

XVI. REVIEWS
(continued from p. 1922)

Adams, C.D.: Flowering Plants of Jamaica. Univ. West Indies, Mona, Jamaica. 1972, 848 pp. 8°. Robert Mac Lehosé & Co. Ltd. 15, Faulis Street, Anniesland, Glasgow W3, England. £ 5.

A most welcome concise Flora containing 996 genera and 2888 spp. of native and fully naturalized plants. Another 350 common in cultivation are included but taken no further than a key-entry. There are descriptions of families but not of genera and a very restricted synonymy (index contains 6500 names). Within the families full keys to genera and to species. Each specific description (2-4 lines) is followed by good notes on habitat and citation of collections. The introductory chapters are brief but nevertheless they contain interesting data. Only 4 genera are endemic, but 784 spp. (27%) are all assumed neo-endemics. It is pleasing that the author takes a conservative view on generic and family circumscription. There is also an index to common names. There is no general key to Jamaican plants and one must know the family name to identify genus and species. The work crowns the endeavour of 13 years hard work, with assistance of various kind, above all by Dr. G.R. Proctor and R.W. Read. Our warm congratulations with this most useful, obviously critical and up-to-date work, offered to the public at a ridiculously modest price from the view of modern standards. --v.St.

Ayensu, E.S.: Anatomy of the Monocotyledons VI. Dioscoreales. Ed. C.R. Metcalfe. Oxford, Clarendon Press. 1972, xii + 182 pp., 35 fig., 16 pl. 8°.

This new volume on the anatomy of Dioscoreales provides data for the families Dioscoreaceae, Stenomeridaceae, Trichopodaceae and Stemonaceae (= Roxburghiaceae). As usual in this series, there is an introductory section containing a taxonomic review and general considerations on the structure of leaf, stem, bulbil, tuber, rhizome and root. Trichomes, cell inclusions and conducting elements are treated separately. Some data on seed germination and developmental anatomy, which for practical reasons have been mostly neglected in other volumes of this series, form welcome additions to this section. About half of the book is devoted to anatomical descriptions of 81 species, belonging to 9 genera. The bulk is devoted to Dioscorea, of which 68 species are dealt with. All the descriptions are based on personal observations and constitute, together with the well executed illustrations an immense extension of our knowledge of the vegetative anatomy of the order.

Some minor criticisms may be mentioned in passing. It is

a pity that the very complex course of vascular bundles at the nodes has not been illustrated in a three-dimensional diagram. The written account on p. 48 is hardly to be understood. On pp. 60 & 61 one would have expected more results from original observations on macerated vascular elements. However, no quantitative characters are given. I would never describe the perforation plate as illustrated in Plate IVa as reticulate; it is scalariform with a few forked bars, as are often encountered in this type of primitive vessel element.

For taxonomists pp. 67-78 will be of most interest, because it is here that far reaching taxonomic suggestions are given, based on anatomical evidence. The main ones are: *Stenomeris* should remain in *Dioscoreaceae*. *Avetra* also belongs to *Dioscoreaceae*, but *Trichopus* merits family rank. The three genera of *Stemonaceae* are quite distinct from each other and only *Stemona* shows some faint resemblance to *Dioscoreaceae*. The genus *Dioscorea* in which many sections have been recognized previously, can be divided into two groups of sections, based on the number of phloem units in the cauline vascular bundles. A number of sections should be lumped and three subsections should be raised to sectional rank.

I wonder whether, in the case of *Dioscorea*, Dr. Ayensu has really contributed to a more natural classification within the genus. In not less than four sections, the character of number of phloem units per cauline bundle is inconsistent (p. 94, 98, 104 & 136), yet this character is used to divide the genus into two major groups. A combination of more characters should be used in such subdivisions. One must also bear in mind that 68 species of a genus containing at least 200 species cannot offer the complete picture.

