XIII. REVIEWS and NOTICES

Aston, Helen I., Aquatic Plants of Australia. A guide to the identification of the aquatic ferns and flowering plants of Australia, both native and naturalized. Melbourne University Press, 6 Sept. 1973, 8°, xvi + 368 pp., 138 fig., 81 maps. Clothbound A$ 21.

In accordance with the subtitle of this book there are, besides Phanerogams, also small chapters on some Cryptogam families, notably Characeae (algae), Ricciaceae (liverworts), Azollaceae, Isoetaceae, Marsileaceae, Parkeriaceae, Salviniaceae (aquatic ferns). There is a general chapter on the Australian environment. Australia is a dry continent, but many parts are surprisingly well watered with swamps, lagoons, irrigation channels and new reservoirs; depressions are often filled after rains at odd intervals, and many waterplants can survive by rhizomes or seed in intervening dry periods. A total of 220 species are treated. The concept waterplant is, as usual, of an arbitrary nature. The main text is the systematical description of the species, with their distribution. As the author was best acquainted with the Victorian waterplants, locality maps are given of all species occurring in that state. Species descriptions are ample and very many species are depicted, mainly by original drawings.

Identification of species is facilitated by ample keys to genera and species within the families, but many users without sufficient form knowledge will badly miss a general key to the families. Hopely they will know a monocot from a dicot and then browse among figures of these two groups which occur separate with families arranged in alphabetic order under each of the two. Such a general key is a desideratum for a future second edition which will anyway be needed in a decade from now, as in the author's opinion many waterplants are yet to be discovered, especially in remote parts of tropical Australia. It appears quite certain that the present important work will stimulate field work in waterplants. Unfortunately field work meets in Australia in the rainy season with great difficulty and huge areas are then virtually inaccessible.

In three appendices data are collected on the introduction of the noxious water hyacinth, a list of the treated sea-grass genera, and a distribution chart of the states in which the treated species are known in Australia. An extensive bibliography and an index to names and synonyms conclude this most welcome and well produced book. — v.St.

Backer, C.A., Atlas of 220 weeds of sugarcane fields in Java (edited by C.G.G.J. van Steenis for Greshoff's Rumphius Fund, Amsterdam), May 1973, 240 pp. of which 220 plates, 8°, paper-cover.

This is the 16th, final instalment of the Atlas, belonging to the "Onkruidflora der Javasche Suikerrietgronden" (Weed flora of the sugarcane fields in Java) of which the last instalment appeared before the second world war, in Oct. 1941. The plates belong all to sympetalous families. The numbering is according to the species numbers in the text; unfortunately some drawings were lacking in the unpublished set preserved at the Indonesian Sugar Experiment Station at Pasuruan, East Java.

Improvements have been made by bringing the namings of the plants up to date, whilst also the magnification has been added in the captions to the plates. A full index is given to the names of all c. 700 depicted weeds.

As only few atlasses of tropical weeds exist, this work is a great asset for all interested in them.

The present instalment can be obtained from the Department of Agricultural Research of the Royal Tropical Institute, Mauritskade 63, Amsterdam. Price DFl. 35. (postage included). — v.St.

Burger, D., Hzn., Seedlings of some tropical trees and shrubs mainly of South East Asia, 399 pp., 155 fig., 1972, PUDOC, P.O. Box 4, Wageningen, Netherlands. Cloth, DFl. 60. ISBN 90 220 0416 3.

Half a century ago it was already realized how valuable the knowledge of seedlings is to foresters. It was then that R.S.Troup published his classic 'Silviculture of Indian Trees'; at the same time the present book was prepared, in Java. Dr. D.Burger (Hzn. means the son of H.Burger), in the Forestry Service, received fruiting twigs from all over the island. They often came from trees with a considerable range of distribution, to which the title of the book refers. The samples were identified at the Herbarium Bogoriense by C.A. Backer and Dr. J.G.B.Beumée. The seeds were carefully labelled, and often more than one consignment of a species sown and grown in a nursery, which was designed by the author himself, at the Bogor Forestry Experimental Station. Line drawings were carefully made by Indonesian artists. If the figures look somewhat stiff, it is because the leaves had to be drawn full face in order to show their true outline. The author meticulously prepared the descriptions in Dutch in two stages of development. It took him three years to deal with 188 species, in 132 genera, in 51 families. But when time for publication had come, the funds were lacking

(like so often happens when printing costs are not included in the planning of a scientific project), and the manuscript was shelved. Only in 1966 were most of the plates retrieved at the Forestry Station at Bogor, but the text was missing. Fortunately, the author, who was still alive and healthy in active retirement, had kept a copy of the text (but not of the plates), and undertook the task to make an English version ready for the press, which has resulted in the present very well-executed and attractive book.

The selection of species is rather random; the text does not give silvicultural, taxonomic, ecological or geographical comments or details and is purely descriptive, but as such it is a first rate source of original data, and it does contain notes on latex, scent, and colours. In nomenclature it wisely follows Backer & Bakhuizen van den Brink, Flora of Java*, making reference to Koorders & Valeton, Troup and Lubbock's seedling book of 1892. The descriptions were carefully compared with those by Troup and Lubbock, and differences noted.

The family and genus descriptions could better have been omitted. They were apparently compiled from the species descriptions in the same book, leaving the many genera and species not treated out of consideration. The same holds good for the keys. For instance, in the Annonaceae, the key gives only two genera — as if there were not, in Java, 25 others. In most cases the cotyledons, when drawn once again as 'detail' are redundant, adding no information that is not available for the drawn seedling.

As for the provenance of the materials, only the number of consignments has been indicated, and not the area of the species dealt with; not even have Acacia, Cupressus, Eucalyptus been marked as introductions. An occasional misspelling occurs: Grewia Koorderssii, Castanopsis tungurut. But these shortcomings hardly matter in view of the value of the work as a body of new facts relevant to botany pure and applied. Introduction, glossary, index, Indonesian names make it easy and pleasant to consult. — M.J.

Coode, M.J.E. (chief compiler), A dictionary of the generic and family names of flowering plants for the New Guinea and Southwest Pacific region, 124 pp. Botany Bulletin no. 3, Department of Forests, Port Moresby 1969, mimeographed.

