

factors. Although the care required to recognize the existence and effects of precursors and isotopic memories has been highlighted, the question of whether stable isotopes really tell us what we think they do has not been clearly posed. In the preface, the authors rightly point out that it is almost impossible to cover the current diversity of clay mineral isotope geochemistry in one book. Their aims were to familiarize the readers with various isotopic approaches, the dynamics of the evolution of clay minerals, to demonstrate the current state of the art in isotope geochemistry, and also to stimulate further progress in the research of isotopes in clay minerals. These aims are certainly accomplished. Some concluding final remarks on as yet unsolved fundamental problems of isotope geochemistry, and on the future outlook of new, expanded, or refined applications would have been a nice rounding off.

K. ZIEGLER

Mahadevan, T. M. *Deep Continental Structure of India: A Review*, Geological Society of India, Memoir 28, 1994. 569pp. Price US\$ 60.

Many clues to the overall understanding of continental areas are locked up in the lower crustal layers, which, with the ever increasing sophistication of geophysical techniques and instrumentation these layers, are now becoming accessible. This twelve chapter Memoir summarises the geophysical evidence for the nature of the deep crust under India. It appears an impressive summary of a vast amount of data and of conflicting ideas and, to many outside India, will be a welcome reference book.

In outline, the first three chapters serve as an introduction and define the geographical limits of the Indian continental crust, and also examine different terminology in the context of modern concepts of crustal structure. Basic criteria are introduced for describing deep crustal structure and the position of various discontinuities. Techniques of data acquisition have changed radically and the increasing use of satellite data in relation to ground acquisition is discussed. There are sections on magnetic, gravity, resistivity and seismic data acquisition, including deep seismic sounding techniques, and heat flow measurements. The data are put into context with respect to the exposed sections through the crust as India has large areas of high-grade metamorphic rocks, effectively middle to lower crust, exposed for examination. One section discusses the capabilities of instrumentation, some of it designed and built in India. Chapter three concludes the introduction and describes the geological framework of the geophysical defined regions and there are several summary maps of the different types of data which

can be used to find sources for details of smaller areas. Various models for the structure of the crust are discussed and comparisons with other shields made.

The details are presented in the next seven chapters. Chapter four describes the detailed data obtained from Peninsular India and covers both the Archaean cratons and Proterozoic mobile belts. A detailed review of the geology is followed by the geophysical data discussed in detail for smaller areas within the main regional framework. The chapter ends with inferences and summary. Once the Precambrian crystalline basement is described, Chapters five and six deal with the Proterozoic platformal sedimentation and the Gondwana cratonic sedimentary basins. There are sections on each occurrence and again it is easy to seek out the source references and available data. The Mesozoic–Tertiary volcanic provinces are described in Chapter seven. The younger sedimentary basins in Chapter eight and the Himalaya in Chapter nine. The continental margins of India are described in a separate chapter, ten. The final two chapters, eleven and twelve, deal with the interpretation of the data and a summary of the different scenarios that the data allow. Finally, the concluding two chapters give a framework for future research and discuss where this might lead.

This volume is reasonably produced, but some of the diagrams have lost their clarity because of reduction, which could have been avoided. The Memoir is specifically designed as a review text and provides a summary of an integrated case study by many different methods of a complete continental area. It may thus have a value in teaching, though I would expect it to be found in a University Library catering for research and applied studies. Probably only specialists would have a personal copy. As a non-specialist, I found it relatively easy to follow and gives a good introduction to those wanting to know more about the deep structure of the crust.

C.R.L. FRIEND

Golley, P. and Williams, R. *Cornish Mineral Reference Manual*. Truro (Endsleigh Book Co., 50 Daniell Rd., Truro, TR1 2DA), 1995. viii + 71 pp. Price £9.20 (+ 80p postage). ISBN 0 951 9419 92.

This work represents an up-to-date list of the minerals known to be found in Cornwall, together with their chemical formulae and literature reference for the first documented occurrence of each species in the county. Entries are listed in bold type where their occurrence in Cornwall is beyond doubt; entries not in bold type are either of questionable occurrence or require further study. A total of 424 species are