The publication of this 6th volume in the series *Anatomy of the Monocotyledons* is a happy event. It is to be hoped that the present high frequency of appearance of new volumes can be maintained. Scanning the volumes that appeared since 1960 one phenomenon cannot escape attention: the great variation in the degree of comprehensiveness with which genera are treated. Volume I on *Gramineae* with its 731 pp. covers 206 genera, allowing for 3.5 pp. per genus. For volume II, III, IV & V this 'genus index' is 3.4, 3.2, 10.5 and 6.4 respectively. Volume VI stands out with 20 pp. for each genus. Though many factors influence such a rough calculation, these figures are a fair measure of the comprehensiveness with which the different species of genera are dealt with. Dr. Ayensu is to be congratulated for setting a record with this, for anatomical standards, very comprehensive volume. It would be unfair to the authors of the other volumes if I did not add, that the readily available data on smaller

samples from far more genera they offered are equally valuable. Unfortunately one can never have it both ways.--
P.Baas.

Balgooy, M.M.J. van: Plant-geography of the Pacific Islands as based on the distribution of Phanerogam genera. Blumea Supplement 6. 1971, 222 pp., 45 fig. (18 maps). Dfl. 45. To be ordered to the Librarian, Rijksherbarium, Schelpenkade 6, Leyden, Netherlands.

This is the first comprehensive treatment of the subject, but its importance goes far beyond a treatment of Pacific plants only, as the author has treated in full the problems connected with Island Floras. A historical survey is given on the various demarcation lines proposed in the past; a new one is added, viz Engler's line to delimit the palaeotropical flora in the Pacific and the spectra which can be composed of them. Ample discussions are given on methodologies of floristic plant geography, as distribution types, floristic demarcations, statistical comparison of islands of different and same size all over the world, and the evaluation of such data. A new hierarchical subdivision of the floristics of the Pacific flora is proposed. Also an attempt is made to correlate dispersal methods and distribution. This is followed by a discussion on geographical implications. Finally a chapter is devoted to a comparison of subdivisions of the Pacific based on other groups of organisms. This important work is concluded by a complete critical list (arranged by families) of the native genera of flowering plants occurring in the Pacific and their precise distribution over the islands, the first of its kind ever to appear.--v.St.

Blunt, W.: The Compleat Botanist. A life of Linnaeus. Collins, St. James Place, London. 1971, 256 pp., very numerous illustrations, 32 pl. in colour. £ 3.50.

A magnificent full biography of the Prince of Botanists with fascinating very full illustrations. Equally fascinating is the great amount of detail information, by citations etc., which replace the reader in Linnaeus's time, his relations with contemporaries, his idiosyncrazies, the development of his unparalleled achievements, etc. A book emphatically recommended to any layman and scientist who is interested in the history of science and the development of the natural sciences. With a beautiful lay-out it is to be had at an extremely modest price. Though it has little to do with Flora Malesiana, I felt induced to usher my admiration for it.--v.St.

Corner, E.J.H.: The Classification of Moraceae. Gard.Bull. Sing. 19, 1962, 187-252, fig. 1-12.

A most important critical contribution to the systematy of the family in which the relation to Urticaceae is amply discussed. Moraceae are chiefly laticiferous and possess an apical or subapical anatropous or campylotropous ovule, while Urticaceae are non-laticiferous and have a basal orthotropous ovule.

This distinction causes the removal of Conocephaloideae from Moraceae to Urticaceae (amongst them Cecropia, Musanga, Poikilospermum etc.) which is supported by the shape of their stigma, the small seed and small embryo. Fatoua belongs according to these criteria to Moraceae.

Corner views Urticaceae as derivative of Proto-Moraceae, and Conocephaloideae have still traces of this ancient stock. Actually there is no difficulty in separating the families Moraceae and Urticaceae but trouble arises in derived and simplified genera, as Morus, Streblus and Dorstenia, which are convergent with Urticaceous derivatives.

Corner re-examined the systematical value of the various organs in Moraceae, to find criteria for tribal subdivision: inflorescence, seed and embryo, the perianth, the plicate leaf, pistillode, ovary and fruit. With his large experience in Ficus, he finds also here in various places parallel evolution. He could give a key to classification of embryo types.

A theoretical appendage to this concise mass of information is provided starting from a Proto-Moraceous archetype.