* An exception was made for Soepadmo's names Lithocarpus elegans and L. kostermansii. By the time of publication however, these were not new and inedited, as the text suggests, but had already been published in Reinwardtia 8 (1970).

The area has not been defined, but of course, everyone who uses a list like this should read the Introduction. There it is clearly stated that it is "a convenient cheap source of reference to the spellings of names .... It is NOT designed to be a source of information about what is to be found in New Guinea."

The last point quickly becomes all too clear. Xylonymus (Celastr.), described in 1962 from western New Guinea, is missing. Cadaba (Cappar.) is present but Anagallis (Primul.) is not, although in the region both have a similar distribution, notably in the Lesser Sunda Islands and N. Australia. Macadamia (Prot.) is missing, too, although it occurs in two places in E. Australia, New Caledonia, and Celebes.

Its aim, again according to the Introduction, is "to give a guide to the families in which genera are placed in the Lae Herbarium." But if thus conceived, the title is misleading. It should have been: A list of flowering plant genera and families in the Lae Herbarium. And much might have been gained if the genera that had indeed been collected from New Guinea had been marked as such.

The list has largely been correlated with Willis-Airy Shaw. In the one part, the genera occur in alphabetical order with reference to their family (although Syringodium does not belong to Hydrocharitaceae but to Potamogetonaceae or Cymodoceaceae). Synonyms have occasionally been given but not consistently: Polanisia, e.g., has not been referred to Cleome. It is not clear why question marks have been placed to express doubt about the identity of genera in recently revised families, like Gynandropsis, Abelmoschus, or Pratia, nor why a genus like Androsace has been kept apart (from Primula).

The spelling, so justly emphasized in the Introduction, is mostly correct but not always: Crataeva instead of Crateva, Engelhardtia instead of Engelhardia (for both, see Flora Malesiana), Nothaphoebe instead of Notaphoebe (see Index Nominum Genericorum). Great care has obviously been spent to avoid printing errors. The list is useful at Lae, no doubt, and to those who request material from there on loan. —M.J.

Costin, A.B. & R.H. Groves (ed.), Nature Conservation in the Pacific, xvi + 337 pp., 39 fig. (Australian National University Press; Canberra 1973). A$ 12.50.

Contains 29 papers read at a symposium of the 12th Pacific Science Congress, in 5 categories: Techniques for evaluating land for nature conservation in relation to other types of land use; Fauna conservation in the Pacific in relation to the conservation of vegetation; Pacific ranging groups, their ecology and conservation; Conservation status and

problems of oceanic and offshore islands in the Pacific; Problems of nature conservation arising from mining, engineering, and land-developing projects.

Schodde's paper has been reviewed in the present issue under Conservation. P.F.Cockburn çontributed a paper 'Sabah, virgin jungle reserves and other conservation areas' (p. 72-81); 54 such reserves have been named and mapped, their total area is 15,600 hectares. Forest reserves of special conservation interest, 23 in number, have also been named; the total area of those already gazetted is over 43,000 hectares. Kinabalu National Park is 68,900 hectares, but "recently, after considerable prospecting, 2850 hectares of it have been excised for the production by open-cast mining of copper ore at Mamut." Not many more areas can be added in the future; the main task will now be to see that declared reserves are indeed safe from exploitation.

Except these two, papers on conservation in Malesia are conspicuously scarce, which is a great pity. But the book is rich in ideas, several of which are worth considering with regard to Malesia. Execution is good, and altogether a great many references are given. — M.J.

Curtis, Winifred M., The endemic Flora of Tasmania. With paintings by Margaret Stones. Part IV. Ariel Press London, 1973, folio, pp. 228-298, colour plates 120-158.

In rapid succession parts 3 and 4 of this magnificent work have now been published. This part is dedicated to the memory of Herbert John King, "who first thought to portray the Endemic Flora of Tasmania". A monumental contribution to Australasian botany and a unique contribution to botanical painting in colour. — v.St.

Flora of West Pakistan, edited by Prof. E. Nasir (Gordon College, Rawalpindi) and Dr. S.I. Ali (University of Karachi). 8°. Families 1-45. 1970-1973.

This Flora of Pakistan consists of separate family treatments published separately in a numbered series, more or less like the Flora of East Tropical Africa, but slightly more concise in descriptions of families, genera and species. There are keys to genera and species and a brief account of the most important synonyms and references.

All the 45 families treated are small, partly because of a very narrow family concept: Monotropaceae apart from Ericaceae, Averrhoaceae apart from Oxalidaceae, Saxifragaceae split into a number of families, etc. No. 20, Umbelliferae, is issued in bound form because of its size. Two other large families are said to be near completion, viz. Boraginaceae by Dr. S.M.A.Kazmi and Papilionaceae by Dr. S.I.Ali.

The work gives a good impression. It is most pleasant for plant geographical purposes that not only specimens have been cited, but also that it is indicated where they occur on the grid system of West Pakistan which is printed with each family. Specimens cited are those seen by the authors and consist largely of recent material.

Authors of families include almost all Pakistani botanists: E.Nasir, S.I.Ali, Y.Nasir, K.Aziz, Z.Ali, M.Iqbal Dar, M.Amin Siddiqi, P.Abdulla, A.Ghafoor, S.M.H.Jafri, S. Abedin, M.H.Bokhari, S.Qureshi, M.Qaiser; Dr. Robson is responsible for Hypericum; E.Nasir for the large family Umbelliferae.

The staffs at Karachi and Rawalpindi are fairly small, but they have put out an admirable, energetic effort, and are now ahead of Indian botany, in spite of the latter having an enormous Botanical Survey intended for a similar effort. — v.St.

Fosberg, F.R., Guide to Excursion III. Tenth Pacific Science Congress 1961. Revised edition, with drawing of native and naturalized species by R.W. Becking. Published by the University of Hawaii, with assistance of the Hawaiian Botanic Garden Foundation Inc., July 1972, stencilled, 249 pp., 32 plates.

A most interesting, usefully documented and detailed account which appears to me indispensable for anyone who will pay a botanical visit to the Hawaiian islands. — v.St.

