

BOOK REVIEWS

Nisbet, E. G. *The Young Earth: an Introduction to Archaean Geology*. Boston and London (Unwin Hyman Ltd.), 1987. xviii + 402 pp. Price £18.95 paperback.

Nisbet's book *The Young Earth* arose out of an advanced course given to undergraduates in which he set out to convey something of the excitement and the challenge inherent in the subject. The author says it is a personal view: as such it is a testimony to his scholarship, for we are offered the opinions of many, led through hypothesis and counterhypothesis and given the benefit of the author's own (he admits to being biased) views. The book has a relaxed style, humour comes through, many appropriate and thought-provoking quotations from the great literature of the world—even a reference to Dan Dare(!). The book abounds with appropriate graphs, tables, sketches and photographs, with the reader being assisted through even the most complex topics with simpler analogies and summaries. There are over 700 entries on the reference list and for those not into the specialist jargon of the geological sciences there is a splendid glossary.

The book is virtually *all* about the Archaean—that span which takes us from the last moments of the ordering of the Earth as it was accreted, roughly 4400 m.y. to around 2500 m.y., the generally agreed beginning of the Proterozoic. At the outset the author tells us that the book will study the Earth's history as revealed by Archaean rocks—and there is a very splendid account of those rocks early in the book—but his story goes well beyond those rocks which may have been by no means typical of the Archaean; after all they must have been special to have remained virtually undeformed since 2500 m.y. ago.

The second and major part of the book takes the reader into the key themes which make the Archaean so significant. The evidence for and the nature of Archaean life, the Archaean seas and oceans and their sediments, the thermal regime of the Archaean continental crust, metamorphism, granitoids and the necessity and possible nature of Archaean plate tectonics, which leads into Archaean volcanism and the evolution of the Archaean mantle. The significance of the Archaean mineral deposits, their origin and preservation makes fascinating reading.

The last chapter of the book should have been

a separate, third part. Here more than anywhere the author seems to be expressing his personal views—his deep feeling for the significance of the Archaean as he examines the Archaean Earth from mantle to atmosphere. There is much to excite the reader including the early dichotomy of the continent and oceans—something which set Earth apart from its planetary neighbours—and that water which comprises 0.1% of the mantle was the key to much that followed. He relates how fortunate Earth is to have the CO₂ 'greenhouse' effect working as a control through life's CO₂ demand: the constancy of the Earth's surface temperature in the 0–40°C range (the optimum conditions for life) over a 4000 m.y. period is at once one of the most astonishing and one of the most natural features of the planet. The role of life as the controlling factor of Earth's special, indeed unique, existence is dealt with in a speculative but intriguing way.

Nisbet's entertaining account will make all, especially those to whom the Archaean is remote in interest as well as in time, think again about the inter-relation of the many facets of the Archaean story and of how the foundations of the Earth and life as it is today were well and truly laid. There was nothing chaotic about that young Earth.

A. J. SMITH

Park, R. G. and Tarney, J., Eds. *Evolution of the Lewisian and Comparable Precambrian High Grade Terrains*. London (Geological Society: Special Publication No. 27) and Oxford (Blackwell Scientific Publications), 1987. viii + 315 pp. Price £39.50.

In the twenty to thirty years since some of the current 'old men' of Lewisian geology and others of similar vintage listened as undergraduates to accounts of the early work attempting to understand the then enigmatic Lewisian Complex, Geology as a science has advanced enormously in all of its branches. Whilst much of this early work remains relevant, and in many cases essentially correct, the profound consequences of these advances in enhancing our understanding are reflected in the papers contained in this volume. Fourteen of the twenty-four papers give us an 'in depth', modern appreciation of the origin of much