**IAWA Bulletin New Series - Volume 8(3)**

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| **Author(s):** | Michael A. Millay; Thomas N. Taylor; Edith L. Taylor |
| **Title:** | **Phi Thickenings in Fossil Seed Plants from Antarctica** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 191-201 |
| **Keywords:** | secondary tissues; Cycadales; Endodermis; roots; Triassic; seed ferns |
| **Abstract:** | Primary anatomy and secondary development is described for two root types from the Fremouw Peak locality (Transantarctic Mts, Antarctica) of early to middle Triassic age. Roots of Antarcticycas have a bilayered cortex with thick surface cuticle, diarch xylem, and a clearIy defined endodermis surrounded by a single cell layer possessing phi thickenings. Secondary development begins with phellern and phelloderm production from the out er primary phloem position, and is followed bya bifacial vascular cambium next to the primary xylem that pro duces sieve cells and ray parenchyma to the outside. Young roots of Antarcticoxylon are similar to those of Antarcticycas, but may possess 2-3 cell layers with phi thickenings. Secondary development from a bifacial vascular cambium produces alternating bands of sieve cells and phloem parenchyma cells in the secondary phloem and wood with uniseriate rays and scattered axial parenchyma. The presence of phi thickenings and an epidermal cutieie in both roots suggests environmental stress related to water regulation. The occurrence of phi thickenings in the roots of some conifers, angiosperms, a fossil cycad and a probable seed fern suggests this character is of ecological rather than phylogenetic significance. |
| **DOI:** | [10.1163/22941932-90001046](http://dx.doi.org/10.1163/22941932-90001046) |

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| **Author(s):** | Pedro L. B. Lisboa; J. Cesar A. da Silva; A. A. Loureiro; Gracielza M. dos A. dos Santos |
| **Title:** | **Morphology of the Vessel Elements in the Secondary Xylem of the Myristicaceae from Brazilian Amazonia** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 202-212 |
| **Keywords:** | Otoba; Virola; Vessel perforations; Compsoneura; Osteuphloeum; Iryanthera |
| **Abstract:** | A morphological study of vessel elements was carried out in species representing the five genera of Myristicaceae present in the Brazilian Amazon region. The results show that perforation plates of the scalariform type predominate in Compsoneura, Iryanthera and Otoba, where as perforation plates of the simple type predominate in Osteophloeum and Virola. The phylogenetic and taxonomie implications of these findings are discussed. |
| **DOI:** | [10.1163/22941932-90001047](http://dx.doi.org/10.1163/22941932-90001047) |

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| **Author(s):** | Helena Pereira; M. Emília Rosa; M.A. Fortes |
| **Title:** | **The Cellular Structure of Cork from Quercus Suber L.** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 213-218 |
| **Keywords:** | cork; cell wall corrugations; cell geometry; topology; Quercus suber |
| **Abstract:** | The main characteristics of the cellular structure of cork from Quercus suber L. are reviewed and complt;mented with new observations of virgin and reproduction cork by scanning electron microscopy. Particular emphasis is given to cell geometry and topology and to the corrugations that are observed in the cell walls. The effect of the growth season in these features is described. Large variations in cell size, wall thickness and corrugations are reported. |
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| **Author(s):** | R.B. Miller; R.G. Pearson; E.A. Wheeler |
| **Title:** | **Creation of a Large Database with Iawa Standard List Characters** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 219-232 |
| **Keywords:** | Wood anatomy; wood identification; computer-assisted wood identification |
| **Abstract:** | Data from the OXFORD/PRL card keys which were stored in a computerised form for the SEARCH program were converted into IAWA Standard List characters and the format for the IDENT programs to form the 'IAWAOPN' database. The characteristics of the OXFORD/ PRL card keys and the coding for the IA WA Standard List are reviewed. A computer program was written to make the initial conversion, but sub se quent editing of numerous entries was necessary on an individual basis. Some OXFORD/PRL features translated simply into IAWA/IDENT character states by converting one number to another, but the presence or absence of two or more features had to be considered for other characters. Some OXFORD/ PRL features could not be meaningfully translated into IAWA/IDENT character states. Also, many IAWA characters are coded less precisely than desirable, or had to be coded as unknowns, because the required information is not available from the card keys. Although it has limitations, which must be appreciated by its users, a large database now exists with over 3000 entries in IAWA/IDENT formal. A computer program (IAWA-SEARCH) has been developed for searching this database with a microcomputer. |
| **DOI:** | [10.1163/22941932-90001049](http://dx.doi.org/10.1163/22941932-90001049) |

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| **Author(s):** | Peter Gasson |
| **Title:** | **Interpretation and Choice of Vessel Characters in the Iawa Standard List** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 233-235 |
| **Keywords:** | vessel grouping; Vessel frequency; vessel diameter |
| **Abstract:** | While using the IAWA standard list of characters to describe the anatomy of tropical woods, some characters were found to be open to more than one interpretation. This paper discusses five interrelated vessel characters with reference to observations on 126 woods of Rutaceae. The reasons for am biguity in certain characters are given, and recommendation for more rigorous interpretation are made. |
| **DOI:** | [10.1163/22941932-90001050](http://dx.doi.org/10.1163/22941932-90001050) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 236-236 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001051](http://dx.doi.org/10.1163/22941932-90001051) |