Hegnauer, R., Chemotaxonomie der Pflanzen. Volume 6, 1973, 882 pp. (Birkhäuser; Basel, Stuttgart). Price c. DFl. 180.

This is the voluminous, one before last volume of this unique achievement of surveying the plant kingdom in chemical aspects, with due regard to anatomy. Volume 7 will be dedicated to Leguminosae on which a huge quantity of literature has been published.

An unbelievable amount of information is incorporated in these six volumes, and though in the summary under each family it is frequently mentioned – especially in tropical families – that chemotaxonomical research is lacking or insufficient, this must be a stimulant for further research.

It is out of question to go into a more detailed discussion of the main results; the modest author often refrains from expressing a firm personal judgement, hiding it in the gist of his conclusions under each family, which show in a concealed way his opinion if data are sufficient.

One looks with awe at this tremendous personal effort which is in size, as I see it, unparalleled in contemporary

botanical handbooks, and to which a deep bow should be made.

Chemotaxonomical research is increasing at a tremendous rate and the author tries to keep pace with new literature in 'Nachträge' (additions); in a few cases this led to slight changes in the summary on affinities of taxa. — v.St.

Horikawa, Y., Atlas of the Japanese Flora. An introduction to plant sociology of East Asia. Folio, 39 x 25 cm, 12 pp., 500 maps, 8 pp. index; separate a potential-vegetation map of Japan, 1:5 ml, in colours. Publ. Gakken & Co., Tokyo, 1972. Clothbound Y.25.000. (In English.)

The introduction of this magnificently printed work contains a brief, clear sketch of the vegetation of Japan in conjunction with the coloured map.

The main body consists of the maps on which in a grid system localities of species and varieties are printed in dots, the map ranging from Formosa northwards to the West of Alaska. On each map are two satellite maps viewing the Japanese islands, including all RyuKyus, in profile as to altitude, one from East to West, one from North to South. This effects that the total of the dots on the three maps represent a 3-dimensional aspect. Each dot (geoquadrat) covers approx. 20 by 20 km. Of taxa also occurring outside of Japan localities are (but not completely) indicated in Taiwan, China, Korea, East Siberia, the Kuriles, Alaska, and the Marianas. The legend of each map comprises the accepted Latin name (also main synonyms), the general distribution of the taxon, a brief note on habit, uses, general occurrence etc., the months of flowering and fruiting, and in addition an indication of the life form of which the system accepted is cited after the introduction.

These data provide together a concise but complete account of the latitudinal, altitudinal and life-form aspects of each taxon, but they do not come up to the term 'plant sociology' as mentioned in the title, which should have been either 'ecology' or simply 'plant geography'.

The taxa treated in this first volume (out of 5 planned; volume 2 expected to appear in 1974) are arranged in systematical sequence: Angiosperms are followed by Gymnosperms, Ferns and Bryophytes. It would have been convenient if on each map, in addition to the plant name, the plant family to which it belongs had been mentioned.

The work makes the impression of a thorough attempt of singular value to the chorology of the northern hemisphere, also of distinct importance to the cartography of tropical taxa. This is an important facet, as a fairly large number of species and genera find either their northern or southern

border in East Asia somewhere in the RyuKyus or Japan and an accurate location of these frontiers is most welcome.

Only insiders can imagine how much work has been necessary to compile these maps.

The nomenclature used is mostly well up to date, though the name Scaevola frutescens is used instead of S. taccada. The brief account of the distribution of the taxa outside Japan is sometimes less accurate than desirable, e.g. Polygala japonica occurs also widely in Malesia. Of Crateva one map is given of C. falcata (Lour.) DC., but Jacobs said in his revision (in Blumea 12, 1964, 177-208) that this name is of uncertain status and he also recorded two taxa from the RyuKyus, C. religiosa and C. adansonii ssp. formosensis, which makes it unclear which species is now mapped.

The nomenclature is of course also dependent on the taxonomical basis, as many taxa have as yet not been subject to systematical revision, a regrettable situation for all chorology, but which must be accepted. This explains certain discrepancies in the account of the Meliosmas, as compared with the recent monograph by C.F. van Beusekom (in Blumea 19, 1971, 355-529).

A useful addition would have been, I feel, the inclusion of a number of general climate maps which would enable correlation with more environmental factors than altitude only.

Congratulations are due to the author and his collaborators as well as to the publishers and to the Ministry of Education in Japan for the grant in aid which made this important publication possible.

I cannot refrain from making a final remark, namely that no mention is made of an important precursor in this field, the two-volume "Distribution maps of flowering plants in Japan" by Prof. Dr. H. Hara & Dr. H. Kanai, Tokyo 1958-1959, which contained 200 dotted maps of selected Japanese plant species. That work covered almost the same area, with the exception of the Central and southern Kyushyu Islands. Altitudes were indicated on the maps in colour for the 200 and 1500 m contours; besides, a climate map was provided for the annual temperature frontiers and furthermore "distributional types" were distinguished. Also Prof. Hara had divided the Japanese territory in "floral regions" and in an appendix he gave a beautifully illustrated account of the vegetation of each floral region. In comparing the maps of these works it appears that there is only a very insignificant overlap: among c. 60 names I compared from the indexes I found only 3 mapped in both works, viz. Acer argutum, Amelanchier asiatica and Epigaea asiatica. In comparing these three maps of Horikawa and Hara & Kanai respectively, they are of course

very much alike, but they appear to show minor discrepancies. This is obviously the consequence of the fact, stated by Dr. Horikawa, that all localities dotted have been based on his personal observations. — v.St.

Iconographia Cormophytorum Sinicorum, composed and issued by the Botanical Institute of the Academia Sinica, Chao Yang Gate 137, Peking. 1972. Volume 1: vi + 1157 pp., 1730 fig.; Volume 2: iv + 1312 pp., fig. 1731-3954. All in Chinese, except the Latin name of each species and the Index.

This is intended as an illustrated Flora of China for the use of the average citizen. It is by no means complete and it is said to contain mostly the more common and economically more important plants, with emphasis on medicinal properties and useful plants. Two more volumes will follow by which in all some 7500 species will be described and illustrated. The area covered is mainland China and islands in the South China Sea, including also Hainan, Hong Kong, and Formosa.

