**IAWA Bulletin New Series - Volume 10(4)**

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Preliminary Material** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | I-III |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Elisabeth A. Wheeler |
| **Title:** | **Obituary** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 363-363 |
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| **Abstract:** |  |
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| **Author(s):** | Regis B. Miller; Eric Cahow |
| **Title:** | **Wood Identification of Commercially Important North American Species of Birch (Betula)** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 364-373 |
| **Keywords:** | Betulaceae; Betula; birch; Wood anatomy; wood identification |
| **Abstract:** | The wood anatomy was studied of the four commercially important North American species of birch: Betula alleghaniensis, B. lenta, B. nigra, and B. papyrijera. Although the wood from these species is fairly homogeneous, it appears that B. papyrijera can be separated from B. nigra; B. alleghaniensis and B. lenta, though indistinguishable from each other, can be separated from both B. papyrijera and B. nigra. The diagnostic features are as follows: ray width, ray and ray cell shape as viewed on the tangential longitudinal section, average number of bars per perforation plate, and contents of axial parenchyma cells. In addition to these species, two commercially important European species (B. pendula and B. pubescens) and two additional North American tree species (B. occidentalis and B. populijolia) were studied. A dichotomous key to all eight species is presented. |
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| **Author(s):** | R. Vijendra Rao; Babulal Sharma; R. Dayal |
| **Title:** | **Anatomy of Aerial RootWood of Sonneratia Caseolaris (L.) Engler (Sonneratioideae)** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 374-378 |
| **Keywords:** | druses; multiperforation plates; Sonneratia; rootwood anatomy |
| **Abstract:** | The anatomy of the aerial rootwood of Sonneratia caseolaris (L.) Engler showed distinct growth rings demarcated by fibres, vessels occurring in very high frequency, with simple and multiperforate plates containing druses and stellate crystals, different types of intervessel pits with vestures, absence of axial parenchyma, presence of very fine homogeneous rays, septate fibres and intercellular spaces between fibres. A comparison of aerial rootwood and stemwood revealed many quantitative differences between these two parts of the plant body. |
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| **Author(s):** | Paula Rudall |
| **Title:** | **Laticifers in Vascular Cambium and Wood of Croton Spp. (Euphorbiaceae)** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 379-383 |
| **Keywords:** | cambium; Croton; Laticifers |
| **Abstract:** | Laticifers are recorded both penetrating from primary tissues into the vascular cambium and secondary xylem, and traversing the secondary xylem in young stems of various Croton spp. These observations are unique for Euphorbiaceae, and highly unusual in other families. They indicate that laticifers in some instances enter the secondary xylem from the cortex, and in others become enveloped in secondary xylem following secondary meristematic activity by the vascular cambium. |
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| **Author(s):** | Katsuji Yamanaka |
| **Title:** | **Formation of Traumatic Phloem Resin Canals in Chamaecyparis Obtusa** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 384-394 |
| **Keywords:** | Traumatic resin canals; Chamaecyparis obtusa; phloem |
| **Abstract:** | Anatomical changes in traumatic phloem resin canal formation induced in Chamaecyparis obtusa S. ' Z. were examined periodically after mechanical wounding. Five to seven days after wounding, the parenchyma cells close or closest to the cambium at the time of injury expand radially, and then between the seventh to the ninth day, the expanding parenchyma cells developed into tangential rows. Some of the cells simultaneously divided periclinally within nine to fifteen days after being wounded. Moreover, derivatives schizogenously separated from each other and continued to divide. The spaces were enlarged by tangential and radial division of parenchyma cells. The axial and ray parenchyma cells divided mainly periclinally and also anticlinally to form canals, and eventually, circular or elliptic resin canals c. 100 to 200 µm in diameter in regular tangential rows, separated by ray cells. Traumatic phloem resin canals form a tangentially anastomosing network. |
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| **Author(s):** | Jörg J. Sauter; Barbara van Cleve |
| **Title:** | **Micromorphometric Determination of Organelles and of Storage Material in Wood Ray Cells - A Useful Method for Detecting Differentiation Within a Tissue** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 395-403 |
| **Keywords:** | Populus × canadensis Moench 'robusta'; ray cells; tissue differentiation; starch; sugars; wood; fat; micromorphometry; ultrastructure; protein storage |
| **Abstract:** | The size and distribution of individual cell organelles (plastids, mitochondria, oleosomes, protein bodies) and of the three main storage compounds (starch, fat, protein) have been studied micromorphometrically at the electron microscopical level in ray cells of poplar wood during early winter. The three cell types of the rays (contact cells, isolation cells, cells of the contact cell rows) show remarkable differences in size and distribution of organelles and of storage material which manifest an existing physiological specialisation of these cells. The micromorphometric data on storage compounds are compared with the biochemically determined amounts of starch, proteins, fat-bound glycerol, and of various sugars in the wood. At the stage investigated, a prominent protein storage, an extensive starch-sugar transition, but no indications for a starch-fat transition are found. Micromorphometry proved to be a useful tool for the detection of cell-specific differences within a tissue. |
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| **Author(s):** | Pieter Baas |
| **Title:** | **Funktionelle Morphologie und Anatomie der Pflanzen. B. Kaussmann and U. Schiewer, 465 pp., illus., 1989. Gustav Fischer Verlag, Stuttgart, New York. Price: M 56.00 (hardback; FRG currency). VEB Gustav Fischer Verlag, Jena. Price: M 38.00 (paper) or M 45.00 (hardback; GDR currency).** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 404-404 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001130](http://dx.doi.org/10.1163/22941932-90001130) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **Concise encyclopedia of wood ' woodbased materials. A.P. Schniewind, xx + 354 pp., illus., 1989. Pergamon Press, Oxford. Price: US$ 125.00 (hardback).** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 404-404 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001131](http://dx.doi.org/10.1163/22941932-90001131) |

