Lucknow Symposium on Palynology: 1964

Advances in Palynology. P. K. K. Nair, Ed. National Botanic Gardens, Lucknow, India, 1964. viii + 438 pp. Illus.

Symposium publications on palynology had a good year in 1964 with the appearance of *Ancient Pacific Floras: The Pollen Story* (University of Hawaii Press), *Palynology in Oil Exploration* (*Spec. Publ. Soc. Econ. Paleontol. and Mineral. No. 11*), and the volume reviewed here, *Advances in Palynology*. Publication of the latter volume was planned to coincide with the Symposium on Palynology held at the National Botanic Gardens, Lucknow, on 8 October 1964.

Advances contains 18 chapters contributed by different authors; it is devoted to botanical review of the morphology and functions of spores and pollen for all groups of plants, its varying significance, and its applications. In range and orientation, this work differs from the other two volumes and is likely to be useful. Palynology has become most popular in its empirical geohistorical applications, but only two chapters in *Advances* (A. K. Ghosh, pp. 352–366; C. P. Varma, pp. 378–402) deal with stratigraphic palynology.

Good botanical treatments of fungus spore morphology, physiology, and biochemistry are presented by M. M. Payak (pp. 27–55) and by P. S. Krishnan and others (pp. 56–78). The list of 17 asexual and seven sexual fungus spore types implies a broader horizon for sporology. Algal spore forms and morphology are discussed by G. S. Venkataraman and S. K. Goyal. Spore morphology of mosses and liverworts is reviewed by Ram Udar (pp. 79–100); a similar review of spores of ferns and fern allies is presented by B. K. Nayar (pp. 100–141, with 71 photographic illustrations). The authors give a coherent survey, according to plant groups of systematic botany.

Chapters of more general interest include one by P. D. Dogra on pollination mechanisms in gymnosperms (pp. 142–175) and one by Bahadur Singh on male gametophytes (pp. 224–275). The various mechanisms whereby pollen reaches the nucellus in cycads, *Ginkgo*, conifers, and gnetales may not be known to many paleopalynologists, although the diversity of gymnospermous pollen has generally been noted. The functional homologies of male gametophytes, from green algae to flowering plants, has a general significance in phyletic comparison. Additional information about the male gametophytes of angiosperms is presented by Y. S. Murty in reviewing mother-cell division and microspore formation (pp. 176–202); eight types of tetrad configuration are discussed and tabulated and full references are given. P. K. K. Nair, who was also responsible for editing this volume, presents a discussion of pollen morphology and applications to taxonomy and plant evolution (pp. 201–224).

Applications of particular interest to agricultural science are discussed in chapters on pollen sterility, pollen physiology, and horticulture and plant breeding and on the relationship of pollen to beekeeping. The last chapter is concerned with relations of pollen and other airborne allergens to problems of health. Thus, an exceptionally broad range of topics has been considered.

Breadth of perspective and broad systematic coverage, with ample reference to recent literature, characterize the articles in this volume. Necessarily, breadth of attack has required condensation and use of technical terms that will not be familiar to all palynologists. To make use of this volume, some supplemental reading may be necessary, but the needed references are given. These treatments differ from those of elementary viewpoint which discuss a too limited range of organisms for palynologic reference, and they should lead to a better understanding of the range of palynologic diversity in plants.

The articles are illustrated mostly by line drawings; a few authors use halftone illustrations. The paper is smooth and the legibility of the type is good, but the binding of the book is poor. In my copy, one signature (8 pp.) was bound upside down. Each chapter has a fairly detailed table of contents to supplement the general table provided at the front of the book. In view of the book's encyclopedic coverage and the specialized terminology employed in many articles, lack of an adequate general index is the most serious deficiency. The language is generally correct and clear, and there are relatively few typographical errors. A good job has been done in editing.

"First edition, 1964," on the back of the title page, suggests that a later edition may be contemplated. Such an undertaking after a suitable period of use will probably be desirable. At that time, with only a little updating, and with addition of a glossary, a comprehensive index, and a sturdy binding, this book can be made indispensable. The present volume will be useful for advanced palynology classes and reference.

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Current Research in Ecology

Advances in Ecological Research. vol. 2. J. B. Cragg, Ed. Academic Press, New York, 1964. xii + 264 pp. Illus. $9.50

The second volume of *Advances in Ecological Research* follows the pattern set in the first by providing comprehensive reviews of four areas of ecology. In an essay entitled "Analysis of processes involved in the natural control of insects," M. E. Solomon gives a very good presentation of one point of view in a very controversial field of study. He deals largely with the results of practical studies of population dynamics and with the sort of data needed for the study of natural control. A number of problems that occur in analyzing the dynamics of populations are discussed and methods of attacking them are illustrated, primarily with data collected in the field. In "The use of statistics in phytosociology" J. M. Lambert and M. B. Dale examine critically current concepts used to place the study of vegetation on an objective basis. Assumptions with regard to the type of data to be collected for the classification of plant communities and to statistical methods for their analyses are considered in some detail.

In contrast to the first two papers, the aim of "Litter production in forests of the world," by J. R. Bray and E. Gorham, is primarily the collation of data on litter produced by forests in different parts of the world and the assessment of the influence of environment upon litter fall under different forest communities. This review provides a great deal of basic data for workers in this field. In "Forty years of genecology," J. Heslop-Harri-