The first volume contains the treatment of Bryophytes, Pteridophytes, Gymnosperms and Angiosperms from Casuarinaceae to Hernandiaceae, the second volume Angiosperms from Papaveraceae to Cornaceae. In the first volume are also illustrated glossaries and keys to all families and genera, but not to species except for the Gymnosperms.

Each species is provided with a Latin name, a botanical description and notes (habitat, distribution, uses, Chinese name) and an excellent, clear, small figure (7 by 5 cm) in which besides habit often one or more details are added. There are no references and no synonymy, but in the Index to each volume selected more important synonyms are entered with their proper identity.

The work is anonymous and has been composed through the effort of several botanists working in different botanical institutes in China. This is probably also the reason that some groups are better represented proportionally than others.

Surely a major contribution to Chinese botany, and probably also a stimulant towards the composition of a scientific, fundamental flora, which is so much needed. The thick volumes are clothbound and excellently printed. — v.St.

Iwatsuki, Z. & M. Mizutani, Coloured Illustrations of Bryophytes of Japan. Hoikusha Publ. Co., Osaka, Coloured Illustrations Series No. 51, 1972, viii + 405 pp., 48 colour plates, 196 text figures. Price: Jap. Yen 5100 (incl. sea mail postage).

In Japan the interest in bryophytes has enjoyed a vigourous growth in recent decades. This process has certainly been stimulated strongly by the activity of the staff members of the Hattori Botanical Laboratory, an institution founded in 1946 and largely devoted to research in this branch of botany. This is once more proven by the present book which was composed by two of its outstanding staff members. In the set of 48 coloured plates by Sukeharu Iwashita and Mihoko Ando habitus drawings and details of diagnostic features are presented of 225 mosses and 94 hepatics. In line drawings in the text diagnostic features are shown of 286 more mosses and 136 hepatics. Apart from some general chapters the completely Japanese text includes identification keys (within the families) to genera and species, and for these 821 keyed and illustrated species short descriptions and notes on the distribution. Besides, short notes are given on a number of additional species. In some genera all species — even the rarest — are treated, but in most the rarest ones have been omitted. The nomenclature is up-to-date. Because of its beautiful and accurate illustrations this book is of great usefulness to all interested in the rich bryoflora of the Northern Circumpacific region. The black-and-white drawings are excellent and well-arranged, and the coloured plates make the book unique among modern bryological literature of this kind. It is a great pleasure to browse through the pages and to recognize the plants. One might only complain about the colour printing technique adopted which makes the colours of some species seem somewhat unnatural and the details sometimes rather vague. Errors seem to be very rare: the contents of the border cells of Fissidens bryoides is given as green instead of colourless, and No. 734 appears twice in Plate 46: the number of the right hand Fig. 734 should obviously read 736.

Like the other issues of this series the present book is very attractively executed and it forms an admirable addition to the literature on the bryoflora of Japan. — A.Touw.

Liu, Tang-shui, A monograph of the genus Abies. Department of Forestry, National Taiwan University, Taipei 107, Taiwan (Formosa). Dated Dec. 30, 1971, actually issued March 1973; xxx + 608 pp., 21 fig., 24 tables, 1 diagram, 12 photographs, 66 plates, 41 maps, 41 altitudinal profiles. In English, summary also in French, German, Japanese, and Chinese. Price clothbound US$ 25.00 (to be ordered at the address above).

This is a very full monograph of an important northern hemisphere genus of Pinaceae, aiming to give a critical account of the subdivision of the genus, a key and descrip-

tions of species and varieties recognized, their correct names under the present Code, a full evaluation of discarded names, and detailed data on the distribution of each taxon. Names of fossil species are listed. In all 39 species, 8 hybrids, and 23 varieties have been recognized. Two subgenera and 15 sections (one new) have been entered into a new system, with an attempt towards a phylogenetic derivation. There are no new species, but a fair number of new varietal combinations and consequent specific reductions. As the author says his approach in relation of specific delimitation has been on the conservative side.

There is no proper earlier revision of Abies. The latest important book on this genus was by J. do Amaral Franco (1950), an important work in which, however, only 20 species occurring wild or cultivated in Portugal were fully treated and keyed out. In several aspects Liu's monograph resembles the way of presentation of this work, but it is much fuller, more amply illustrated, and moreover it is a comprehensive, complete revision.

There are some small chapters on the phytographical history, a short but clear comparison of the essential characters of Abies as contrasted by those of the other nine genera of Pinaceae, and some notes on the chromosomes, which count in all species n=12, 2n=24.

As the author explains species are not seldom variable, with (geographical) extremes linked by intermediate populations. Also, hybridisation in nature and in cultivation is not seldom, and occurs especially in the overlap or contact zone of two specific populations.

The author has devoted great attention to make the outcome of his work as useful as possible, in various ways. The descriptions are full and followed by an account of 'outstanding characteristics', vernacular names, cultivars, dates of flowering and fruiting, seedlings, notes on habitat, uses, distribution, etc. Of all taxa a full plate (drawing) is given with details of leaf, cone, seed, etc. Furthermore there are three kinds of keys: one general key to all taxa, but there is also a general key based on leaf anatomy with descriptions of the leaf anatomy of all taxa. This treatment is again illustrated by excellent anatomical drawings of leaf sections (central part of adult leaves) of each taxon. This together serves for identification of sterile material.

In an other chapter Abies species are also treated in the main regions where they occur, Europe, Mediterranean, Asia Minor, Himalaya, China and Japan, Siberia, North America and Central America, and for each of these regions an account of the species and a regional key to them is given.

Finally there is of each species a rather detailed distribution map and an altitudinal profile.

The work is concluded by a full bibliography and five indices.

The author, who is a professor of Forestry in Taipei, has steadily worked on this monograph for some two decades and made a prolonged world trip visiting very many herbaria, arboreta and botanical gardens, besides making field exploration in various parts of the world. Though proof of the usefulness, and thereby the standard, of each monograph, as with pudding, is in the eating, it is certain that he has spared no effort to present us with a thorough, well-digested, excellently edited and clearly written work, for which our congratulations. — v.St.

