

chapter on petrography could be omitted, and the section on mineral recognition is of little value. The classification scheme adopted in this book (based on texture and mineralogy) is similar to those published elsewhere, although I see no reason for spilites and keratophyres to be in a special category; a similar treatment is not given to other meta-igneous rocks.

More important, perhaps, is the general absence of modern geochemical systematics—particularly isotopes and trace elements—and their application to magma genesis. Sr-isotopes are barely considered, Nd-isotopes are not mentioned, and trace element modelling is treated very scantily indeed.

The development and implications of recent hypotheses and theories concerning evolution of mantle inhomogeneities, models of magma genesis, selective crustal assimilation, and magma chamber processes, are not considered in any depth, although to be fair even a book of such breadth cannot be all things to all men.

A book, therefore, to enjoy for its lucidity but not for its presentation and treatment of modern developments in igneous petrology. Alas, students of petrology must apparently still await that elusive bridging text if, indeed, it can be written.

A. D. SAUNDERS

Gillen, C. *Metamorphic Geology: An introduction to tectonic and metamorphic processes*. London (George Allen and Unwin), 1982. xiv + 144 pp., 69 figs. Price: hardback £12.00, paperback £4.95.

This book is intended to serve as an elementary text on the subject of metamorphism and mountain building for non-specialist students of geology. The emphasis is on processes, and the links between orogeny and metamorphism are explained. Textures and field relations are introduced followed by a discussion of the factors controlling metamorphism. Case studies of areas of metamorphic rocks are presented in the context of modern theories of the Earth's activity. The book is well illustrated with diagrams and should fulfil its intent. A legitimate criticism, however, is that there is a lack of emphasis on the chemistry of the rocks and minerals concerned (and the only formula given for garnet is incorrect).

R.A.H.

Tankard, A. J., Jackson, M. P. A., Eriksson, K. A., Hobday, D. K., Hunter, D. R., and Minter, W. E. L. *Crustal Evolution of Southern Africa: 3.8 Billion Years of Earth History*. New York, Heidelberg, and Berlin (Springer-Verlag), 1982. xv + 523 pp., 182 figs. Price \$55.00 (DM 118.00).

To my mind this is a successful book and one of the best which has yet appeared on the geology of a southern continent. It sets out to trace the history of southernmost Africa; essentially the area covered by the State of South Africa with excursions where geologically necessary into neighbouring countries.

Between them the six authors have the necessary knowledge to follow each of the three main themes which reappear throughout the history of that part of the world. The book opens with descriptions of the Archaean metamorphic complexes and comes back to that subject in a later chapter concerned with the high-grade rocks formed in Proterozoic times. It then traces the long succession of sedimentary basins opening with an account of what they picturesquely call the Golden Proterozoic and taking up in succeeding chapters the history of the earliest Red Beds, the Palaeozoic sediments of the Cape, the Karroo, and the sediments that accompanied and followed the break-up of Gondwanaland. In each of these chapters the description of the sediments is accompanied by an analysis of the conditions under which they formed. These accounts are consistently good throughout the book, from the account of the Transvaal Epeiric Sea to the record of the Karroo deposits with their 80 billion tons of bituminous coal. The book is worth buying simply for these accounts of a unique succession of sedimentary basins. The third ingredient is the igneous activity, largely basaltic, sometimes alkaline, and to a small extent granitic, which from time to time erupted through the fractured South African crust from earliest Precambrian times through the formation of the Bushveld complex, and the intrusions of alkaline rocks including the economically important kimberlites up to the volcanicity which formed the ocean floors as Southern Africa separated from other southern continents. The book is clearly written, very well planned and well illustrated. In short it is a success, a worthy memorial to du Toit to whom it is dedicated.

JOHN SUTTON

Tahirkheli, R. A. Khan. *Geology of the Himalaya, Karakoram and Hindukush in Pakistan*. Peshawar (National Centre of Excellence in Geology, Univ. of Peshawar), 1982. 51 pp., 20 figs., 23 colour plates, 1 coloured geol. map (~ 1:1 400 000). Price Rs. 150/-.

This publication (produced as a Special Issue: Vol. 15, *Geological Bulletin, University of Peshawar*) concerning the geology of three of the best known mountain chains of the world takes account of the recently discovered Kohistan Island arc [M.A. 80-2570, 81-2085, 82M/4000] which lies between