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## Book Review

### FUNDAMENTALS OF PALAEOBOTANY

S. V. Meyen 1987

Chapman and Hall, London & New York, xvi+432, £65.

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THIS is probably the third English language text-book of Palaeobotany to be published during the ninety-eighties. This English version of *Osnovy Paleobotaniki* reached Meyen just two hours before his sad demise. Though titled Fundamentals of Palaeobotany, Sergei Viktorovich Meyen's book is much more than a systematic enumeration and description of fossil plant taxa. It is an off-beat book devoting less than half of the volume to systematics and a major part to more contemporary topics. It is a welcome departure from the tradition and thus invites a comparatively wide readership.

Sergei Viktorovich's comprehension of Palaeobotany includes palaeopalynology, epidermal/cuticular studies, palaeoecology, palaeofloristics, evolutionary patterns and lineages, etc. He has not only reproduced information from published data but has also included his own commentary to guide the reader towards important theoretical aspects, e.g., significance of palaeobotanical data to the concept of punctuated equilibria and cladistic principles in phylogenetics, to the theory of evolution and to the principles of systematics and nomenclature.

The book is organised into eight chapters. Chapter 1 enumerates preservation types and techniques of study, but only very briefly as this information is well covered by earlier text-books. Chapter 2 deals with nomenclatural and typological aspects of Palaeobotany. The concept of 'Parataxa' and 'Eutaxa' as applicable to fossil plant systematics is outlined in detail and the concept of 'Satellite taxa' is introduced. While a typical 'Parataxon' may be based only on a very limited range of characters (e.g., of a detached leaf), an 'Eutaxon' is based on all the possible decipherable characters. Though to an average student the ideas presented in this chapter may at first look to be vague and incomprehensible, yet they are important. Chapter 3 on Fossil Plant Systematics is divided in two parts-I. Prokaryotes and II. Eukaryotes. Part I includes short notes on Bacteria,

Cyanobacteria, Calcareous algae, stromatolites and oncolites. Part II commences with an outline of systematics of eukaryotic algae, leading to those on higher plants. Plants with dominating gametophytes are placed in Bryophyta whereas plants where sporophytes predominate are assigned to Proteridophyta, Pteridophyta, Pinophyta and Magnoliophyta. The latter two divisions relate to Gymnospermae and Angiospermae respectively. Meyen's choice of suprageneric terms in certain cases may not meet the approval of all palaeobotanists. Already, there has been much correspondence on the subject after Meyen's revolutionary ideas appeared in the Botanical Review. For example, he places southern hemisphere Permian glossopterids in the order Arberiales, whereas students of glossopterids would place them in at least two orders, viz., Ottokariales and Lidgetoniales. Chapter 4 on palaeopalynology is definitely better treatment of the subject than by other contemporary authors. Chapters 5 to 8 deal mostly with applied aspects. The trends in the epidermal-cuticular characters in the geochronological scale are summarised. Practical application value of dispersed cuticles is outlined.

On the whole the book is very well organised and well produced. One thing that strikes the reader is the total lack of photographs. But these are not missed as the line drawings are excellently executed and cover most of the spectrum; a researcher can always go back to original publications for photoillustrations. This book should be well received by graduate students and their teachers, though it would be sometime before number of terms used by Meyen are assimilated in palaeobotanical literature. One also wishes that Meyen should have given more space to southern hemisphere floras. *Fundamentals of Palaeobotany* is a worthy successor to the Krystofovich text and should win laurels.

Hari K. Maheshwari