New Horizons / Forestry in Papua New Guinea, edited by R. Pape, vi + 70 pp., 6 maps, many illus. (ISBN 0 7016 8184 5). Published for the Minister for Forests by Jacaranda Press, P.O. Box 3395, Port Moresby, Papua New Guinea; Au$ 5.50; also 122 Regents Park, London NW1.

Contents: Environment, Forest resources, Selected timbers (properties of 30 species), Market, present and potential, Forest activity, Policies. Maps (scale 1:5.000.000, well executed): Forest resources, Vegetation, Rainfall, Population and transport, Generalized geology, Soils.

A well-produced, finely illustrated, informative book for the general reader. Its aim is to attract more investment and loggers to the newly independent nation. It is disappointing to see that not a word, not a thought has been given to conservation, which yet is so clearly in the interest of forestry. We hope that the Department of Forests will update its policy on this important point. — M.J.

Ohashi, H., The Asiatic species of Desmodium and its allied genera (Leguminosae). Ginkgoana no. 1, 1973. Academia Scientific Book Inc. Tokyo, 8°, 318 pp., 86 fig., 76 plates. Yen 6.000.

A full monograph of the genus in the East; in all 81 species with subspecies and varieties recognized, keyed out, and their synonymy given. As is well known, there is no unanimity on the circumscription of Desmodium; opinions vary from one variable genus to some 15 (Schindler). The author has carefully scrutinized this situation and arrived at an intermediate classification recognizing 7 genera in Asia and Malesia: Codariocalyx (2 spp.), Dendrolobium (3 spp.), Desmodium (57 spp.), Dicerma (1 sp.), Hegnera (1 sp.), Phyllodium (6 spp.), Tadehagi nom. nov. (Pteroloma Desv.) (3 spp.). Several new names or new combinations are proposed,

for sections, subgenera, subspecies, etc. Of all species a detailed description is provided and of many dot-map distributions are given. These maps must, however, at least for the Malesian area be viewed with a critical eye and compared with the notes (see e.g. 42 Desmodium dichotomum and fig. 58), as localities are far from complete, as the author has examined (cited) proportionally few Malesian sheets.

In addition to the systematy, the author has elaborately studied the morphology, made studies of seedlings, pollen grains, and chromosomes (all genera n=11, or 2n=22) and has finally attempted a view on the phylogeny of the Desmodium complex to conclude his important, critical work. — v.St.

Richards, Paul W., The life of the jungle, 232 pp., many illus. (McGraw-Hill 1970). US$ 4.95.

The well-known author of The tropical Rain Forest wrote this popular book primarily for high school and college students in America. Easy to read as it is, it is a high quality text, which makes an excellent introduction to the understanding of the primary forest as an ecological system. Plants, animals and man have each been given their share. The chapters are: The jungle world; The architecture of the jungle; A world in harmony; Man and the jungle. Notes have been added on existing reserves, animals in danger, field work, and insect collecting. Although emphasis is on the Neotropics, the book deals with Malesia as well, and is there eminently applicable. The magnificent colour photographs meaningfully illustrate the reasoning. We wish it a wide circulation among university students in Malesia. — M.J.

Ryan, P. (ed.), Encyclopaedia of Papua and New Guinea, 3 volumes. Melbourne University Press, Carlton, Victoria 3053, 1972. Vol. 1: A-K, xv + 588 pp. Vol. 2: L-Z, pp. 589-1231. Vol. 3: Index + map, 83 pp., with gazetteer of c. 1800 place names, with latitude and longitude. Au$ 45.00.

This is a work for the educated, general reader who has any interest in the area that since 1 July 1971 is officially called 'Papua New Guinea', and which covers the eastern half of New Guinea, the Bismarck Archipelago, the d'Entrecasteaux and Louisiade Islands, and Bougainville of the Solomons. The work deals with all aspects of the physical and cultural environment, population, public affairs, all projected against a detailed background of history. Local conditions, towns and villages are treated under each District, under a number of headings, e.g. general, discovery, history, topography and drainage, geology, climate, vegetation, soils, population, indigenous people, agriculture,

fisheries, livestock, forestry, mining, secundary industries, tourism, transport and services. On all these subjects, there are also general articles, and often again separate articles on subgroups, like Birds (15 pages), but also Cassowary, Honeyeaters, Kingfishers, etc. In fact, ornithology seems one of the best-represented subjects in the field of natural history.

Most articles are supported by a good many of references; under a number of catchwords of lesser importance, only a list of references has been given. Illustrations consist of photographs, drawings, and maps. The photographs are rather well-reproduced, the drawings and sketch maps simply done but very clear and attractive; the coloured map 1:2.500.000 in volume 3 is too superficial. Execution is high standard, a few misspellings occur, printing errors are rare. Altogether, it seems a valuable and informative book.

Disappointing is the almost total disregard of the western half; the discussion of Dutch New Guinea in 6 pages under omission of virtually all postwar work must be considered a 'Dutch' treatment, and under Indonesia or Irian nothing is found, either.

Botany does not occur as a catchword, but the subject is dealt with under a number of headings, of which the most important are: Conifers, 3 pp. by Womersley, Crop plants, 10 pp. by Womersley, 83 items discussed, Ethnobotany, 4 pp., rather superficial, Forestry, 10 pp., by Angus, Grasses, 2½ pp., by Henty, Orchids, 3½ pp., by Dockrill, with names of the genera and numbers of species for east and whole New Guinea, Ornamental plants, 4 pp., by Millar, Plants, indigenous uses, 3 pp., by Womersley, Rhododendrons, 2½ pp., by Cruttwell, Timber, 6 pp., by Foreman, Vegetation, 6 pp., by Johns, many references, Weeds, 3 pp., by Henty.

As all these contributions have been well-written, it is the greater a pity to find nothing on Palms or on Pandanus. Plant geography, with its interesting statistics and intriguing questions about origin, age and affinities of the flora, is a missing subject, while under Floristics 32 photographs illustrate an extremely scanty text. What a fine opportunity it would have been here to give a version in English of Van Steenis's account in W.C.Klein (ed.), Nieuw Guinea 2: 254-266 (1954)!

