On the other hand, literature concerning oxidation of polynucleotides is as yet practically non-existent.

Included in the book are more than 1100 references, from which an impressive amount of electrochemical data has been extracted. This monograph is an invaluable source of information for electrochemists; it will probably also be useful to biochemists

## European pollen flora

The North-West European Pollen Flora. Vol. 1. Edited by W. Punt. Pp. 145. (North-Holland: Oxford, New York and Amsterdam, 1977.) \$19.95; Dfl.50.

PALYNOLOGY, the study of pollen grains, is proving to be a valuable technique in a variety of disciplines, particularly environmental ones, both ancient and modern. The recognition of subfossil pollen permits the reconstruction of past vegetation and the detection of palaeo-environmental changes, and the monitoring of present-day pollen fallout is a necessary part of allergy research. Melissopalynology, the study of pollen in honey, permits the identification of the flowering plants visited by bees.

The rapid growth of these subjects has led to a considerable demand for manuals of palynological techniques and also for data regarding the precise identification of pollen types. At present, the published studies of pollen taxonomic research are widely scattered in the literature and some families have received little attention. This book, and those which will follow it in this series, is designed to remedy this deficiency and to provide an accessible and up-to-date collection of pollen morphological studies. This is being tackled by commissioned review articles which are published in the journal, Review of Palaeobotany and Palynology, and which are then collected together in what will be a series of books concerning North-West European pollen.

Obviously, some families are smaller or morphologically less complex than others, so the order in which the published accounts will appear is rather unpredictable. The first collected volume contains accounts of the Caprifoliaceae, Primulaceae, Adoxaceae, Sparganiaceae, Typhaceae, Gentianaceae and Guttiferae. All except for the last of these have been written by members of the Laboratory of Palaeobotany and Palynology of the State University, Utrecht, Netherlands. The account of the Guttiferae is by G. C. S. Clarke of the British Museum (Natural and biologists interested in properties of biologically important N-heterocycles and their analogues.

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History).

Each family is divided into a series of "pollen types". The use of the term "type", however, departs from the convention normally adopted in palyno-logical studies, in which "type" is used only when a number of taxa are indistinguishable on the basis of their pollen. Here, a pollen type may contain only a single species which makes the term "type" somewhat redundant. Keys are provided to the pollen types within each family, and full descriptions of the pollen morphology are given. The descriptive terminology of Reitsma is used throughout, which is commendable, for this provides a more consistent and logical system than the earlier ones of Erdtman, and Faegri and Iversen. The descriptions are very full, though it might have been valuable to have added the shorthand designation devised by Iversen and Troels-Smith. Size measurements are given for grains mounted in both glycerol jelly and in silicone oil, which is useful since both of these media are extensively used. One feature which leads to a certain degree of concern is that the descriptions are based upon a very limited number of collections. Some of the types are described on the basis of just one or two collections, and these can hardly be expected to display the full potential range of variation within the taxa.

Excellent collections of photographs are included with each account. These are based upon light field, phase contrast and scanning electron microscopy. They provide extremely valuable supplements to the pollen discriptions. The plates would be far simpler to use if the legends were included on them rather than preceding them. This may seem a minor criticism, but it does limit the speed and efficiency with which the plates can be consulted.

This series will undoubtedly prove to be the definitive work on the pollen of north-west Europe for many decades and one must congratulate the authors, editors and publishers on the production of a most valuable and useful book. I look forward to the appearance of further volumes in this series.

Peter D. Moore

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