

## BOOK REVIEWS

Kornprobst, J., ed. *Kimberlites I. Kimberlites and Related Rocks* (Developments in Petrology 11A). Amsterdam and New York (Elsevier Science Publishers), 1984. xiv + 466 pp., 192 figs. Price Dfl. 140.00.

Kornprobst, J., ed. *Kimberlites II. The Mantle and Crust-Mantle Relationships* (Developments in Petrology 11B). Amsterdam and New York (Elsevier Science Publishers), 1984. xiv + 394 pp., 126 figs. Price Dfl. 130.00.

These two volumes together represent the Proceedings of the Third International Kimberlite Conference, held in Clermont Ferrand in September 1982, and contain a total of fifty-seven papers. These deal with the detection of kimberlite occurrences (3), natural occurrences of kimberlites and related rocks—their geology, petrology, mineralogy, and geochemistry (9), review papers on kimberlites and lamproites (5), the physical and chemical processes giving rise to kimberlites (11), mantle rocks (16), xenoliths from the lower crust (3), and theoretical constraints and the dynamics of the mantle (10). Abstracts of each paper are included in the Petrology section of the December 1985 issue of Mineralogical Abstracts (MA 85M/4644-4700).

Most of the papers in Volume I are generally descriptive but there is an abundance of petrogenetic discussion in many of the papers concerned with the mantle (in Volume II). The petrology and geochemistry of garnet peridotites and eclogites from kimberlites are considered and the mineralogy of individual megacrysts is also discussed, including the silicate and oxide inclusions in diamonds.

References are sensibly collected together at the end of each volume but unfortunately there is no index. The volumes are well reproduced from typescript and should be available in all libraries concerned with the Earth Sciences.

R. A. HOWIE

Sawkins, F. J. *Metal Deposits in Relation to Plate Tectonics* (Minerals and Rocks, Volume 17). Berlin, Heidelberg, New York, and Tokyo (Springer-Verlag), 1984. xiv + 315 pp., 173 figs. Price DM 98.00.

In this book the author shows how the generation of most types of metal deposits can be related to specific plate tectonic environments and demonstrates how tectonic settings provide a

framework within which ore-generating systems may be studied.

After a brief introductory chapter, the work is divided into three sections: Convergent Plate Boundary Environments, Divergent Plate Boundary Environments, and Collisional Environments and Other Matters. Individual chapters within these sections deal with specific plate tectonic environments and cover the ore deposits that can be associated with each. Descriptions of individual deposits for which abundant data exist are provided, and some additional examples are listed.

This book is aimed at students at advanced undergraduate and graduate levels and will also be useful to mining and exploration geologists. The author confesses that certain of his interpretations of distant ore deposits garnered from the literature may be in error, but exhorts people with first-hand local knowledge to publish and set the record straight. Remarks are included on how the relationship between tectonics, geological terrains, and metal deposits can be used in the context of exploration planning.

By the very nature of this work, details of particular deposits tend to be scanty, leading a reader to wish for more facts with which to agree or disagree with the author's hypothesis with respect to the tectonic setting. But references are abundant, and there is a full index; these should lead the enquirer into the literature.

The book is well produced and illustrated; its numerous figures include some sixty geological sketch-maps. It should not only be in all libraries concerned with the Earth Sciences but also available on the shelves of university teachers and exploration geologists.

R. A. HOWIE

Imslund, P. *Petrology, Mineralogy and Evolution of the Jan Mayen Magma System*. Reykjavik (Visindafélag Íslendinga, University of Iceland; Rit 43), 1984. 332 pp., 132 figs.

This volume represents the author's D.Sc. thesis at the University of Iceland and is a comprehensive petrological study of Jan Mayen island, which is close to the mid-Atlantic ridge north of Iceland. The volcanic rocks of Jan Mayen are alkali-basalts, tristanites, and trachytes, and the author also describes comagmatic xenoliths of wehrlite, gabbro, and syenite.

The development of the magmas is described with the aid of many major and trace element

chemical analyses but without the help of isotopes. Three primary magma types are identified, each of which has diversified by crystal fractionation. The petrogenetic conclusions are rather surprising, and will be of much interest to basalt specialists. Only one of the postulated primary magmas (mafic ankaramite) is believed to have risen from the

mantle, while the other two (alkali basalt and trachyte) are thought to have been produced by remelting of old oceanic crust due to its transposition against an active spreading axis across the Jan Mayen Fracture Zone.

A. HALL