The botanical discovery of the island, as here accounted for, suffers from a similar lack of completeness and balance. The material must be pieced together from many headings: Archbold expeditions, 1½ pp., by Brass & Hoogland, with sketch map, Discovery, and Exploration, botanical, 1¼ pp., by Womersley. There is a brief article on Beccari personally, although his achievements in New Guinea were compara-

tively unimportant, but not on many botanical explorers like Carr, Lane-Poole, Lauterbach, Ledermann, Schlechter, and C.T.White, nor have the extensive institutional exploration efforts by CSIRO and the Lae Herbarium been discussed as such.

The botanist who wants to become acquainted with the island will therefore have to consult other sources in his own field. But he will find a rich amount of other knowledge to satisfy an appetite for general geographical information in the wide sense about the region indicated. — M.J.

Soepadmo, E. & Ho Thian Hoa (ed.), A guide to the Batu Caves. Publ. by the Malayan Nature Society and Batu Caves Protection Association, Kuala Lumpur, July 1971, 22 pp., 17 pl.

A very nice pamphlet in which various aspects of these famous limestone caves now threatened by quarrying are illustrated. It is a classical place for many types of plants, in part peculiar to limestone sites.

Steenis, C.G.G.J. van, The mountain flora of Java / Containing 57 plates with pictures of 456 species of flowering plants native in the mountains of Java / made from living specimens in colours by Amir Hamzah† and Moehamad Toha, x + 90 pp., frontispiece, 26 fig., 72 phot. on 20 pl., 459 col. illust. on 57 pl. with facing legend pages. E.J.Brill, Oude Rijn 33A, Leiden, Netherlands, 1972. DFl. 140.

A review by the former or the present editor of this Bulletin would come from so close a range, that it was preferred to select one out of those that came in from other quarters. The choice fell upon the one published by Dr. K.U. K r a m e r, for its combining interest and criticism. It was published in Excerpta Botanica, sectio A 22 (1973) 150-151, under the head Hamzah, A.† and Toha, M.

"With great modestry the author of the text, actually the auctor intellectualis of the entire work, refrained from putting his name first on the title-page, which, instead, below the title is headed by the artists' names. Yet obviously, this is a work by him, testifying to the width of his knowledge, the enthusiasm with which he instigated the work and (with some collaborators) assembled the plants that served for the plates, and his love for the flora of the East Indies. It should be realized that the entire text was re-written very recently. The plates had been prepared before the last war, but when a possibility for publishing the book was found at the long last, van Steenis judged that the text was out of date. Some readers might be tempted to skip most of the text and concentrate on the photographs and

colour plates and their captions, but that would rob them of enjoying an account of the mountain flora of Java as seen from all possible angles and written by the foremost specialist in the field. It is well-nigh impossible to do justice to this work in a review. The wealth of information contained in it, the unparalleled plates almost defy reviewing. The following is no more than an attempt to draw attention to the book and to give a rough impression of what it contains.

An historical introduction reviews the botanical exploration of the mountains of Java through the years. In the paragraphs that follow the milieu is described; much attention is paid to vulcanism, one of the paramount abiotic factors setting the stage for the flora; the other is the climate, also extensively discussed. Altitudinal zonation and the effects of mass elevation are reviewed in passing. In the reviewer's opinion, the paragraph on flower biology is a particularly stimulating one, dealing, as it does, not only with pollination (much pioneer work on pollination in the tropics was done in Java) but also with the influence of climate, weather, day-length, etc., on flowering. Climax and succession are discussed in general terms. In the present area fire plays a most important part, whether caused by storms, vulcanism, or, most commonly, by man. The extensive mountain grasslands are all man-made. The plant formations are extensively described, with emphasis on life-forms. Among them the tjemara (Casuarina) forest is perhaps the most peculiar, being maintained by a constant fire regime finding food in the profuse litter produced by the trees which thus further the periodical burning themselves, and are largely resistant to it. There is a unique nocturnal photograph showing tjemara trees burning like torches. Not only in its appearance but also in its ecology connected with fire the tjemara resembles certain kinds of conifer.

Commonness vs. rareness is another topic discussed in a paragraph that contains much stimulating and original information. Interestingly, with few exceptions the endemics of the Javanese mountains are herbaceous. The distribution of the non-endemics is reviewed. The author's extensive work on the distribution of the Indo-Malayan mountain flora and its general bearing on South-East Asiatic phytogeography has, of course, been published extensively elsewhere and received the attention it deserves; only extracts needed to be included in the present work. Dispersal and distribution, and the composition, derivation, and origin of the Javanese mountain flora each form the topic of a chapter that is of great interest in this context. Conservation is not forgotten; there are some reserves in the mountains, but deforestation is threatening, or has already overwhelmed, areas

where conservation is important not only for botanical but also or mainly for ecological reasons. The 69 photographs showing landscapes and vegetation types are mostly of very high quality and greatly help the reader to obtain a vivid picture of what is described in the text. Selected references refer to the mountain massifs one by one and to the subject covered by the book as a whole.

The species depicted, over 450 out of a total of ca. 1500 occurring above an elevation of 1400 m in Java and ca. 2000 forming the mountain flora s.str., have been selected on various grounds: partly for showiness, partly for the possibility of being recognized from plates with only brief explanatory captions but without "analyses". The criterium of showiness, and their absence from the "Flora of Java", apparently excluded the ferns. Except for two Podocarpus species all plants shown are angiosperms. The two Javanese artists prepared the drawings in an unusual way briefly described in the book. It involved filling in the drawings with a white background layer on which the dyes were then applied and subsequently removed as far as required by washing. The result is striking, pleasing to the eye, to say the least, and botanically very accurate, as far as the reviewer can judge from the very few species known to him in a living state. It is difficult to say whether the general appearance of a plate with, e.g., grasses or Cyperaceae is less impressive than that of one showing orchids, Zingiberaceae, Nepenthes pitchers, Balanophoraceae, or an array of plants from various families.

