

book and thought about it. The reality is that this is an outstanding volume that should be on the bookshelf of every researcher or graduate student concerned with metamorphism in any of its guises.

B. W. D. YARDLEY

Taylor, S. R. *Solar System Evolution. A New Perspective. An Inquiry into the chemical composition, origin, and evolution of the solar system.* Cambridge (Cambridge University Press), 1992, 306 pp. Price £35.00

The distinguished geo/cosmochemist Ross Taylor follows up *Lunar Science: A Post Apollo View* (1975) and *Planetary Science: A Lunar Perspective* (1982) with a book that attempts 'to account for the existence of the planets, satellites, asteroids, and comets'. 'The book is biased toward the geochemical point of view . . .'. 'The subject is rendered very difficult by the wide variety of contrary opinions . . .'; 'Sometimes the data are suspect.' 'Grand theories are useless if they cannot explain the minute details', but 'the mere accumulation of the staggering amount of detailed observations in the solar system is of little use unless there is some unifying concept . . .'. Rather than providing 'a detailed travelogue or Cook's Tour of the solar system', 'I have attempted a commentary on the problems of its origin and evolution.'

Chapters are: Planetary Formation: A Historical Perspective; The Solar Nebula; The Meteorite Evidence; The Role of Impacts; The Planets; Rings and Satellites; The New Solar System. After turning the pages and spot-checking sections of particular interest, I became impressed with the careful presentation of the geochemical data. The mineralogical, petrological and geophysical data are more sketchy.

In the last chapter on The New Solar System, Ross Taylor describes 'The End of Clockwork Solar Systems', and the 'Collapse of Grand Unified Theories'. In 'Our Present Understanding', he summarises how a fragment of a spiral arm from a galaxy condensed towards its centre; underwent erratic evaporation, condensation and melting; spread out into a rotating disc with dust moving to the centre; evolved into a sun which became a fiery orb and bodies ranging in size up to protoplanets. Ultimately the present planets were generated and finally blasted by most of the surviving planetesimals. This general scenario is deservedly accepted by solar system scientists, but readers may wish to consider being cautious in accepting some currently popular ideas. Thus the large impactor hypothesis for the origin of the

Moon/Earth system may be too simple. My prejudice is to favour a complex sequence of events with erratic growth of the Moon. Some of the chemical properties of the lunar rock fragments and minerals are perhaps more easily explained in this way. The plagioclase/basalt/etc. crust may constitute the accumulations from several magma oceans and remelted cumulates.

In the Epilogue, Ross Taylor philosophises on the place of *Homo sapiens* in the solar system, and focuses in the sequence of lucky chances required for man to reach the current capacity to reconstruct the history of the solar system. We are probably alone in the Universe. 'The (human) species still retains its highly aggressive instincts (JVS: I remember listening to certain geochemical debates in the 1970s!), once necessary for survival, but now potentially as much of a danger as the loss of flight was to prove to the Mauritian dodo.'

Readers should enjoy remarks on the following in the Notes and References: apocryphal elephant at Leningrad; the wisdom of acquiring a wife; a Napoleonic view of the asteroids; New Zealand shepherds.

Ross concludes with the provocative: 'One is comforted on this journey, by the steady convergence of scientific ideas toward some kind of consensus, as new facts are acquired. Science is in this way distinct from most other human activities, which display the opposite tendency of divergence with time, a process most clearly revealed by the multitude of religions and philosophical systems.' Can't wait for your next book Ross!

J. V. SMITH

Freith, S. J., Ofoegbu, C. O. and Onuoha, K. M. (eds.) *Natural Hazards in Western Central Africa.* Braunschweig/Wiesbaden (Vieweg and Sohn) 1992. vi + 174 pp. Price DM88.0.

Before the Lake Nyos gas release that killed some 1700 people in 1986, western central Africa was not considered an area of high risk from major natural disasters. However, based on the oral history of western Cameroon, spectacular 'misbehaviour' of lakes recurs in legends of the local tribes, suggesting that that type of phenomenon was well known in the past. With the rise in population around these lakes, it is clear that increasing attention should be paid to the hazards presented by the rapid expulsion of toxic gases from lakes.

