**IAWA Journal - Volume 18(1)**

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| **Author(s):** | Sherwin Carlquist |
| **Title:** | **Pentaphragma: A Unique Wood and its Significance** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 3-12 |
| **Keywords:** | Campanulales; Asterales; woodevolution; paedomorphosis; raylessness |
| **Abstract:** | Qualitative and quantitative data are given for wood anatomy of three species of Pentaphragma (Pentaphragmataceae); the woods of the three species are very similar. Pentaphragma is rayless, but eventually develops rays in at least one of the species studied. This is interpreted as related to secondary woodiness or upright habit within a predominantly herbaceous phylad. The vessel elements of Pentaphragma have features universally interpreted as primitive in dicotyledons: scalariform perforation plates with numerous bars; pit membrane remnants in perforations; scalariform lateral wall pitting; the genus also has fiber-tracheids with prominently bordered pits. These character states accord with the basal position in Campanulales accorded Pentaphragmataceae by Cosner et al. (1992), and suggests that order may have begun with more numerous primitive features than generally recognized. The presence of occasional scalariform perforation plates, often aberrant, in secondary xylem of families of Asterales sensu lato - Campanulaceae, Pentaphragmataceae, Valerianaceae, and even Asteraceae (e.g., certain Lactuceae) - can be attributed to paedomorphosis, extending these plates into secondary xylem from primary xylem. Raylessness in Pentaphragma can be described in terms of secondary woodiness or paedomorphosis. The fact that fiber-tracheids are shorter than vessel elements in Pentaphragma is believed related to raylessness also, because some fiber-tracheids are produced from 'potential' ray areas. |
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| **Author(s):** | Sílvia R. Machado; Veronica Angyalossy-Alfonso; Berta L. de Morretes |
| **Title:** | **Comparative Wood Anatomy of Root and Stem in Styrax Camporum (Styracaceae)** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 13-25 |
| **Keywords:** | root; Styrax camporum; stem; Styracaceae; wood anatomy |
| **Abstract:** | Styrax camporum Pohl is a shrub common in the cerrado vegetation of south-eastern Brazil. Root and stem wood in Styrax camporum differ quantitatively and qualitatively. Quantitative differences follow normal expectations: roots have wider and longer vessel elements, a lower vessel frequency, a lower ray frequency, and wider rays. Qualitative features of the roots are: simple perforation plates, vestured pits, and septate libriform fibres; qualitative features of the stems are: multiple perforation plates, non-vestured pits, and non-septate fibre-tracheids. Based on generally accepted evolutionary trends, root wood of Styrax camporum has more specialized features than stem wood. Additional comparative studies of stem and root anatomy are needed to determine if such differences between root and stem anatomy are widespread, and consistent with the lines of specialization observed in monocotyledons. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Anatomy of the Monocotyledons VIII. Iridaceae. P. Rudall (D.F. Cutler ' M. Gregory, eds.), vii + 126pp., illus., 1995. Clarendon Press, Oxford. ISBN 0-19-854504-5. Price: UK£ 75.00 (hardback).** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 26-26 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001455](http://dx.doi.org/10.1163/22941932-90001455) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **[Timbers from Tropical Africa.] Liu Peng, Jiang Xiaomei ' Zhang Li Fei, 347 pp., 103 photoplates, 1996. ITTO ' Research Institute of Wood Industry, Chinese Academy of Forestry, Chinese Forestry Publishers Beijing. ISBN 7-5038-1650-3. Price: 80 Yuan (c. US$ 14.00) (paperback).** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 26-26 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001456](http://dx.doi.org/10.1163/22941932-90001456) |

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| **Author(s):** | J. Ilic |
| **Title:** | **Woods of Eucalyptus-Part 1 Distinguishing Three Species from the Ash Group** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 27-36 |
| **Keywords:** | wood identification; Eucalyptus; ash group |
| **Abstract:** | In Australia the ash group of eucalypts comprises approximately 35 species of Eucalyptus from the botanical series Obliquae. They are abundant in south-eastern Australia, but timber of commerce comes mainly from Victoria and Tasmania and includes E. regnans F. Muell., E. delegatensis R.T. Baker and E. obliqua L'Hérit. This group produces some of the fastest growing and the highest yielding hardwood species in Australia. The timbers are similar in appearance and can be interchanged for many uses, but there are some important differences. This study found differences between the species in basic density, distinctness of growth rings and pore grouping, ray width, proportion of multiseriate rays, and the height of the multi seriate proportion of the rays. Differences between mainland and Tasmanian provenances were also observed. Growth rings are prominent in E. delegatensis from the mainland, but less so from Tasmania, and least distinct in E. obliqua. Basic density can be used to distinguish E. obliqua when samples are heavier than 605 kg/ m3, and E. regnans for samples less than 390 kg/m3. Height of the multiseriate portion of the rays is 1-9, mostly 5 cells in E. obliqua, whereas it is 1-5, mostly 1-2(-4) cells high in the other two species; maximum height of the multi seriate portion of the rays is 3-12, mostly 4-8 cells in E. obliqua, 1-6, mostly 1-2 cells in E. delegatensis, and 1-8, mostly 1-3 cells in E. regnans; width of individual ray cells 10-30 µm, mostly 15-20 µm in E obliqua, and 5-16 µm, mostly 8-12 µm in the other two species. A key for separation between the species is given and the similarities to other species are discussed. Other commercially important species will be dealt with subsequently. |
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| **Author(s):** | Pablo E. Villagra; Fidel A. Roig Juñent |
| **Title:** | **Wood Structure of Prosopis Alpataco and P. Argentina Growing Under Different Edaphic Conditions** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 37-51 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Review** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 52-52 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001459](http://dx.doi.org/10.1163/22941932-90001459) |