Points which the reviewer would tend to criticize are very few. The excessive format of the book, almost 30 x 40 cm, makes it difficult to handle and could have been considerably reduced by trimming the unnecessarily wide blank margins. Also it seems a bit out of place to publish new names and combinations in such a work. The work is a monument equally to the artists (the first unfortunately did not live to see it published) and to the author of the text. It was, at the long last but most appropriately, published on the occasion of van Steenis' retirement as head of the Rijksherbarium, Leiden. The book is dedicated to the memory of C.Schröter and W.M.Docters van Leeuwen. The price, D.fl. 140.00, seems moderate, not to say modest, in relation to what is offered." — K.U.Kramer, Utrecht.

Stewart, R.R., An annotated Catalogue of the vascular plants of West Pakistan and Kashmir (ed. E.Nasir & S.I.Ali). Karachi, Dec. 1972, 8°, xviii + 1028 pp., map of districts and grid system, portrait of the author.

This voluminous book is an annotated catalogue of Pakistan and Kashmir, roughly of 6000 taxa (Pteridophytes 128, Gymnosperms 23, Monocots c. 1140, among which 576 grasses, and 4492 Dicots, among which Compositae are largest, followed by Leguminosae with 566). It is largely the outcome of nearly 50 years study and collecting by the author who had reached at the time of publication the age of 82. He lived at Gordon College, Rawalpindi, of which he is principal emeritus, from 1911-1960; after that he had a post as Research Associate at the Herbarium of the University of Michigan, Ann Arbor, with grants from the National Science Foundation.

Through his many study trips to herbaria at Kew, Edinburgh etc., the use of many modern floras, especially the Flora Iranica, and the help of students and botanists in Pakistan, among which the editors and many others, this inventory is as good as it could be; as the author states in his Introduction "an incorrect list can be corrected and so is better than no list at all, our present plight". It is annotated with some synonyms and cited specimens, sprinkled with remarks or notes. Uncertain records or names have been listed in each genus under 'Dubia', to draw attention. After the list is an Index to Authors' names (and their abbreviations), an Index of Collectors in the area, and a large Index of Genera and Species. This work must serve as a basis for the "Flora of West Pakistan" which is reviewed elsewhere in this Bulletin and of which 45 families have been treated.

The introduction is concise, but contains much information about the history of botanical exploration of the area, and a brief description of the various macro-ecological regions.

The work is printed and edited thanks to financing by the U.S. Department of Agriculture. Our congratulations to the author who crowned his career with this important endeavour. — v.St.

St.John, H., List and Summary of the flowering plants in the Hawaiian Islands, 519 pp. Pac. Trop. Bot. Garden Memoir 1, Aug. 30, 1973.

The purpose of this book is to represent a modern, nomenclaturally up-to-date checklist of all plant names recorded from the Hawaiian islands. It is stated in a circular that there are in all 7612 names of taxa (specific and infraspecific), of which 2744 are native (2678 endemic, among which 1394 local endemic species). The number of cultivated or introduced taxa is 4944.

All names are followed by the author's name and the year

of publication. Names of native taxa are printed in bold type. Basionyms and a selected number of synonyms are cited in italics in the same way. As to literature references brief reference is made to page number where the taxon was mentioned earlier in four major previous works on the Hawaiian flora, viz. Degener, Flora Hawaiiensis, Hillebrand, Flora Hawaii, Neal, Gardens of Hawaii, and Rock, Indigenous Trees of Hawaii. This copying led amongst others to inserting not a few generic names without species names, e.g. Centropogon, Wahlenbergia, Pachypodium, Primula, Arracacia, Heracleum. Vernacular names have also been cited. Of each taxon it is indicated whether it has been introduced or occurs cultivated and what is its native country. Of the native taxa it is indicated whether it is endemic and where, or not.

During the compilation it appeared necessary to make a number of new combinations, specific and infraspecific. These are compiled in a separate list where they are nomenclaturally validated. Some new specific combinations refer to plants which are native far outside Hawaii, e.g. Leucospermum conocarpodendron (L.) St.John from the Cape and Andropogon blakei St.John, a new name for Bothriochloa ambigua S.T.Blake, non Michx. from Australia.

This list is followed by a list of addenda. Unfortunately the names of the latter are not entered in the index for some reason; this is an undesirable lapsus, as e.g. the new combination Streblus sandwichensis p. 374 can so escape attention. The reason why some names are entered in the addenda is sometimes not very clear to me, because the long list of Thymeliaceae (sic) is, except for an introduced Wikstroemia, literatim the same as the one in the main list. Also in other respects the index (which includes also the vernacular names) is not accurate, e.g. Campanula grandiflora p. 336 is omitted.

In the Introduction St.John stated that the botanical judgement (evaluation) of the taxa (species delimitation) of the checklist is that of himself. So he keeps the two subspecies of the worldwide Ipomoea pescaprae as two different species, distinguishes Capparis sandwichiana as a species of its own, etc. He refuses to accept decapitalisation of epithets and the recognized spelling of family names ("Thymeliaceae").

In the Introduction it is said that the plants are arranged by families in the system of Engler and Prantl, but then one queries why Elodeaceae are entered next to Hydrocharitaceae which was not done by Engler & Prantl.

The checklist was originally made by E.H.Bryan Jr in 1930, who handed the copy to Dr. St.John. The latter emended

it and kept it up-to-date. I find it rather a pity that notwithstanding the long lapse of time, a rather superficial testing revealed a number of inaccuracies. — v.St.

Thanikaimoni, G., Index bibliographique sur la morphologie des pollens d'Angiospermes. Institut Français de Pondichéry. Travaux de la section scientifique et technique. Tome XII fasc. 1, p. 1-339, 1972. Ditto. Supplément I. Ditto. Tome XII fasc. 2, p. 1-162, 1973. All India Press, Pondichéry.

This index consists of the following, alphabetically arranged parts: a) generic index with literature references; synonyms between brackets; b) index of synonyms; c) index of literature according to author and year of publication; d) addenda up to 1971.

It is now possible to check quickly whether any pollen-morphological data have been published on a certain genus and this is invaluable both to the palynologist and the taxonomist. The index is virtually complete and well executed and the author certainly deserves our gratitude for the painstaking way in which he has compiled a large quantity of scattered information. The rapid publication of a first supplement indicates that we can rely on the author to keep the index up to date. — J.Muller.

