

definitions of 33 in some way, which is not a good recommendation for beginners and suggests that the glossary was not a carefully prepared part of the book. For workers in the field, who might only have one book, the glossary can be vitally important in allowing them to work alone successfully. One does not expect to have terms defined using other technical terms which are not themselves defined, e.g. follicle by carpel.

In the selected literature it is a pity that P. S. Ashton's *Manual of Non-Dipterocarp Trees of Sarawak Vol. II* (Forest Dept Sarawak, 1988) is not recorded; this is a much more useful book than many of those listed. It is also regrettable that the abbreviations in Brummitt and Powell's *Authors of Plant Names* (Royal Botanic Gardens, Kew, 1992) have not always been followed, but this will not be noticeable in the forest! It would have been nice to have had a little more discussion about species in the manner of E. J. H. Corner's *Wayside Trees of Malaya* (3rd ed., Malayan Nature Society, 1988) which can bring the species alive for people reading the book. The very formal description of the common species *Pometia pinnata*, for instance, fails to note such conspicuous characters as the highly plicate leaflets, or the continuous pink flushing of the leaves which usually makes the tree easy to pick out in the forest. The most frustrating aspect of the book is, inevitably, its incompleteness for which the authors can hardly be criticised, but one hopes that accounts of further species might be produced for a supplementary volume. This is undoubtedly a welcome step forward in our knowledge and understanding of the trees of Borneo.

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**Paleobotany: Plants of the Past, their Evolution, Paleoenvironment and Application in Exploration of Fossil Fuels.** Shripad N. Agashe. Lebanon, New Hampshire: Science Publishers Inc. 1995. vii + 359pp. ISBN 1 886106 08 8. US\$55.00 (hardback).

Four contrasting palaeobotany texts have been released during the last decade (for a comparative review see Bateman, 1994). Of these, two are relatively expensive and either densely detailed (Taylor & Taylor, 1992) or technically challenging (Meyen, 1987). Thus, the student market relies more heavily on the often interesting but incompletely integrated text of Thomas & Spicer (1987) and the balanced, well-illustrated synthesis of Stewart & Rothwell (1993). To these is now added Shripad N. Agashe's attempt to remedy 'the dwindling [student] interest in Paleobotany' (page v).

As its cumbersome title suggests, this book spans an astonishing range of topics in 359 pages. Six introductory chapters cover basic geological information such as dating methods and modes of plant preservation, together with a brief account of the history of palaeobotanical research and an outline classification. The following 14 chapters each give a brief account of the fossil

history of a particular higher taxon. The last five chapters cover palaeofloristics and palaeoecology, incorporating discussions of plant microfossils that focus on palaeobotanical inputs to hydrocarbon surveys. Finally, there is a bibliography of c.420 idiosyncratically chosen references.

Sadly, this book scores only when playing at home: it is at its best when discussing the important contributions made by Indian workers to empirical palaeobotany. However, even this discussion is disappointingly brief, and inexplicably impervious to the similarly important empirical contributions recently made in neighbouring China. Although the two main plant-bearing sequences of India — the Upper Carboniferous to Lower Cretaceous Gondwanan deposits, and Upper Cretaceous to Palaeogene Deccan Intertrappan beds — are singled out for special attention, the novice reader will not fully appreciate the scientific impact of these floras. The earlier floras in particular document the fascinating tectonic history of the Indian subcontinent: India was part of the southern supercontinent of Gondwana for hundreds of millions of years, cast adrift from the panglobal supercontinent of Pangaea c.180 myr ago, floated serenely northward across the equator, and then was rudely awakened by its impact into Asia c.45 myr ago (thus causing the trivial orogenic by-product known today as the Himalayas). Also, reconstructed plants that constituted these Gondwanan floras, such as the early seed-plants *Glossopteris* and *Pentoxylon*, have played pivotal roles in attempts to reconstruct the evolutionary history of the plant kingdom. Here indeed are stories to fire the imaginations of future generations of student palaeobotanists.

Unfortunately, Agashe offers the student a dry, uninspiring text whose content, style and format owe more to the venerable textbook of Agashe's mentor, Henry Andrews (1961), than to the more relevant recent benchmarks listed above. Little attempt is made to integrate fossil plants with living relatives, or indeed to breathe life into the fossils. Several crucial reconstructed plants from the recent literature escape Agashe's attention, as do recent advances in phylogeny reconstruction and classification. For example, the recognition and delimitation of the progymnosperms — an extinct group that bridges the otherwise yawning phylogenetic gap between ferns and the earliest seed-plants — is one of the great triumphs of recent palaeobotany, yet the group merits less than two pages of text in Agashe's book. Most of the chosen illustrations are all too familiar from earlier palaeobotany texts, the only innovation being the inferior reproduction.

Overall, Agashe's patchwork volume cannot compete with Thomas & Spicer (1987) and Stewart & Rothwell (1993) for content, or with the latter for production quality. What is needed to help stem the haemorrhage of potential palaeobotanists into other disciplines, and to promote Indian research in the broader palaeobotanical community, is not yet another general palaeobotany text, but something simultaneously more parochial and more exciting. Specifically, we need a review of the major empirical contributions of Indian

palaeobotany, placed into the interpretative context provided by modern phylogenetic and palaeoecological methods, and written in a dynamic, attention-grabbing style.

*References*

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