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| **Author(s):** | Ingrid de Kort; Pieter Baas |
| **Title:** | **Ring Width Patterns of Douglas Fir in Relation to Crown Vitality and Age** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 53-67 |
| **Keywords:** | Pseudotsuga menziesii; Douglas fir; forest decline; ring width; growth reductions; vitality classes; age |
| **Abstract:** | Ring width patterns often different stands, five vitality classes and three age-classes are used to explore the effect of the decline in vitality on radial growth of Douglas fir in the Netherlands and to determine the onset of this decline. A relationship between growth performance and crown vitality is found in most stands, although the variation within and between stands is large. Severe needle loss leads to serious decline in ring width. The onset of the decline varies from c. 1959 to 1976. The present data set does not enable a choice between the various causal scenarios of forest decline that have been proposed in the literature. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Review** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 68-68 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001461](http://dx.doi.org/10.1163/22941932-90001461) |

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| **Author(s):** | Tomoyuki Fujii; Youki Suzuki; Naohiro Kuroda |
| **Title:** | **Bordered Pit Aspiration in the Wood of Cryptomeria Japonica in Relation to Air Permeability** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 69-76 |
| **Keywords:** | air permeability; wet heartwood; heartwood color; Cryptomeria japonica; Pit aspiration |
| **Abstract:** | Aspiration of bordered pits in Cryptomeria japonica (L. f.) D. Don was studied in relation to the air permeability in sapwood, transition zone wood, and heartwood. The percentage of aspirated pits relative to the total number of bordered pits with observable tori was determined in samples that were epoxy-embedded and thin sectioned. Air permeability of air-dried and freeze-dried wood samples was measured following the method described by Siau (1984). Pit membrane structure of air-dried and freeze-dried samples was investigated by scanning electron microscopy on split radial surfaces. It is proposed that pit aspiration progresses during heartwood formation as already reported, but the pit aspiration was frequently incomplete and the percentage varied between individuals. The pit aspiration percentage was not obviously related to the sample's initial green moisture content or heartwood color. The results from permeability measurement and SEM observation on air- and freeze-dried samples suggest that pit aspiration occurred in sapwood samples (the initial moisture content of which ranged from 200 to 300%) during air-drying and caused a significant decrease in permeability confirming the pit aspiration mechanism proposed by Hart and Thomas (1967). In the heartwood, encrustation of pit membranes prevented aspiration during air-drying. |
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| **Author(s):** | Rupert Wimmer; Barry N. Lucas |
| **Title:** | **Comparing Mechanical Properties of Secondary Wall and Cell Corner Middle Lamella in Spruce Wood** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 77-88 |
| **Keywords:** | middle lamella; hardness; mechanical property; Picea; Spruce; Young's modulus |
| **Abstract:** | Mechanical characterizations of the S2 layers and the cell corner middle lamella in the axial direction were investigated in spruce wood, A mechanical properties microprobe capable of measuring hardness and Young's modulus on a spatially resolved basis similar to that of an electron beam microprobe was used. Hardness of the cell comer middle lamella was found to be almost as high as that of the secondary wall, but the Young's modulus of the cell corner middle lamella was 50% less than that of the S2' The S2 showed constant hardness over its range of Young's modulus, but the cell corner middle lamella exhibited a strong correlation (R2 = 0.55) between hardness and the Young's modulus. Further investigations are needed to directly combine chemical and micromechanical properties and also to investigate the mechanical effects of the high variability of cell corner middle lamella chemistry. |
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| **Author(s):** | J. van der Burgh |
| **Title:** | **Tertiäre Hölzer aus dem Chindwinn-Bassin in nordwestlichen Myanmar (Birma). Helmut P. J. Gottwald, Documenta Naturae 86: 1-90, 28 text-fig., 9 plates, 1994. München.** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 89-89 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001464](http://dx.doi.org/10.1163/22941932-90001464) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Bibliografia sobre extructura de Maderas Argentinas (Bibliography of the Wood Anatomy of Argentine species). F.A. Roig Jufient, 48 pp., illus., 1996. Boletin de Extension Cientifica IADIZA No.2. ISSN 0328-4689. Available from the author, Laboratorio de Dendrocronologia, IANIGLA-CRICYT, A. Ruiz Real, Parque Gral. San Martin, C. C. 330 (5500) Mendoza, Argentina. Price: US$ 10.00 (paperback).** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 89-90 |
| **Keywords:** |  |
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| **DOI:** | [10.1163/22941932-90001465](http://dx.doi.org/10.1163/22941932-90001465) |

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| **Author(s):** | Tomo Fujii |
| **Title:** | **[Structure of Korean Woods - Korean Timber Atlas.] Lee Pil-Woo, 321 pp., including 314 plates, 1994. Jeong Min Sa, Seoul, Korea. Available from Prof. Lee PilWoo, Department of Wood Science and Technology, College of Agriculture and Life Science, Seoul National University, Suwon, 441-744 Korea. Price: US$ 70.00 (hardback).** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 90-90 |
| **Keywords:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 91-99 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Additions to e-mail directory** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 99-99 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001468](http://dx.doi.org/10.1163/22941932-90001468) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
| **Pages:** | 100-101 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Journal, Volume 18, Issue 1 |
| **Publication Year:** | 1997 |
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