Book Review

Palaeoflora of southern Africa Molteno Formation (Triassic)

Volume 2, Gymnosperms (excluding *Dicroidium*)

by John M. Anderson and Heidi M. Anderson, A. A. Balkema, Rotterdam/Brookfield. Pages 567. 1990.

THE Molteno Formation (Late Triassic, Carnian) of South Africa has yielded one of the richest and varied floras of Late Triassic age in the Gondwana Supercontinent. The volume under review is second of a series of six volumes proposed on the fossil flora of this formation. The first volume, published in 1983, dealt primarily with morphotaxonomy of the foliage genus *Dicroidium*, a member of the Family Corystospermaceae, grouped under the so-called Mesozoic Pteridosperms. From the title of the present volume it is understood that *Dicroidium* is excluded from its purview; however, it is the first genus to be discussed and illustrated, and even a new species has been instituted.

To date 18 genera and 79 species of Gymnosperms have been identified from the Molteno Formation, of which 4 genera and 37 species have been newly instituted in the present volume. As many as 17,000 fossil-bearing slabs were collected from 48 localities during 51 field trips made between 1967 and 1988. The authors estimate that this collection may represent approximately 60 per cent of the total preserved species. At this scale, hardly 10 per cent of the taxa are likely to have been identified from the Tiki (Carnian-Norian) and Parsora (Norian-Rhaetian) formations of South Rewa Basin, India.

The presentation is divided into 6 chapters, viz., 1. Taxonomic procedure, 2. Phytogeography, diversity, evolution, 3. Cuticles, 4. Taxonomic revision, 5. Typology and, 6. Bibliography. The palaeodeme concept, so well-developed by the authors over the years, is fundamental to their taxonomic approach. Epidermal features have been used to corroborate the palaeodemes recognized on the basis of gross features of the foliage with the hope that it would lead to recognition of 'natural' taxa. The palaeodemes and the cuticles recovered from hand specimens are profusely illustrated, in the Anderson style, through 3320 photographs and 1081 line drawings of uniformly good quality.

For taxonomy the classification scheme advocated by the late S. V. Meyen, which is yet to find wide acceptance, is followed. The familial affiliations of different taxa of the Molteno foliage are based only on 'circumstantial evidence; the reproductive organs assigned to the foliage have so far not been found in organic connection. This volume, like the previous one, apparently does not take note of records of fossil plants from the Nidhpuri Plant Bed of South Rewa Gondwana Basin, India. The authors' views on these records would have certainly been significant as the age of the Nidhpuri Plant Bed continues to remain enigmatic. Even otherwise the treatment of fossil records from the Late Triassic of India is rather superficial; almost all the taxa reported from the Parsora and Tiki formations have been found by the authors to be inadequately identified. The reasons for arriving at this conclusion or to date the Parsora Formation as Anisian are, however, obscure.

Though the volume is excellently produced and superbly illustrated, yet the major drawback is the economy on the written word because of which one who is not very familiar with the thought process of the authors is likely to miss the subtle messages the authors wish to convey with regard to circumscription, taxonomic status, or temporal and spatial distribution of various taxa. All the same this volume should prove very useful to palaeobiogeographers and Gondwana palaeobotanists.

HARI K. MAHESHWARI