**IAWA Journal - Volume 14(3)**

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| **Author(s):** | W. Wayne Wilcox |
| **Title:** | **Comparison of Scanning Electron Microscopy and Light Microscopy for the Diagnosis of Early Stages of Brown Rot Wood Decay** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 219-226 |
| **Keywords:** | scanning electron microscopy; Wood decay; light microscopy; decay diagnosis; brown rot |
| **Abstract:** | As part of a larger study of the microscopical characteristics useful in diagnosing early stages of decay, an opportunity was created to compare the ability of light microscopy (LM) and scanning electron microscopy (SEM) to image these features. Although most features could be imaged by both technologies, imaging was much easier in the SEM because it was being used at the low end of its resolution and magnification capability while the LM was near the high end of its limitations. One important feature which could not be imaged in SEM was the earliest attack on the cell walls, a feature which was visible under polarised light in the LM. |
| **DOI:** | [10.1163/22941932-90001320](http://dx.doi.org/10.1163/22941932-90001320) |

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| **Author(s):** | Fukuju Yamamoto; Shunji Shimizu; Hayato Hashizume |
| **Title:** | **Anatomy of Stem Hyperplasia Called Tokkuri Disease in Chamaecyparis Obtusa** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 227-237 |
| **Keywords:** | stem hyperplasia; multiseriate rays; tokkuri disease; cambium; Chamaecyparis obtusa |
| **Abstract:** | The stem hyperplasia called tokkuri-disease in Japan was observed on the lower part of stems of 25-29-year-old Chamaecyparis obtusa trees. The anatomy of the hyperplastic portions was characterised by rapid proliferation of the cambium, short and thin-walled tracheids, a large number of multiseriate rays, and thickened bark. The cambial activity in the hyperplastic portion was high in July and remained high until mid-October. Transverse sections show the hyperplastic portions of the cambium and growth ring boundaries are sinuous, whereas those in non-hyperplastic portions of the same trees or in normal trees are not. The sinuosity of cambia was closely related with cambial activity. The ecological and physiological causes of stem hyperplasia are discussed on the basis of anatomical studies. |
| **DOI:** | [10.1163/22941932-90001321](http://dx.doi.org/10.1163/22941932-90001321) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Review** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 238-238 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001322](http://dx.doi.org/10.1163/22941932-90001322) |

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| **Author(s):** | Károly Babos |
| **Title:** | **Tyloses Formation and the State of Health of Quercus Petraea Trees in Hungary** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 239-243 |
| **Keywords:** | Quercus petraea; tyloses; sapwood; tree decline |
| **Abstract:** | In a 76-year-old sound and in a 77-year-old diseased trunk of Quercus petraea the number of earlywood vessels with and without tyloses were counted along a 1 cm tangential segment of the annual rings, in four directions at four heights (0.16, 1.35, 12.0, 24.0 m). At all heights of the sound stem, the percentage of earlywood vessels sealed by tyloses is low (2.57-4.13-5.94%). In the diseased stem, the percentage of earlywood vessels sealed by tyloses is higher (7.40- 13.08-19.86%) than it is in the sound stem. This demonstrates a decreased hydraulic capacity in the diseased stem. In both trees, the percentage of earlywood vessels sealed by tyloses increased from the stump (at 0.16 m trunk height = 5.02 %) upwards (at 12.0 m = 12.58%). |
| **DOI:** | [10.1163/22941932-90001323](http://dx.doi.org/10.1163/22941932-90001323) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Elektrische Leitwertprofiele im Holzkörper mitteleuropäischer Baumarten, bestimmt mit dem 'Vitamat'. H.P. Bucher, L.J. Kučera, M. Walter ' K.J.M. Bonsen, 82 pp., illus., 1993. Mitteilungen der Eidgen. Forschungsanstalt für Wald, Schnee u. Landschaft 68 (2). ISSN 1016-3158. Price sFr. 26.00 (paper).** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 244-244 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001324](http://dx.doi.org/10.1163/22941932-90001324) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **[The microstructure of Main Chinese Bamboos]. Yao Xi-shen, Liang Ching-sen, Ma Nai-shing, Má Zuo-li ' Hsu Hong, iv + 192 pp., illus., 1993. Dairen Press, Dairen, Liaoning Province, China. ISBN 7-80555- 644-X/S-7. Price Yuan 48.00 (cloth).** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 244-244 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001325](http://dx.doi.org/10.1163/22941932-90001325) |

