

REVIEWS

R. HEGNAUER, *Chemotaxonomie der Pflanzen*. Band 3, Dicotyledoneae. Von Acanthaceae bis Cyrillaceae — Birkhäuser Verlag, Basel und Stuttgart, December 1964. 743 pp. Clothbound, £ 11/-.

With astonishing diligence the thick third volume of this important work has been produced. Among the 79 families treated there are some large or very large ones, e.g. *Anacardiaceae*, *Apocynaceae*, *Asclepiadaceae*, *Compositae*, *Cruciferae*, and *Cucurbitaceae*. There is a general introduction for *Dicotyledones*, with a survey of phyletic affinities assumed by Takhtajan, Von Wettstein, and Hutchinson respectively, chemical characteristics of *Dicots*, alkaloid occurrence in *Dicot.* families, the occurrence of 'pseudoidinikanen' and allied compounds, occurrence of salicyl compounds. After the family treatments, which are executed as in vol. 2, there is a fairly large amount of addenda to these families, and a large index.

An analysis showed that of the 79 families treated the author says that 42 are distinctly insufficiently known phytochemically, and 17 are virtually unknown. As many of these two groups are very small, it would seem desirable that phytochemists decide to a joint effort to bring this up to date.

An important conclusion can be drawn, namely that the large degree of parallelism between phytochemical and taxonomic affinity adds considerably to the circumstantial evidence in favour of the thesis that our system reflects phylogenetic affinity, and is not merely a phenetic system of classification.

Another thing emerged by comparing the proportion of families in which phytochemistry agrees with Von Wettstein's system or that of Hutchinson or with both, as far as phytochemistry can give any clue at the present state of knowledge, the figures being 16 : 2 : 16. There seems hence a distinct disagreement with Hutchinson's revolutionary scheme of *Lignosae* and *Herbaceae*. It is for example completely unwarranted to assign *Gentianales* affinity to *Caryophyllales* (p. 163) or divorce *Cruciferae* and *Resedaceae* from *Capparidales* (p. 606); to assign *Polycarpicaceae* partly to *Herbaceae* partly to *Lignosae* as chemotaxonomically *Aristolochiaceae* are distinctly related to woody *Polycarpicaceae* and *Berberidaceae* close to *Ranunculaceae*; to split *Rosales* into woody and herbaceous and ditto *Umbelliflorae*. Furthermore, Hegnauer is not in agreement with Hutchinson's increase of orders, as the more comprehensive ones are chemotaxonomically fairly homogeneous, for example *Centrospermae*, *Contortae*, and *Tubiflorae*.

In only three cases the author comes to a conclusion which does not agree with any system. First *Anacardiaceae* which show chemical affinity with the *Hamamelidaceae* and which have more chemical similarity with *Gymnosperms* than any other angiospermous family. Second, *Corynocarpaceae* which, though insufficiently known, show some affinity to *Myrtales*. It must be remarked that one argument for this is an error, as *Hiptage* is not a *Melastomataceae*, but a *Malpighiaceae* (p. 571, line 9 from bottom). Third, *Cucurbitaceae* do not show chemotaxonomical affinity with *Synandreae*, but with *Capparidales*. *Cornaceae* show no chemical similarity to *Umbelliferae* or *Araliaceae*, but agree better with Takhtajan who derives this from *Cunoniales*. A fairly strange suggestion is that *Betulaceae* show chemically similarity to *Ericales*.

Family circumscriptions are taken in the conventional way; we have not found a case where the author on chemical grounds would be in favour to split and put segregates apart or remote. This might, however, sometimes be necessary. For example, if *Dorisia* and *Mastixiodendron*, here mentioned under *Cornaceae* (in Lemée's compilation), were phytochemically examined they must be found to be *Rubiaceae*. It was simply a taxonomical blunder that they were assigned to *Cornaceae*; they are congeneric and are rubiaceous. If ever *Cornaceae* are chemically treated, it would be well to keep data from separate genera apart, as to us the family does not seem 'homogeneous' and probably no 'Sippe'. The same holds for some southern hemisphere genera incorporated in *Caprifoliaceae* for lack of more suitable place.

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W. MEIJER & G. H. S. WOOD, *Dipterocarps of Sabah (North Borneo)*. Sabah Forest Records No. 5, Forest Department, Sandakan. 1964. 344 pp. 30 pl. 59 textfig., topogr. map c. 1/1½ mln.

The groundwork of this valuable book was carried out by G. H. S. Wood but then restricted to the commercially important species. It was considerably enlarged by Dr. Meijer to include all Sabah dipterocarps (now 150 spp.), entailing extensive field and herbarium research work. In the acknowledgements it is stated how many persons of the Sabah For. Dep. took part in assisting the drive after the dipterocarps. Part I covers concise notes on ecology and altitude; part II contains a list of commercially tested species, a key to the anatomy of the principal timbers and their uses and properties. Part III treats the minor forest products; part IV introduces the field characters and botanical characters followed by a field key to groups on anatomy, stem, and bark characters. Part V, occupying the species descriptions with figures (drawings

and photographs) is of course the largest part. This is arranged by genera, and within each genus is (if necessary) a key to the infrageneric groups or sections which are also directly found through the key in part IV; within each genus or group there is a key to the species by field characters, bole, bark, leaf-blades, and fruit characters. Each species is provided with one or more essential references, the standard vernacular name, and botanical characters of form, slash, leaves, stipules, and fruit.

A bibliography and index conclude this work which, though adapted to practical forestry work, can be viewed as another important precursor to a future monograph of the family. The photographs are beautiful, the drawings helpful. Nowhere is concealed the more or less provisional character, the fact that much remains to be discovered and collected. Many valuable notes and remarks are found scattered in the text.

The printing (performed at Hong Kong) is fairly good, but the make-up rather coarse, with for example foot notes not at the base of the page and not in small type. The thick paper makes the volume fairly heavy.

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