The taxonomical result of the study is a subdivision of Moraceae into 6 tribes, viz:

1. Moreae - in Malesia with: Fatoua, Morus, Streblus and Trophis. In this many genera are reduced to sectional rank notably Bleekrodea Bl., Paratrophis Bl. (syn. Pseudomorus), Taxotrophis Bl., Sloetia T. & B., Phyllochlamys Bur., Pseudostreblus Bur., Pseudotrophis Warb. A key is given, and diagnosis provided. There are various reductions, few new spp., and several new comb. In each section there are keys to at least Malesian species.
2. Artocarpeae - In Malesia with: Artocarpus, Prainea, Parartocarpus, Broussonetia (to which Allaeanthus is here reduced), Treculia (African), Plecospermum (Indian), Malaisia (1 sp.), Maclura and Cudrania.
3. Olmedieae - to which Antiaris and Antiaropsis belong.
4. Brosimeae (non Malesian), 5. Dorstenieae (ditto), and 6. Ficeae.

I offer my apology to Professor Corner and our readers that this most important paper has in a mysterious way escaped the columns of this Bulletin.--v.St.

Gilliland, H.B., with contributions by R.E. Holttum, N.L. Bor, edited by H.M. Burkill: A revised Flora of Malaya. Vol. III. Grasses of Malaya. Government Printer, P.O. Box 485, Singapore. 1971, vi + 319 pp., 67 fig., 36 pl. Singapore-\$ 30.--, excl. postage.

This long expected third volume of the Revised Flora of Malaya deals with the economically and ecologically very important family of the grasses. Ridley's treatment of 1925 is much outdated and not very satisfactory so that there was a distinct need for this treatment. The names of the late author and his successors stand for the quality of the well-illustrated work, in which easy keys lead to extensive descriptions of the 270 odd taxa (c. 40% of the Malesian grasses). The nomenclature is according to the latest information, while references are made to the names used in Ridley's treatments of 1907 (Materials) and 1925 (Flora) and Burkill's first edition of the Dictionary (1935). The inclusion of the difficult, badly known and much neglected bamboos is of great value.

The suggestion in the Introduction (p. 9) that new species may still be discovered for Malaya is proved by the book itself. Although no taxa new to science are described, four are new for Malesia and a dozen or so are new for Malaya. New for Malesia are Coelachne simpliuscula, Eragrostis pubescens (which occurs in Australia also and 'jumps' over Malesia), Granotia patula (but where are G. pahangensis and G. erecta Santos?), and Miscanthus nepalensis. New for Malaya are a.o. Capillipedium parviflorum, Echinochloa stagnina, Eragrostis multicaulis, Hemarthria compressa, Panicum hayatae (incl. P. costatispiculum), Paspalum cartilagineum and P. dilatatum, Pennisetum clandestinum, Pseudoraphis spinescens, Sacciolepis interrupta, Setaria geniculata and Sporobolus virginicus (but what is S. indicus sensu Ridley?). Apparently very few species have been overlooked, excepting those noted above mention may be made of Cenchrus echinatus from Singapore (SF 38881), which genus should have been included, as it was to be expected that it would be introduced sooner or later.

Another remark on p. 9, that 'a majority of Malayan species are found in India' is of course true, but holds as well for the rest of Malesia. The interest of the authors is a distinct Indian one and a check of the Leyden files or a scanning of the Gramineae as treated in the Flora of Java would have shown, that species as Thysanolaena maxima, Phragmites karka, Eragrostis multicaulis not only occur in Malesia, but are quite common; Miscanthus floridulus is also found outside the Philippines, etc.

Some other remarks may be made. There is an unfortunate misprint in the key to the sections of 'Group II' (p. 44),

where the first entree of 'o' repeats that of 'n', while it should probably read something as 'Spikelets in open racemes or in panicles'. On p. 85 the distinction between Eustachys and Chloris might better have been based on the absence and presence of an awned lemma, respectively, than on its colour.

