BOOK REVIEW

E. M. VAN ZINDEREN BAKKER, *Palaeoecology of Africa & of the Surrounding Islands & Antarctica.*
Vol. I, 1966: A re-issue of *Palynology in Africa*, Reports 1–7 (1950–1963), 270 pp.
Vol. II, 1967: Covering the years 1964 and 1965, 184 pp. Rand 6.-
Vol. III, 1967: Pollen Analytical Studies in East and Southern Africa, by J. A. Coetzee, 146 pp. Rand 6.-
A. A. Balkema, Cape Town/Amsterdam.

In 1950 E. M. van Zinderen Bakker (Phil. Nat. D. Amsterdam), director Palynological Research Unit of the South African Council for Scientific and Industrial Research and of the University of the Orange Free State, Bloemfontein, started a series of papers under the title "Palynology of Africa". The first four reports were published in Swedish periodicals, while numbers 5–8 have been independently published. The first issues were rather modest; they covered only the initial research on palynology in South Africa. In the subsequent numbers data on biogeography, archaeology, geology and pedology were gradually added as these disciplines are strongly related to palynology. The area covered by the reports was extended, moreover, to the whole of Africa, the surrounding islands, and Antarctica.

In this way the reports became so important that it was necessary to reprint them. These reprinted editions form together vol. I of the series reviewed here. The term "palynology" in the title was changed into "Palaeoecology" which more adequately reflects the contents. Vol. II, covering the years 1964 and 1965, appeared in 1967. The number of pages indicates the expansion of the activities in palaeoecological research in Africa. This volume contains numerous contributions written by the editor's colleagues from other countries engaged in or superpising palaeoecological research in Africa. The volume contains chapters on climatology and Salaeoclimatology, archaeology, biogeography, palynology in Africa, Antarctica and the vouthern Ocean, isotopic dates, morphology of microfossils; a list of names and addresses of workers in the fields covered by the chapters mentioned, a subject index and an authors index. Vol. III, also published in 1967, has a totally different scope. It is entirely devoted to the investigations by Miss Coetzee on pollen analysis in East and South Africa. It discusses the migrations of plants, animals and man against the background of the Quaternary climatic changes in Africa. It contains, besides an editorial preface by E. M. v. Z. B., a foreword and an introduction by the author, two parts, viz. I The East African Mountains, and II Southern Africa. It is illustrated by a colour plate, some photographic plates of vegetation types, photomicrographs of fossil pollen and 24 diagrams and maps, the latter partly included in the text and partly inserted in a pocket attached to the back cover. The author rejects the Pleistocene Pluvial hypothesis on which the Quaternary stratigraphy of Africa was based. She shows that arid and pluvial climates prevailed synchronously in Africa during the Glacial periods of the Northern Hemisphere.

She also establishes a cooler interval, i.e. a cold oscillation, at the end of the Atlantic, which has also been found in South America by van der Hammen and co-workers.

Professor van Zinderen Bakker deserves our esteem for this useful and important series. The author of Vol. III, Miss Coetzee, is to be congratulated on a number of striking results and on her keen and intelligent conclusions which will also prove to be important for corresponding research in other continents.

F. P. JONKER

PÁL GREGUSS: *Fossil gymnosperm woods in Hungary from the Permian to the Pliocene.* Budapest, Akadémiai Kiadó, 1967, 136 pp., 670 microphotos on 86 plates and 14 distribution maps. $ 8.80.

This important book in one of the few works on palaeoxylotomy, a relatively new branch of botanical science dealing with the wood anatomy of stems out of remote geological ages, which have remained in fossilized forms. Palaeoxylotomy is hardly one hundred years old; several methods have been evolved to study the interior structure of the fossil trees. Recently in Hungary during the last 15 years, mainly under the direction of Elemér Vadász, a systematic collection of fossil woods has set on; a variety of different materials from about 150 localities with exact geographical information of the sites have been studied by the Botanical Institute of the University of Szeged. The anatomical analysis took several years and the results are presented in this book. Only wood fossils found in Hungary have been considered. As far as possible three kinds of slides were prepared from each fossil stem; cross section, radial section and tangential section. Many clear and surveyable microphotos are present in the back of the book accompanied by comprehensive legends to each of the plates.

Since there are comparitively few books on palaeoxylotomy, determination must have been very difficult; the xylotomic determination must be based on a thorough knowledge of the anatomy of living trees. A survey is given of the studies by Hungarian researchers of fossil woods, followed by a very thorough and comprehensive systematic description of the various materials which have been analyzed, *i.e.* specimens of the Ginkgoaceae, Araucariaceae, Podocarpaceae, Taxaceae, Cephalotaxaceae, Cupressaceae, Taxodiaceae and Pinaceae. In my opinion Pàl Greguss has given a most valuable contribution to the knowledge of palaeoxylotomy with this well edited book, excellently translated from the Hungarian.

There are however a few remarks I should like to make, namely that some pages are most difficult to read because of the many incorrect references to the microphotos, which are also grouped very peculiar on some plates. For instance:

Pag. 94, 4th line: Plate LXVI ought to be LXXVI. Why not *a* under the left microphoto and *b* under the right one of the figs. 2 and 4 of plate LXXVI; 13th line: Plate LXXVII ought to be LXXVI; 22th line: Fig. 8b ought to be Fig. 8b of plate LXXVII. Besides is Fig. 8b the upper or the lower microphoto?

Pag. 95, 11th line: 1–40–45 cells high (Fig. 13). Why 1–30 cells high on page 134; why Fig. 13 instead of Fig. 7; 14th line: Fig. 3 ought to be Fig. 8; 15th line: Fig. 2 on plate LXXVIII is not Taxodioxylon cf. taxodia Gothan.

Pag. 102, 8th line: Fig. 3 ought to be Fig. 4; 11the line: No. 8 ought to be No. 3; 15th line: Nos. 1, 4 and 7 ought to be Figs. 1, 4 and 7; 9th line from below: Fig. 9. Why not 6, 7 and 8 in particular. Why are the microphotos of plate LXXXI arranged in this way?; the last 6 lines of this page are very difficult to read.

Furthermore a more extensive introduction to the subject might have been useful and preferable as knowledge of palaeoxylotomy on the whole is still in such an early stage.

R. W. DEN OUTER