REVIEWS

P.R. CRANE & S. BLACKMORE (Eds.): Evolution, systematics, and fossil history of the Hamamelidae. Systematics Association Special Volumes 40A, 40B. Clarendon Press, Oxford, 1989. Hardcover. – Volume 1: Introduction and 'Lower' Hamamelidae. VI + 305 pp., illus. Price £ 50.00. ISBN 0-19-857711-7. – Volume 2: 'Higher' Hamamelidae. VIII + 356 pp., illus. Price £ 45.00. ISBN 0-19-857726-5.

The Hamameli(i)dae comprise, according to the new classification by Thorne, about one quarter of the genera to one third of the families of the Dicotyledonae. The symposium held at the University of Reading, U.K, 22–25 March 1988, highlighted some of the many questions concerning phylogeny and evolution in this group as a contribution to the insight in the main lines of dicotyledonous evolution.

The symposium report contains a wealth of information on a wide variety of topics. The phylogenetic position of the Hamamelidae in a wider or narrower sense, or parts thereof, is subject of a number of papers. F. EHRENDORFER reviews the existing diverging interpretations and concludes that the Hamamelidae can be regarded as ancient and partly relictual survivors from a broad transitional field between ancestors of Magnoliidae and Rosidae/Dilleniidae. R.F. THORNE maintains his interpretation of the Hamamelidae as a polyphyletic assemblage, but now submerges the Hamamelidanae into the Rosanae. W.C. DICKISON gives an interpretation concluding that the main rosid-hamamelid radiations probably descended from common ancestral stock characterised by largely unspecialised, insect-pollinated, bisexual flowers with petals.

M.J. DONOGUE and J.A. DOYLE explored the basal radiation of the angiosperms and the phylogenetic position of the Hamamelidae therein by conducting a cladistic analysis of monosulcate taxa together with six tricolpate groups, and outlined the implications of their results for further studies. L.D. HUFFORD and P.R. CRANE made a cladistic analysis of the 'lower' Hamamelidae. Their results suggest among other things that the Hamamelidaceae consist of two subclades, one with Exbucklandoideae, Rhodoleioideae, and Altingioideae, the other with Disanthoideae and Hamamelidoideae. P.K. ENDRESS probed deeper into the phylogenetic interpretation of the tribe Hamamelioideae and made several amendments. The Rhodoleioideae are the subject of a study by A.L. BOGLE, who concluded to their close relationship to the Liquidambaroideae and thus to their inclusion in the Hamamelidaceae. The conclusions of Hufford and Crane and of Bogle are not conform to that of J.A. WOLFE, who does not find support for a placement of *Rhodoleia* in or near the Hamamelidaceae.

Special character groups are studied by J.A. WOLFE (leaf-architecture), H.-D. BEHNKE (sieve-element plastids), and W. MORAWETZ and R. SAMUEL (karyological patterns). D.K. FERGUSON inventoried morphology and anatomy of plant parts of Liquidambaroideae encountered in the fossil record and compared these with fossils ascribed to this subfamily. E.M. FRIIS and P.R. CRANE review the reproductive structures of Cretaceous Hamamelidae, thereby discussing the relations with the Normapollis complex, which is also the subject of papers by M. KEDVES and by D.J. BATTEN; the latter poses that the morphological variation must be regarded as being mainly at the species level.

The Fagaceae are the subject of papers by K.C. NIXON (origins), W.L. CREPET (fossil record), and R.B. KAUL (*Lithocarpus*). Whereas Wolfe includes *Nothofagus* in the Fagaceae, the familial status of *Nothofagus* and its close relationship with the Betulaceae are advocated by Nixon.

C.C. BERG reviews the characters and systematics of the large order Urticales of which the fossil history is covered by papers of S.R. MANCHESTER (Ulmaceae) and M.E. COLLISON (other Urticales).

Smaller or larger reviews or treatments covering varying aspects are presented for the families Betulaceae, Buxaceae, Casuarinaceae, Daphniphyllaceae, Didymelaceae, Juglandaceae, Leitneriaceae, Moraceae, Myricaceae, Myrothamnaceae, Ulmaceae, and Urticaceae, many of these providing interesting information.

The two volumes are well-prepared. The editors have found a lay-out that ensures easy consultation of such a wide variety of papers. Moreover, the editors are to be congratulated with their success in persuading this large number of authors to hand in their papers in such a short time. The title is quite clear, but citation will be cumbersome. Each volume has its own index. The price is neither low nor prohibitive.

W. VINK

R.A. DAVIES & K.M. LLOYD (Coms.): Kew Index for 1989. Names of Seed-bearing Plants, Ferns, and Fern allies at the rank of Family and below published during 1989 with some omissions from earlier years. Clarendon Press, Oxford, 1990, 174 pp. Paperback. Price £ 22.50. ISBN 0-19-854283-6.