The colour-prints add positively to the first impression, line-drawings would have been at least as informative, making the book even less expensive. The measurements on these plates should have been converted to the metric scale, in accordance with the text. The coloured plate 17 refers to Digitaria longiflora and not D. pertenuis (which is D. violascens) as is shown by the absence of pubescence and the colour of the anthers and fertile floret.

It is a very useful book and recommended for fun and profit to students and laymen alike.--J.F.Veldkamp.

Hara, H. (comp.): Flora of Eastern Himalaya. Second Report. The University Museum, University of Tokyo, Yurinsha Ltd. (special agent for Univ. Tokyo Press), Hongo, P.O.Box 63, Tokyo 113-91, Japan. 1971, 400 pp., 16 pl., 8 col.pl., 60 fig. 8°. \$ 32.

This magnificent volume comprises the results of the 3rd Botanical Expedition to the Eastern Himalaya (Bhutan, Nepal) in 1967 and the 4th one (Nepal, Sikkim) in 1969 organized by the University of Tokyo, with supplementary remarks on the earlier volume (1966). The work is compiled by contributions from various Japanese botanists. It consists of the following sections: The itinerary is followed by a systematic enumeration of the plants collected; this is decidedly critical, several new species are described and some new names and synonymies are proposed. The list contains phanerogams, pteridophytes, hepatics and mosses. This is followed by some monographic papers, Desmodium subg. Dollineria by H. Ohashi, and a revision of the eastern Himalayan species of that remarkable genus Arisaema, both revisions being provided with keys. Finally S. Kurosawa has added a chapter on chromosome studies of some eastern Himalayan plants and their related species.--v.St.

Harborne, J.B. (ed.): Phytochemical Ecology. Proceedings of the Phytochemical Society Symposium, Royal Holloway College, Englefield, Surrey, April 1971. Academic Press Ltd. London, 24-28 Oval Road, London NW1 7DX. 1972, xiv + 272 pp. £ 5.

This is no. 8 of the Annual Proceedings of the Phytochemical Society. The main theme of this volume is not so much the structure, biosynthesis, and natural distribution of the so-called secondary metabolites of the plant kingdom (alkaloids, cyanogenic glucosides, flavonoids, terpenoids), but their function, their *raison d'être* as suggested by G.S.

Fraenkel in a now famous article in *Science* of 1959. They are not simply waste products of plant metabolism, but may or seem to possess ecological importance in the life of plants, especially with regard to sometimes complex interactions between plants and animals, as demonstrated for the *Asclepias cardiac* glucosides and the monarch butterfly and the blue jay, the subject of the first chapter. The relationship between insect feeding habits and presence of repellents or attractants in plants is discussed in chapter 2-3: chemical aspects of plant attack by leaf cutting ants and similar attack by aphids on crucifers and other plants. In chapter 4 Bate-Smith enters upon the field of higher animals and their food plants: tannins as food repellents, e.g. in mountain gorilla in the Congo. Rohan touches in chapter 5 on the chemistry of flavour in food of man; Arnold & Hill in chapter 6 on chemical factors in selection of food by ruminants, and finally there are several chapters on toxic substances which protect plants. A most interesting field of research worthy of thoughts on evolution.--v.St.

Heywood.V.H. (ed.): The biology and chemistry of the Umbelliferae. Published for the Linnean Society of London by the Academic Press Inc. (London) Ltd. Dec. 1971, 438 pp., many fig., graphs, fotogr. £ 8.50.

This Suppl. 1 to the Botanical Journal of the Linnean Society contains 26 contributions presented at an international symposium at the University of Reading, held 21-24 Sept. 1970, under the auspices of the Linnean and Phytochemical Societies. The papers cover the classification and relationships, floral biology, pollen morphology, anatomy, stomata, inflorescences and chromosomes. Another group contains data on phytochemistry and chemotaxonomy. The final chapter is an ethnobotanical study. A monumental work.--v.St.

Li,Hui-Lin: Floristic relationships between Eastern Asia and Eastern North America. Reprinted from *Trans.Am.Phil.Soc.* n.s. 42, 1952, 371-429, 56 maps. Morris Arboretum. 1971.

