(Reviews continued)


The first edition of Meylan & Butterfield's 'Three dimensional structure of wood' of 1972 fully deserved its immense popularity as a (self-) teaching aid for understanding the anatomy of wood. This second edition is a fully rewritten and newly illustrated account aiming at (and succeeding in!) providing a comprehensive picture of the diverse structural details of hardwoods, softwoods and palmwood (the latter exemplified by coconut wood). Unlike the first edition, which was an atlas of scanning electron micrographs with short explanatory legends, this version is a textbook with 226 explanatory figures. Without exception the SEM pictures are again of the highest quality, as could only be expected from the two experts par excellence in the field of three dimensional wood anatomy.

The book starts with a general section on the structure of wood, explaining fundamental aspects of wood anatomy such as general histology, cell wall architecture, cell wall pitting, wall sculpturing, cell inclusions but also the more unusual feature of trabeaculae. The other three chapters treat structural characteristics and their possible diversity in softwoods, palmwood and hardwoods respectively. At the end there are 184 literature references to publications relevant to the subject, mostly from the last 10 or 15 years.

Obviously, this second edition has much more to offer than its predecessor. With its generally lucid and comprehensive text, the book could successfully serve as an advanced text and reference book of great value for students as well as for professional plant anatomists. However, in view of the merits of the text, and in spite of the high quality of the micrographs, it is in my opinion regrettable that the authors have restricted their 'ultrastructural approach' (quoted from the rather misleading subtitle of the book) entirely to results obtained with the scanning electron microscope. Numerous features, thoughtfully explained in the text, would have been better illustrated by other means than scanning electron micrographs. Only for softwood crossfield pitting, the authors show that they appreciate this problem, because they include line-drawings of the four different, diagnostic types. However, also for features like vessel and parenchyma distribution, arrangement of pits in vessels, ray architecture etc., light micrographs are often more instructive than the prettiest SEM pictures. This should not be taken as a criticism of the authors, but rather as a wish to have a book combining the virtues of this scanning electron microscope approach with for instance Brazier & Franklin's illustrations for the hardwood microscope key (1961) and Côté's ultrastructural atlas (1967).

Specific suggestions for improvement or correction in a subsequent printing are the following: The statement on page 24 that presence or absence of crystals is of 'very limited' value in wood identification is in its general form too negative. Ulmus procera, said to be semi-ring-porous in the legend to Fig. 134 is pictured from a markedly ring-porous specimen, and Ulmus should be referred to Ulmaceae, not to Fagaceae. Vasicentric tracheids are, on page 70, incorrectly said to be restricted to Fagaceae and Fraxinus. The latter record is a perpetuated mistake from the older literature to which I have drawn attention before (IAWA Bulletin 1977/3: 60), and vasicentric tracheids occur in quite a number of families (cf. Metcalfe & Chalk's family descriptions). Tile cells are inadequately described and unnecessarily veiled in mystery on pages 80 and 81. In the references, numbers 12 and 174 refer to the same paper (Berend J.H. = Welle, B.J.H. ter). In general the references would gain if more classical papers (including some 19th century ones) had been selected in favour of some rather irrelevant more recent papers. Finally the publishers might perhaps be asked to go back to the more tasteful style for cover and lay-out of the first edition, rather than to perpetuate the singularly, and undeservedly, unattractive appearance of this edition.

In spite of the scope for minor improvements pointed out above, this edition of 'Three dimensional structure of wood' must be welcomed as an excellent and informative textbook, not to be missed from botany or forestry libraries and private bookshelves.

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