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| **Author(s):** | Mohd. Hamami Sahri; Faridah Hanum Ibrahim; Nor Aini Ab. Shukor |
| **Title:** | **Anatomy of Acacia Mangium Grown in Malaysia** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 245-251 |
| **Keywords:** | tissue proportions; fibre dimensions; plantation wood; Leguminosae; Acacia mangium; Mimosoideae |
| **Abstract:** | A study on the tissue proportions and fibre dimensions of plantation-grown Acacia mangium was carried out. Ten selected trees from two age groups (4- and 8-year-old) were obtained from plantation forests in Selangor. Disks were taken from four sampling heights. Acacia mangium wood is diffuse-porous with mostly solitary vessels. The rays are uniseriate. The average percentage of fibres, vessels and rays of 4-year-old and 8-year-old samples are 85.8%, 9.1%, 5.2% and 84.8%, 9.8%, 5.3%, respectively. Acacia is a shortfibred tropical species. The average fibre length, fibre diameter, fibre lumen diameter and fibre wall thickness are 934, 24, 17 and 3.3 µm for 4-year-old samples and 1017,20, 12 and 4.3 µm for 8-year-old sampies, respectively. The sampies near the pith have the shortest fibres and the length increases toward the bark. Fibre length also tends to decrease with height. The vessel percentage decreases with increasing height. |
| **DOI:** | [10.1163/22941932-90001326](http://dx.doi.org/10.1163/22941932-90001326) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 252-252 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001327](http://dx.doi.org/10.1163/22941932-90001327) |

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| **Author(s):** | W. L. H. van Veenendaal; R. W. den Outer |
| **Title:** | **Development of Included Phloem and Organisation of the Phloem Network in the Stem of Strychnos Millepunctata (Loganiaceae)** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 253-265 |
| **Keywords:** | interxylary phloem; phloem network; Strychnos; phloem anatomy; included phloem |
| **Abstract:** | The development of the diffuse included phloem strands in Strychnos millepunctata Leeuwenberg is described and compared with that in some other Strychnos species. |
| **DOI:** | [10.1163/22941932-90001328](http://dx.doi.org/10.1163/22941932-90001328) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Review** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 266-266 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001329](http://dx.doi.org/10.1163/22941932-90001329) |

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| **Author(s):** | Takafumi Kubo; Miwako Koyama |
| **Title:** | **Maturation Rate of Tracheid Lengthening in Slow-Grown Young Sugi (Cryptomeria Japonica) Trees** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 267-272 |
| **Keywords:** | rate of radial growth; shading conditions; juvenile wood; maturation rate of tracheid lengthening; Cryptomeria japonica |
| **Abstract:** | Maturation rate, the rate of increase in tracheid length in juvenile wood, was examined in sugi (Cryptomeria japonica D. Don) saplings grown for five years under different shading conditions: 10%, 20% 40% and 100 % of relative illumination intensity. The lowest photointensity dramatically suppressed radial growth and slowed tracheid lengthening. Radial variation of tracheid length within the stem was associated with distance from the pith, rather than the number of annual rings from the pith. Furthermore, maturation rate was closely related to the rate of the radial growth, which changed proportionally with growth rate below a 2-3 mm ring width. A lower maturation rate of tracheid length is associated with a delay in the transition from juvenile to mature wood. |
| **DOI:** | [10.1163/22941932-90001330](http://dx.doi.org/10.1163/22941932-90001330) |