Li's survey intends to summarize all recent ranges of genera confined to and showing disjunction between the eastern U.S.A. (often extending to Central America) and eastern Asia, a disjunction emphasized earlier by A.Gray. Fossil occurrences of these genera are not taken into consideration.

To this reprint are added 2 pages foreword indicating changes in taxonomy, corrections to the ranges, and a list of 65 papers containing contributions to the subject.

Especially because this is an important plant-geographical survey, it is unfortunate that the maps are not revised which could, I feel, have easily been done with collaboration of other botanical centres and the literature, e.g.

maps of *Pyrularia* (which does not occur in Java), *Magnolia* (Sunda shelf), *Astilbe*, *Itea*, *Gordonia*, *Nyssa*, *Lyonia*, and *Gelsemium* (area in Asia completely wrong, in America incomplete).--v.St.

Reed, C.F.: Bibliography to Floras of Southeast Asia. Baltimore, Maryland. 1969, 191 pp. offset, 1 map. Available from the author, 10105 Harford Road, Baltimore, Maryland 21234, U.S.A.

Aims to cover the botanical literature of Burma, Indochina, Thailand and Malaya, incl. floristic works, taxonomic and monographic treatments of both vascular and non-vascular plants, as well as those dealing with vernacular names, cultivated, agricultural and medicinal plants, forestry, forest floras, and properties of timbers, fossil floras and papers dealing with edaphic and climatic phenomena as related to the flora of the area.

A random checking of items resulted in the estimate that the bibliography does not cover more than c. 10-15% of the existing literature presumed to be entered.--v.St.

Société d'Histoire Naturelle de l'Ile de Maurice. Rapports Annuels I-V. 1830-1834. Publ. by the Royal Society of Arts and Sciences of Mauritius, Port Louis. 1972, 200 pp., 9 unnumbered plates. £ 2 + postage to be ordered at the M.S.I. R.I., Reduit, Mauritius with M.Ly-Tio-Fane.

This publication has been instigated by Mlle Ly-Tio-Fane, the well known expert on the history of Mauritius. It nicely illustrates the natural history activities in the years 1830-1834, after the foundation of the society in 1829. It was one of the learned societies which flourished in the 19th century.

Of old the island has been a regular port of call for the French voyages of discovery and its 'Jardin (Royal) Botanique des Pamplemousses' was the experiment garden for foreign and indigenous economical plants. The name Ile de France (= Mauritius) calls up reminiscences of men like Noronha, Poivre, Commerson, Sonnerat, a.o., all of whom contributed to the scientific importance of the island. No wonder that this small colonial island would take part in the trend of the day. Naturalists donated their collections on behalf of a museum, and a library was started. All with a view to promoting the progress of natural history, including branches as meteorology, and geology. International contacts were established by the nomination of correspondents, among which ranked the names of Cuvier and Hooker. The fashion to award gold medals was followed too.

The reports give a good insight in the numerous activities of the society, one of its most illustrious members

being the botanist W.Bojer, professor at the Royal College of Port Louis. The naturalists at home were not forgotten and many a new fish found its way to Cuvier. In some instances irritation is found, when people at home make statements not in accordance with reality, as with Thouin's posthumous history of the agriculture of the island.

Besides the research in the archives, Mlle Ly-Tio-Fane has written the Introduction and given an inventory of the MSS and publications of the Society. The value of the reports is heightened by the annexes, evaluating as far as possible the used names. The notes on the botany part are by R.E. Vaughan and P.O.Wiehe, on the zoological part by C.Michel. The bio-bibliographical part was again written by Mlle Ly-Tio-Fane.

All in all a valuable asset for people with historical interest.--M.J.van Steenis-Kruseman.

Stafleu, F.A.: Linnaeus and the Linnaeans. The spreading of their ideas in systematic botany, 1735-1789. Regnum Vegetabile 79, 1971, 1-386 pp., 71 fig. Utrecht, A.Oosthoek Uitg. Mij.