For a review of this valuable series may be referred to Blumea 33[1] (1988) 214, and 33[2] (1988) 328.

P.W. LEENHOUTS

L. FORMAN & D. BRIDSON (Eds.): The herbarium handbook. Royal Botanic Gardens Kew, 1989, iv + 214 pp., 52 figs. Price £ 12.00. ISBN 0-947643-20-6. Available from Royal Botanic Gardens Kew, Richmond, Surrey TW9 3AB, U.K.

This book is a refined compilation of lecture notes and pamphlets drawn up for two courses (International Diploma course in Herbarium Techniques) held at the Kew Herbarium in 1987 and 1988.

The editors have managed to produce a very exhaustive handbook on the technical aspects of herbarium work. It does not treat the research aspects of a herbarium and readers needing more information on these matters should consult Jeffrey (1982, An Introduction to Plant Taxonomy), or De Vogel (ed., 1987, Manual of Herbarium Taxonomy).

Although all tutors of the course are staff members of Kew and the contents of the book are based on procedures followed at the largest herbarium of the world, it is by no means a description of how they do it at Kew. Managers of smaller herbaria, including those in tropical countries, can glean a lot from alternatives mentioned.

The various aspects of herbarium work are described in 39 chapters; topics discussed are amongst others: specimen storage, treatment of pests, mounting, arrangement of collections, ancillary collections, duplicate distribution, dissection of floral organs, illustration, use of computers and, particularly interesting for field botanists, 8 chapters on collecting.

Illustrations, glossaries, an index and a literature list help to facilitate consultation of the book which will serve as a standard reference work for a long time to come. The execution is flawless and the jacket design (suggesting a plant press) is well chosen.

I would like to compliment the editors and the Royal Botanic Gardens for meeting a long-felt need. M.M.J. VAN BALGOOY

G. PANIGRAHI & S.K. MURTI: Flora of Bilaspur District (Madhya Pradesh). Volume 1 (Ranunculaceae to Convolvulaceae). Flora of India (series 3). Botanical Survey of India, 1989, 396 pp. Price unknown.

As is usual in the Indian regional floras the flora proper is preceded by fairly extensive chapters on topography, geology, soil, climate, and vegetation. Furthermore, special attention has been paid to medicinal plants. These introductory chapters are the most interesting part of the book.

The Bilaspur District, about 20,000 sq. km, takes a fairly central position in the northern part of the Deccan Peninsula at about 22° NL; it is flat to hilly, lies between 200 and 1200 m above sea level, and has a tropical monsoon climate. Actually, the flora is poor and uninteresting. It counts only 852 species of Phanerogams; the largest family is the Grasses; only four genera count 10 or more species (two of these are Cyperaceae, one is a Grass, the fourth one is *Ficus*); there is only one dominant forest tree, viz. *Shorea robusta* (the only Dipterocarp); the Orchids count 15 species only, six of which are the only epiphytic Seedplants.

Identification of some genera with the key to the families mostly got stuck. Both genera of the Burseraceae got into trouble at I 42, stamens alternate with the petals versus opposite to the petals; as both *Boswellia* and *Garuga* have five petals and ten stamens the latter are as well opposite as alternate. Why are the leaves of Burseraceae said to be compound or unifoliate (I 43a)? Both genera have pinnate leaves. The Sapindaceae key out under Group I (flowers with petals) only though two out of the three genera (*Dodonaea, Schleichera*) lack petals. *Cardiospermum,* with petals, rightly goes to Group I but goes the wrong way under 34 where Sapindaceae should have more than twice as many stamens as sepals or petals: it has twice the number only. The fruit of *Mitreola* is rightly described as a capsule (p. 367), mentioned as a berry in the key (II 13b), however. The second species of *Leea* (p. 168/169) is called *crispa* in the key, *asiatica* in the text.

It is a pity that the quality of the paper, of the printing, and of the vegetation photographs is rather poor. P.W. LEENHOUTS

B.S. PARRIS: Noteworthy species of Grammitidaceae from South-east Asia. In: Hooker's Icones Plantarum Vol. XL, pt. IV, 1990, iv + 129 pp.

A rather haphazard collection of 31 species from 5 genera, in no particular order or arrangement. There are 3 new species, 2 new combinations and 3 new synonyms. Treatments include synonymy, descriptions, notes etc. All species are very clearly illustrated, with habit and details. Indispensable but not easily accessible.

P. HOVENKAMP

T.D. STANLEY & E.M. ROSS: Flora of south-eastern Queensland. Volume III. Queensland Department of Primary Industries Miscellaneous Publication QM 88001, Brisbane, 1989, 532 pp., 64 plates. Bound. Price unknown. ISBN 0-7242-2523-4; ISSN 0728-0688.

