

REVIEW

C. R. METCALFE, Anatomy of the Monocotyledons V. Cyperaceae (including bibliographical notes by Mary Gregory). — Oxford, Clarendon Press, 1971, VIII + 597 pp, 69 figs. £ 9.00.

This is the fifth volume in the series of reference books on the anatomy of the Monocotyledons edited by the former Keeper of the Jodrell Laboratory at Kew, Dr. C. R. Metcalfe. It is the second volume of which he is both the author and the editor, his first contribution being volume I on the *Gramineae*.

The book starts with an introductory part with notes on techniques and materials, general considerations on morphology and anatomy of the family, and a discussion of the taxonomic implications of the anatomical findings. The bulk consists of descriptions of leaf, culm, rhizome, and root anatomy of 280 species from 90 genera. For each genus data from literature have been abstracted in a special section by Miss Mary Gregory. Taxonomic notes are also given for each genus.

The account in the introductory part of the anatomical variation in structures like for instance hairs, stomata, silica bodies, sclerenchyma distribution, vascular bundles, and bundle sheath type to be encountered within the family is most valuable because it enables the reader to interpret the descriptive sections for each genus himself. In the general taxonomic discussion *Cyperaceae* are said to be anatomically more like *Juncaceae* than any other monocotyledonous family. The anatomical characterizations of the tribes (mainly following Clarke's system) and the conclusions to be drawn from anatomy about relationships within the family in the subsequent part are rather vague. One wonders whether this is so because the tribes are anatomically ill defined or even unnatural. One certainly would wish this part to be more straight forward in its conclusions, be it either negative or positive. The same holds for some of the taxonomic notes in the descriptive part. For instance *Acriulus* (p. 69) is said to have several anatomical characters in common with *Scleria* and although *Acriulus* has been reduced to *Scleria* for the second time in 1963 by Kern this is only mentioned in passing without any further positive or negative opinions given on anatomical grounds. For *Blasmus* (p. 93) only Van der Veken's embryological conclusions are mentioned and nothing is said about anatomical affinities. For *Pleurostachys* (p. 406) the reader is merely referred to Kükenthal for taxonomic considerations. Generally, however, the taxonomic notes contain some valuable anatomical suggestions. The utmost caution, observed in all taxonomic conclusions, is of course fully justified if one considers that only a small proportion of species could be studied anatomically. To describe and survey the anatomy of 280 species is a formidable achievement but it is only the very beginning if one considers that large genera like e.g. *Cyperus*, *Fimbristylis*, *Mapania*, and *Schoenus* are only represented by relatively few species. Yet this reference book is of great value in that it contains in a compact form all information on the anatomy of the vegetative organs of *Cyperaceae*, at present available. We owe this for a considerable part to the concise compilations of data from literature by Miss Mary Gregory. The anatomical descriptions of the 280 species add greatly to the knowledge accumulated prior to the preparation of the book. In the section on literature no attempt has been made to convert the names employed by the authors concerned into present day equivalents. This often leads to the confusing situation that the same species is described twice under different genera, once by Dr. Metcalfe and once under information from literature. As far as ordinary synonymy is concerned this could have been prevented quite easily by consulting the Index Kewensis.

Mention should be made of the commendable practice of adding lists of diagnostic characters at the end of the volumes in this series. This will facilitate the identification of sterile material.

The book is well and amply illustrated by the author himself. Emphasis has been put on microscopical appearance of transverse sections and one would wish to see some more drawings of surface structures like epidermal cell outline and stomata, particularly because epidermal studies are often the only practical possibility for taxonomists who want to put some anatomy into their systematics.

The main function of the book will be as a source of background information for investigators embarking on the systematic anatomy of representatives of the *Cyperaceae*. It constitutes an excellent framework and starting point for that matter and gaps in our present knowledge and understanding are often indicated by the author himself. Cyperologists should not use it as a vademecum providing anatomical answers to their numerous taxonomic problems, however disappointing that may seem. It is to be hoped that the now readily available information on *Cyperaceae* will stimulate taxonomists to employ anatomical characters in future critical studies. This has been the case after the publication of Volume I on *Gramineae* and such an effect would be the best appreciation Volume V can receive.