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| **Author(s):** | Roland R. Dute; Ann E. Rushing |
| **Title:** | **Pit Pairs With Tori in the Wood of Osmanthus Americanus (Oleaceae)** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 237-244 |
| **Keywords:** | Osmanthus; torus; wood ultrastructure; dicotyledon |
| **Abstract:** | Bordered pit pairs connecting tracheary elements in the wood of Osmanthus americanus (L.) Benth. ' Hook. ex Gray contained a torus in the pit membrane. This structure is approximately 2.5 μm in diameter, and is located at or near the centre of the pit membrane. The encrusting material of the torus could be removed by treatment with sodium chlorite. Thin seetions through theJorus showed it to consist of a pad of wall material appressed to either side of the compound middle lamella. The membrane surrounding the torus (the margo) consisted of fibrils and a variable amount of enc10sing matrix. The fibrils were generally c1oseIy packed and randomly oriented, although occasionally a radial component was also present. Aspiration of the pit membrane in air-dried material caused the torus to seal off one of the pit apertures. During this process the torus probably prevented rupture of the pit membrane at that site. |
| **DOI:** | [10.1163/22941932-90001052](http://dx.doi.org/10.1163/22941932-90001052) |

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| **Author(s):** | Pieter Baas; Fritz H. Schweingruber |
| **Title:** | **Ecological Trends in the Wood Anatomy of Trees, Shrubs and Climbers from Europe** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 245-274 |
| **Keywords:** | ecology; Europe; fibres; Vessel perforations; tracheids; vessel distribution |
| **Abstract:** | Ecological trends for occurrence of certain vessel, tracheid and fibre characteristics. have been analysed for 505 species (belonging to 221 genera and 71 families) from Europe, Cyprus, and Madeira. Macroclimatic gradients from boreal, via temperate to mediterranean are strongly related with a decreasing incidence of scalariform perforations, (almost) exclusively solitary vessels, and fibre-tracheids (i. e., fibres with distinctly bordered pits). In this sequence the incidence of different vessel size classes (vessel dimorphism) and vascular tracheids increases. Ring-porous tendencies and spiral vessei thickenings have their peaks in the temperate zone. The subtropical flora of Madeira shows low values for the percentage of species with any of the above attributes. |
| **DOI:** | [10.1163/22941932-90001053](http://dx.doi.org/10.1163/22941932-90001053) |

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| **Author(s):** | Sagheer Ajmal; Muhammad Iqbal |
| **Title:** | **Annual Rhythm of Cambial Activity in Streblus Asper** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 275-283 |
| **Keywords:** | Streblus asper; cambial activity; c1imate; phenology; fusiform initials; rays |
| **Abstract:** | Cambial strueture and aetivity of Streblus asper Lour. vary with the loeal c1imate. The eells start swelling eady in May prior to the onset of peric1inal divisions whieh are most frequent in September. The cell division stops in Oetober indieating the approach of dormaney. During the growth season, initiation as well as eessation of the xylem produetion preeedes that of phloem. High temperatures induee the eambial reaetivation. Onee initiated, the aetivity eontinues at relatively low temperatures. Hot and moderately humid eonditions in June favour xylogenesis whereas phloem differentiation begins at relatively low temperature and high humidity in July. The eoneurrent differentiation of xylem and phloem has its peak in August-September. The size and relative proportion of eambial initials change with the season. Fusiform initials are shorter and broader during the rainy season (July-September) than during the rest of the year. Tetraseriate rays and tall rays outnumber the other types of rays throughout the year. |
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| **Author(s):** | Pieter Baas |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 284-284 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001055](http://dx.doi.org/10.1163/22941932-90001055) |

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| **Author(s):** | L.A. Donaldson; D. Hollinger; T.M. Middleton; E.D. Souter |
| **Title:** | **Effect of CO2 Enrichment on Wood Structure in Pinus Radiata D.Don** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 285-289 |
| **Keywords:** | tracheid dimensions; elevated CO2; wood anatomy; Pinus radiata |
| **Abstract:** | The wood structure of Pinus radiata trees grown under conditions of elevated atmospheric CO2 was investigated. Tracheid length, tangential and radial lumen diameter, and .tangen tial wall thickness were measured for trees grown at 320 ± 20 ppm CO2 and 640 ± ppm CO2. |
| **DOI:** | [10.1163/22941932-90001056](http://dx.doi.org/10.1163/22941932-90001056) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 290-290 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001057](http://dx.doi.org/10.1163/22941932-90001057) |

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| **Author(s):** | J. Wilkes; A.P. Wilkins |
| **Title:** | **Anatomy of Collapse in Eucalyptus Species** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 291-295 |
| **Keywords:** | SEM; collapse; Eucalyptus; wood anatomy |
| **Abstract:** | Scanning electron microscopy was employed to examine the anatomy of collapse in Eucalyptus bancroftii, E. macrorhyncha, E. nitens, E. oreades, and E. pilularis. Collapse appeared to be restricted to fibres, although other cell types sometimes distorted in response to the stresses developed. The propensity for individual fibres to collapse was not always related to the ratio of wall thickness to lumen diameter, and a complex of factors, e.g. proximity to other cell types, may be involved. Collapse, which was most prevalent in the tangential direction, was rarely accompanied by detectable damage to the wall structure, suggesting that the strength of affected timber should not be seriously diminished. |
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| **Author(s):** | J. J. Sauter |
| **Title:** | **On the ecopomy of plant form and function. T. J. Givnish, xviii + 717 pp., illus., 1986. Cambridge University Press, Cambridge, U. K. Price: £ 55.00 or US$ 84.50.** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 296-297 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001059](http://dx.doi.org/10.1163/22941932-90001059) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **Growth stresses and strains in trees. Robert R. Archer, 240 pp., 115 figs., 1986. Springer Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo. Price: DM 198.00 (hard cover).** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 297-297 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 298-299 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001061](http://dx.doi.org/10.1163/22941932-90001061) |

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| **Author(s):** | David C. Michener |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Bulletin NS, Volume 8, Issue 3 |
| **Publication Year:** | 1987 |
| **Pages:** | 300-302 |
| **Keywords:** |  |
| **Abstract:** |  |
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