignorance, I will comment, however, that, to me, the most important breakthroughs seem to have come in the understanding of emplacement mechanisms.

The book is printed on reasonably good white paper. Diagrams and half-tones are nearly all well produced and clear. One or two tables are a little faint. Being a compilation of camera-ready work, the typeface is, inevitably, variable. It ranges

from slick text output by word processors to material bashed out on a somewhat rickety typewriter. Unusually for such a publication there is one colour figure.

This book is definitely not for everyone. It is primarily aimed at a fairly narrow circle of specialists. The widest appeal exists in the sections on tectonics and palaeomagnetism. Outside the mafic dyke and sill fraternity, I doubt whether very many individuals will buy the book. However, at a little over £40.00, it should definitely have a place in most institutional libraries.

J. D. CLEMENS

Hutchison, R. and Graham, A. L. *Meteorites: the key to our existence*. London (Natural History Museum), 1992. 62 pp. Price £5.95.

This latest booklet in the series (which has

previously produced *Gemstones, Crystals, Volcanoes*) is clearly written and copiously illustrated with over 80 photographs and diagrams. The style is popular yet authoritative. In addition to dealing with the origin of meteorites and their abundance, details are given of their classification and of the various types. There is also a section on their terrestrial, cosmic-ray exposure and formation ages as well as on the formation intervals, e.g. about 150 m.y. for plutonium, meaning that plutonium was formed in a star just 150 m.y. before the formation of the sun and planets, and a useful discussion on time and the origin of the planets. It is argued that the relative cheapness of meteorite recovery contrasts sharply with the wealth of information which they provide. This booklet should be recommended to all Earth Science students.

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