With the present volume this flora of the south-eastern part of Queensland – the Burnett, Wide Bay, Darling Downs, and Moreton Districts – has been completed. This volume includes the Monocotyledons and the Gymnosperms. Like the first two volumes this one makes a good impression. The illustration is a bit unequal: some families are profusely illustrated, others, especially among the smaller monocotyledonous families, not at all. Also the quality of the illustrations is rather uneven, varying from the bold, clear drawings of the Juncaceae via the as a whole useful figures of the Cyperaceae and the Grasses to the coarse and often difficult to interpret drawings of the Orchids. P.W. LEENHOUTS & J.J. VERMEULEN

P. TAYLOR: The genus Utricularia – a taxonomic monograph. Kew Bulletin additional series XIV. 1989, xi + 724 pp., illus. (For overseas customers) HMSO Books (P9D), St Crispin's, Duke St, Norwich NR3 1PD, U.K., Paperback. Price £ 40.00. ISBN 0-11-250046-3.

This volume deals completely with the, generally tiny, bladderworts, *Utricularia,* the impressive genus, not only by its number (214 species), but also by its distribution all over the world (deserts excepted), and fascinating by its incredible (variation in) morphology and ecology. Most remarkable are the traps, present and functional in all species: overall rather similar in appearance but variable and distinctive in position and morphological details. The small prey is caught following irritation of sensitive hairs on the lid of the sac-shaped water-filled traps, sucked in and digested with the help of enzymes exuded by internal papillose glands, the latter equally variable in shape (see the illustrations).

The first 56 pages describe all wonderful aspects of the genus: vegetative morphology, the reproductive structures (ample SEM photographs showing variation in seed sculpture), reproduction and evolution, ecology, and distribution. Cleistogamy is a salient feature. There is a discussion on phylogeny in the introductory part, but no cladistics.

The genus *Utricularia* has two subgenera. Altogether there are 35 sections, comprising the total of 214 species. There are four regional keys to the species given, covering the whole globe. A general key to the subgenera and subsequently keys to the sections and the species is dispersed throughout the taxonomic treatment.

Utricularias generally are plants of damp (marshy) oligo- or mesotrophic habitats and may, according to the species, occupy a wide range of niches, including the small pools of water kept by epiphytic S American rain forest Bromelias. Not all are tiny: some aquatic species, with stolons, may be robust and reach one metre or more, forming dense floating vegetations (e.g. *U. vulgaris*). Terrestrial or epiphytic species vary from the tiny *U. steenisii* (on high mountains in N Sumatra) to the large oblong-leaved plants of S American *U. longifolia.* Some species are twining. There are local-endemic species, species with moderately large distributional areas, as well as very widespread ones. Centres of development are tropical America and Australia.

The present monograph is written in due Kew tradition and the result of dedicated study over more than 40 years, during which the author also did extensive fieldwork and saw many living species. More than 50,000 herbarium collections were studied (and identified in the various herbaria), but no enumeration of specimens seen is given here. Of course types and specimens of special interest are mentioned. New collections should be made in a special way: either preserved in liquid or dried quickly, with extra flowers added.

All species are amply illustrated with full-page line drawings with general habit and many details, especially of flower parts and traps. The species-numbers are also used for the figures, the plates, the keys, and the index, very useful when looking for information regarding a given species. There are no distribution maps.

Although rather expensive, the purchase of this convincing monograph by botanical libraries of any standing is warmly recommended by me.

W.J.J.O. DE WILDE

F. WEBERLING: Morphology of flowers and inflorescences. Cambridge University Press, 1989, xx + 405 pp., illus. Hardback. Price £ 55.00 or US$ 110.00. ISBN 0-521-251-346.

This book is the English edition of F. Weberling, Morphologie der Blüten und der Blütenstände, Ulmer, 1981, translated by R.J. Pankhurst (British Museum, London). The excellent translation follows the German text precisely, with a few minor additions added where this was unavoidable (p. 113). Strikingly, many long German sentences are better readable in English. Special mention deserves the addition of a profitable glossary, which was a coproduction with D. Müller-Doblies (Berlin). Moreover, the bibliography is extended with many recent publications, which have been marked with an asterisk. These new results are mostly not considered in the text.

The translation of the German plant names into the English ones draws special attention. For instance, 'Schwarzkümmel' (*Nigella damascena*) becomes 'Love-in-a-mist'. However, would not that be the equivalent of 'Jungfer im Grünen'?

With this edition 150 years of mainly continental European research is opened to the English reading botanical world. The book can be viewed as a successor to and counterpart of A.J. Eames, Morphology of the Angiosperms, McGraw Hill, 1961. However, the second part of the book takes a separate position, as the outcome of the investigations on inflorescence morphology by W. Troll and his pupils, among whom the author.

I feel that an updated edition, directly in the English language, would be welcome in the near future. Herein more attention should be paid to comparative ontogenetic and systematic research. The present book is provided with a very smart hard cover. Is that possibly to seduce botanists to buy a private copy?

W.A. VAN HEEL