Some two-thirds of the book are devoted to a discussion of the causes and results of the Lake Nyos disaster. Also discussed in shorter sections

are the hazards from earthquakes, and landslides and erosion. Seismically, this area is relatively stable; but, earthquakes do occur, such as the 1939 Accra earthquake which killed 16 people. The effects of slope failure, on the other hand, are considered to be an increasing problem.

Most of the material about Lake Nyos is the subject of a thematic edition of the *Journal of Volcanology and Geothermal Research* published in 1986; thus a full description and discussion of this topic by the authors of chapters in this book is already available. In addition, the chapter on seismic monitoring of Lake Nyos is almost word for word, the same as a chapter by the same authors in *Geo Hazards Natural and Man-made*, published by Chapman and Hall, also in 1992. Even within the book under review, there is an undesirable degree of repetition which should have been edited out. Considering that the Cameroon Volcanic Line runs straight through the area under discussion, it is surprising that volcanic activity, other than gas emissions, gets only the briefest of mentions as a hazard in the region.

As the editors rightly point out, more people died as a result of catastrophic natural disasters in this area during the 1980s than in the whole of recorded history. A contributory factor is the increase in population causing people to live in areas of potential hazard such as the area around Lake Nyos, previously unoccupied. Indeed this is a world problem recognised by the United Nations in the International Decade of Natural Disaster Reduction. As a new contribution to the discussion which could help mitigate the risk posed by natural disasters, this book does not achieve its objective.

J. E. GUEST

Thakur, V. C. *Geology of Western Himalaya*. Oxford (Pergamon Press), 1992. xvi + 363 pp., 50 maps. Price £345.00

This volume reviews the geology of the Himalaya from western Pakistan to the western end of Nepal. Apparently a coloured geological map of the Western Himalaya complements the volume, but was not available with my copy. As the author states, it attempts to compile and synthesise the geological data of the Western Himalaya since publication in 1964 of Gansser's classic work 'The Geology of the Himalayas'. For descriptive purposes the mountain range is divided into five sections: the Outer, Lesser, Higher, Tethys and Trans-Himalayan Zones. There is a final section on Tectonic Synthesis which includes crystalline

nappes, the Main Central Thrust, subduction-related magmatism, blueschists, obduction, collision tectonics, metamorphism, gravity anomalies, seismicity and crustal structure. Unfortunately more space in the book is devoted to stratigraphy, rather than tectonics, magmatism, metamorphism and geophysics. For example there are at least 130 pages (out of 320 pages of text) detailing lists of sedimentary rock types in their series, formations and groups together with lists of their fossils; it would have been better to put much of this information in tables in an appendix. The geology of the Himalaya is without doubt fantastic and fascinating. It is a pity that Dr. Thakur makes it so boring. I don't find much enthusiasm in the writing. Even where there are interesting controversies (e.g. age of ophiolite obduction, relative age of formation of sutures) little effort is made to evaluate, critically or otherwise, the different points of view. I would like to have seen more space devoted to the problems of inverted metamorphic isograds, $P-T-t$ paths, crustal shortening, uplift versus exhumation, and isotopic information on petrogenesis.

Many of the maps, structural sections and stratigraphic sections are very difficult to read, because they are over-ornamented, overpacked with data, and over-reduced. Also it would have been better for the text to have been examined by a native English speaker before publication. Although there are not many spelling mistakes, there are many annoying grammatical weaknesses; e.g. 'Trans Himalaya' as a noun, 'north dipping', 'ripple marked', and 'subduction related' as compound adjectives should be hyphenated; 'Geology of Western Himalaya' as the title of the book and 'Tectonic evolution of Himalaya' as a section heading require a definite article before Himalaya; and 'blue schists' should be one word. Like most compilations this one does provide useful data, but also, alas, like most compendia, it makes very dull reading. Nevertheless, I think individuals and research groups working in the Himalaya should have a copy; it will be a useful source of information.

Unbelievably, the price of this book is £345.00, which must make it the most expensive geological book in the world. I can see no reason for such an exorbitant price. The paper is not of the most high quality and noticeably, nearly all of the figures have been reproduced from older publications and not redrawn for this book. At 363 pages, the book is not unduly large. At this price, I cannot believe any institution library or individual will buy the book and that market forces will stop this overpricing of books.

B. F. WINDLEY