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| **Author(s):** | Adya P. Singh |
| **Title:** | **Certain Aspects of Bacterial Degradation of Pinus Radiata Wood** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 405-415 |
| **Keywords:** | tunnelling bacteria; erosion type of degradation; tunnelling type of degradation; Pinus radiata; erosion bacteria |
| **Abstract:** | Bacterial degradation of tracheid walls of Pinus radiata wood was examined by transmission electron microscopy. The wall degradation appeared to be of two different forms, one where bacteria were present within tracheid walls forming tunnels as they moved - tunnelling type of degradation, and the other where bacteria degraded the wall from the lumen outwards - erosion type of degradation. The residual material arising from bacterial erosion of the tracheid wall spread to various extents into the lumen and contained mixed bacterial populations of varied forms. Microscopic details of these two degradation forms which involved adjoining wall areas of the same tracheid are described. |
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| **Author(s):** | Pieter Baas |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 416-416 |
| **Keywords:** |  |
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| **DOI:** | [10.1163/22941932-90001133](http://dx.doi.org/10.1163/22941932-90001133) |

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| **Author(s):** | L.G. Vysotskaya; E.A. Vaganov |
| **Title:** | **Components of the Variability of Radial Cell Size in Tree Rings of Conifers** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 417-426 |
| **Keywords:** | climate; latewood; tree rings; tracheid diameter; moisture; Softwoods; earlywood; cyclic variation; radial cell size variation |
| **Abstract:** | Radial cell size of conifers of three speeies: Pinus sylvestris, Larix sibirica, and Larix gmelinii from natural stands in the south of the Krasnoyarsk region (USSR) have been measured with a semi-automated device. The main factors responsible for cell size variation have been determined. These are: age, growth rate, soil moisture, climatic changes and endogenous rhythm of cell growth. Age greatly affects the radial cell size in trees up to 30 years old. Growth rate only affects radial tracheid diameter in narrow rings of 0 to 0.5 mm. The main components of variation: soil moisture, climatic factors and a cyclic component have been estimated for pines from three different conditions of moisture: moist, moderately moist and dry. It was shown, that under optimal growth conditions the contribution of the endogenous component was more or less equal to that of the climatic component. |
| **DOI:** | [10.1163/22941932-90001134](http://dx.doi.org/10.1163/22941932-90001134) |

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| **Author(s):** | Hans Visser; Frank Noppert; Han van Wakeren; Jens Vaessen |
| **Title:** | **Xylem Sap Velocity in Relation to Weather and Air Pollution** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 427-439 |
| **Keywords:** | xylem sap velocity; heat-pulse technique; Vapour pressure deficit; Structural models; Air pollution; Kalman filter |
| **Abstract:** | Measurements of xylem sap velocities have been used to assess the influence of atmospheric conditions and air pollutants on the transpiration of full-grown trees. For a period of four months sap velocities of oak, beech and Douglas fir were measured on an hourly basis using the heat-pulse technique. Simultaneously, concentrations of S02, NO, N02 and 03 were measured along with air temperature, light intensity, air humidity, precipitation, wind speed and wind direction. To analyse these time series, a technique is introduced which can handle time-dependent relations: the stochastic response model. This statistical model is a submodel of the class of structural models and is estimated by means of the Kalman filter. The influence of weather conditions on heat-pulse velocities (HPV) is prevailing: 80% of the variance is explained by the single variable vapour pressure deficit. No influence of gaseous pollutants on HPV could be assessed. Possible explanations are discussed. |
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| **Author(s):** | Pieter Baas |
| **Title:** | **Wood variation - its causes and controL B. J. Zobel and J.P. van Buijtenen, xv + 363 pp., illus., 1989. Springer Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo. Price: DM 278.00 (hardback).** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 439-440 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Pieter Baas |
| **Title:** | **Modern methods of plant analysis n. s. vol. 10: Plant fibers. H. F. Linskens and J.F. Jackson (eds.), xxiii + 377 pp., illus., 1989. Springer Verlag, Berlin, Heidelberg, New York, London, Paris, Tokyo. Price: DM 278.00 (hardback).** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 440-441 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001137](http://dx.doi.org/10.1163/22941932-90001137) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **A provisional list of wood samples in the collections of Liverpool Museum. John Edmondson, Angus Gunn and John Malpas, iv + 81 pp., 1989. National Museums ' Galleries on Merseyside Occasional Papers, Liverpool Museum, No. 4. Price: UK£ 6.95 (paperback).** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 441-441 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001138](http://dx.doi.org/10.1163/22941932-90001138) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **Genetic effects of air pollutants in forest tree populations. F. Scholz, H.-R. Gregorius and D. Rudin (eds.), viii + 201 pp., illus., 1989. Springer Verlag, Berlin, Heidelberg. Price: DM 75.00 (hard cover).** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 441-441 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001139](http://dx.doi.org/10.1163/22941932-90001139) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 442-445 |
| **Keywords:** |  |
| **Abstract:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 4 |
| **Publication Year:** | 1989 |
| **Pages:** | 445-446 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90001141](http://dx.doi.org/10.1163/22941932-90001141) |