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| **Author(s):** | Tomoyuki Fujii |
| **Title:** | **Application of a Resin Casting Method to Wood Anatomy of Some Japanese Fagaceae Species** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 273-288 |
| **Keywords:** | Fagaceae; scanning electron microscopy; Resin casting method; pits |
| **Abstract:** | A resin casting method was applied to the wood anatomy of some Japanese species of Fagaceae. Dry wood blocks were embedded in polystyrene and then cell walls were completely removed by alternate and repeated treatments with hydrogen peroxide/acetic acid solution and sulphuric acid. Resin casts were observed in a scanning electron microscope. |
| **DOI:** | [10.1163/22941932-90001331](http://dx.doi.org/10.1163/22941932-90001331) |

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| **Author(s):** | Liu Donghua; Gao Xinzeng |
| **Title:** | **Comparative Anatomy of the Secondary Phloem of Ten Species of Rosaceae** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 289-298 |
| **Keywords:** | sieve elements; phloem anatomy; secondary phloem; Rosaceae; rays; crystals; fibre-sclereids |
| **Abstract:** | The anatomy of the secondary phloem of species belonging to four genera in Rosaceae is described. The three genera of the Maloideae studied are more or less similar in their phloem anatomy; tangential bands of fibresclereids alternate with bands of sieve elements, companion cells and parenchyma cells; superficially, the nonconducting and conducting phloem are not distinct from one another; sieve plates are compound and there are conspicuous sieve areas on lateral walls; rays are uniseriate and multiseriate, and homocellular. In the five species of Prunus (Prunoideae) studied, there are no fibre-sclereids in the conducting phloem, end walls bearing simple sieve plates are oblique to nearly horizontal; and rays are uniseriate and multiseriate, homocellular. |
| **DOI:** | [10.1163/22941932-90001332](http://dx.doi.org/10.1163/22941932-90001332) |

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| **Author(s):** | Virginia M. Page |
| **Title:** | **Anatomical Variation in the Wood of Robinia Pseudoacacia L. and the Identity of Miocene Fossil Woods from Southwestern United States** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 299-314 |
| **Keywords:** | fossil wood; Califomia; Miocene; Robinia; Nevada |
| **Abstract:** | A detailed analysis of selected quantitative features was made of secondary xylem from the trunk, branch, and root of a specimen of Robinia pseudoacacia L. The analysis serves as a basis for interpreting two suites of fossil woods closely similar to the wood of Robinia. One assemblage had its provenance in western Nevada and the other in southern California. Results of the survey show considerable overlap in ranges of variation in the fossils and extant woods. These findings parallel results of a similar investigation by Matten et al. (1977). Woods from both fossil localities fall within the specifications of the organ species Robinia zirkellii (Platen) Matten, Gastaldo ' Lee. The survey also revealed the kinds of differences that may be found in species of Robinia growing in dissimilar habitats. Differences noted among trunk, branch and root wood of extant Robinia make it possible to distinguish these organs among the fossils. |
| **DOI:** | [10.1163/22941932-90001333](http://dx.doi.org/10.1163/22941932-90001333) |

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| **Author(s):** | Toyonobu Sugawa; Tomoyuki Fujii |
| **Title:** | **Aggregate Rays of Thujopsis Dolabrata Var. Hondai (Cupressaceae)** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 315-323 |
| **Keywords:** | aggregate ray; Thujopsis; multiseriate ray; ray tracheid |
| **Abstract:** | Aggregate rays of Thujopsis dolabrata Sieb. et Zucc. var. hondai are described in detail. These rays occur sporadically in Thujopsis stemwood and are composed mainly of multiseriate rays, with thin-walled ray parenchyma cells, and ray tracheids of irregular shape and widely varying size. Ray tracheids have Iignified three-layered secondary walls, but their S3 layer is very thin as in the secondary walls of axial tracheids. |
| **DOI:** | [10.1163/22941932-90001334](http://dx.doi.org/10.1163/22941932-90001334) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 324-325 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Erratum / Additions** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 325-325 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001336](http://dx.doi.org/10.1163/22941932-90001336) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Iawa Journal** |
| **Source:** | IAWA Journal, Volume 14, Issue 3 |
| **Publication Year:** | 1993 |
| **Pages:** | 326-326 |
| **Keywords:** |  |
| **Abstract:** |  |
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