An excellently illustrated, scholarly treatise on the history of eighteenth century (mainly 1735-1789) systematic botany, starting with Linnaeus and centering around his works and their impact on systematic botany. A brief history of Linnaeus's life and rapid sequence of his books is followed by a commented, detailed account of the contents of the *Philosophia Botanica* and the aphorisms. Though I cannot agree with all the comments and regret that too little stress is laid on Linnaeus's awareness of families - though for practical reason he did not use them - and hybridisation (no mention of his experiments with *Primula*), this is an extremely worthwhile readable account. It is clear that the Prince of Botanists rightly deserves this name, nowadays not always realized by pedantics. So is the second part of the book dealing with the Linnaeans, that is authors who assimilated his system. This is broken up to countries and due mention is made of the fact that the initials for more natural systems and philosophy broke through in France with Buffon, De Jussieu, Adanson and Lamarck. Many essential trends are extracted from an immense amount of literature and the history of the red thread is followed finally leading to view the background of systematics as a reflection of phylogeny and evolution.

A most recommendable work to enrich the mind with the growing of a science.--v.St.

Tree Flora of Malaya. A Manual for Foresters. Ed. by T.C. Whitmore. Comp. by the Forest Department, Ministry of Agriculture and Lands, Malaysia. Publ. as Malayan Forest Records vol. 12, by Longman (SBN.582 724120). Dated 1 May, 1972, x + 471 pp., 120 fig. £ 12.50.

The forest flora of Malaya is predominantly woody. According to the Introduction there are 94 woody families with 760 genera and 4100 spp. In about 480 genera with 2900 spp. the woody species reach at least 10 cm diameter; in 375 genera with some 1680 spp. trees reach at least 30 cm diameter. It is the latter group which are dealt with more fully; but frequently keys include also shrubs and climbera and sometimes even herbs (as in Polygalaceae and Annonaceae).

This first of 4 volumes (a second is in press and work on a third has commenced) treats 28 families with 284 genera and c. 1400 spp.

Some simple botanical generalities are explained in the Prologue which contains also a listed system of the families, and a synopsis of Engler's system for the Dicots. This is followed by an explanation of the technique of describing a tree in the work in details of habit, bark, twigs, leaves, etc.; technical terms are explained. Naturally vegetative characters are very important for the forester, and occasionally even keys for identifying fallen leaves are given. Many times two keys are given, one for vegetative and one for all characters. Of each timber species distribution and ecology, notes on regeneration, germination, silviculture, uses and availability are briefly indicated. Also there is a rough list of distinctive vegetative characters in the field by which certain genera or families can be recognized.

The main part is occupied by the treatment of the families, genera and species. Of each family, genus and species a description is given with brief reference to the literature. Besides the characters used in the keys additional stress is provided on characteristics e.g. differences by having the latter printed in italics. And of course great attention is given to vegetative characters. Many line drawings are a help to define shape and habit; the shading technique used is not in favour of sharp pictures.

The present volume leans, as to botanical identity, of course, heavily on previous Flora Malesiana treatments and precursors, e.g. Podocarpaceae, Gnetaceae, Alangiaceae, Bombacaceae, Burseraceae, Celastraceae, Combretaceae, Daphniphyllaceae, Malvaceae, Myristicaceae, Nyssaceae, Oxalidaceae, Sapotaceae, Sarcospermataceae, Sonneratiaceae, Staphyleaceae, Trigonaceae; welcome additions are Araucariaceae, Annonaceae, Cunoniaceae, Leguminosae, Linaceae, Polygalaceae, and Rutaceae. A novelty is the treatment of Bischofia among Staphyleaceae.

The authors are Dr. T.C.Whitmore, Mr. K.M.Kochummen, Dr. Francis Ng, and Mr. P.F.Cockburn, while the treatment of Rutaceae is by Dr. B.C.Stone and that of Conifers by Dr. H. Keng.

The Kepong group is warmly congratulated with the publication of this first volume of a work which was badly needed and in which much critical observation is absorbed.

Postscript. Supplementary to the Flora Dr. F.S.P. Ng is editing for the Forest Research Institute, Kepong, a stencilled series 'Identification List' in which the material on which the Flora is based is accounted for. The numbered specimens are cited in this series under the respective species.
--v.St.