Tree Flora of Malaya. A Manual for Foresters. Edited by T.C. Whitmore, Forest Department, Ministry of Primary Industries, Malaysia. Publ. by Longman Malaysia SDN. Berhad, 1973, vii + 444 pp., many fig.

With great speed the second volume of this important Forest Flora appeared, about which I wrote a review in Flora Malesiana Bulletin No. 26, p. 2060-2061. It is executed along the same line as the first volume and is of the same standard. It contains treatments of 30 families, alphabetically arranged and largely belonging to Choripetalae. The major part of the text is written by Dr. Whitmore, who amongst others undertook revision of 19 families, amongst which some large ones (Euphorbiaceae, Guttiferae) and of which the new revisions are most welcome. New (original) are also the treatments of Rosaceae (by Whitmore and Prance), Sterculiaceae and Tiliaceae (by K.M.Kochummen), Magnoliaceae (by Keng), and of Ulmaceae (by Soepadmo) about which there were no precursores. Dr. Whitmore has made endeavours to facilitate identification by more than one key in the large families or genera of Euphorbiaceae and Guttiferae.

I would like to put attention to the illegitimacy of the name Acer caesium (Reinw. ex Bl.) Kostermans (1965), which is antedated by A. caesium Brandis (1874). The proper name of this tree is Acer laurinum Hassk., as used in the Flora

of Java, the Flora Malesiana, and my Mountain Flora of Java.

It appears that the forest flora of Malaya is far from exhausted as at the end of several genera there are records of uncertain taxa which could not be fully classified (e.g. in Lecythidaceae, Magnoliaceae, Guttiferae and some others).

The present volume brings this indispensable series over halfway. Work is underway for the third volume of the series, comprising some large, important and difficult families, notably Myrtaceae and Ebenaceae. — v.St.

Valentine, D.H. (ed.), Taxonomy, phytogeography and evolution, xii + 431 pp., illus. Academic Press, 24-28 Oval Road, London NW1 7DX, New York, 1972. £ 7.20.

The symposium of which this book forms the proceedings, took place at Manchester in September 1971. The combination plant systematics/evolution has of course been the subject of many conferences, and, as stated by the editor, also in the present symposium the emphasis was taxonomic and evolutionary. The phytogeographical aspect, however, plays an important role in most of the papers presented here.

It is of course impossible to review critically all of the 23 papers. Together they make very interesting reading and they certainly give the impression that the symposium must have been a distinct success.

The papers are divided over some sections. Six papers are devoted to the major geographical disjunctions which have taken the attention of phytogeographers for a long time. New solutions are not presented, but different approaches are discussed: phytosociology by Kornás (forest floras of temperate Eurasia and North America), ecosystem study by Solbrig (desert floras of North and South America), biosystematics by Hara (North America, Japan, Himalayas) and by Böcher (arctic-alpine areas).

The second section is headed "Endemism" and concerns another basic problem of phytogeography. The endemic floras of the Canary Islands (Bramwell), Crete (Greuter), California (Lewis), montane Europe (Favarger), Hawaii (Gillett) and the West African mountains (Morton) are discussed. It is maybe in the papers of this section that the three elements of the title are most evenly distributed.

The six papers of the third section are concerned with one taxon each. The paper by Morley, mainly on Jamaican Columneas, is of the kind that combines a precise investigation of the phenotypes with chorology. Raven's research on New Zealand Epilobiums also made use of experimental methods and chromosome data. These papers, and those on Nigella in the Aegean archipelago (Strid) and on Alchemilla in Europe (Walters) are of a restricted geographical scope, the other

two in this section have a wider field. Van Steenis calls Nothofagus a key genus, which it certainly is for understanding the genesis of the "amphi-transpacific" disjunction. Combretaceae are the subject of the paper by Exell & Stace, containing a survey of the geographical variation in some character groups.

The "Special topics" of the last section contains a.o. an interesting review by Baker on the migrations of weeds, and a survey of computer methods in plant distribution studies (Jardine).

The introductory remarks by the editor are followed by a paper read by Stebbins, which is of a much more general nature than all other lectures. It discusses the centres of radiation in the Angiosperms, the plant group the whole book is about (although this is not said in the title). Stebbins puts forward the hypothesis that the Angiosperms first diversified not in a permanently moist climate as often postulated, but under semi-xeric circumstances.

The book is very well produced, as of course can be expected from Academic Press. — C.Kalkman.

Verstappen, H.Th., A geomorphological reconnaissance of Sumatra and adjacent islands (Indonesia), 182 pp., 71 fig., 77 phot., 1 map. Wolters-Noordhoff, P.O. Box 66, Groningen, Netherlands. DFl. 57,50.

Geomorphology occupies itself with the interaction of rocks, climate, soils, and vegetation, and as such is of great interest to the botanist. We cordially welcome this small, nicely executed book, elegant in the clarity of text and figures. It gives a systematic description of the southern, central, and (least known) northern part of Sumatra, and the surrounding islands. The accompanying map, scale 1:2,500,000, depicts the forms of exogenous, structural, and volcanic origin, the recent tectonic movements, and gives indications on lithology and on age. It can be recommended to anyone connected with field work in Sumatra, of which the scenic beauty dimly shines in almost every photograph. There is a bibliography of c. 240 titles, but no index. — M.J.

Walker, D. (ed.), Bridge and Barrier: the natural and cultural history of Torres Strait, xxii + 437 pp., 51 fig. Australian National University, Canberra, 1972, publ. BG/3. Offset. A$ 5.00.

In December 1971 (just about the time Van Balgooy published his 'Plant geography of the Pacific') an all-discipline symposium on past and present of Torres Strait was held at Canberra. In this book, 16 papers appear, on Land, Water and Air; Plants; Animals; People, each ended by a sum-

marizing paper including the results of the discussion; at the end, the editor gives a general evaluation. There is an admitted lack of data, several points are still unexplained (like the poverty of insects in the Australian rain forest pockets, p. 224), but the subject is of cardinal biogeographical interest and the editor's initiative is worth of congratulation.

Torres Strait is a major plant-geographic disjunction, separating everwet New Guinea from arid Australia, with an area of savanna in southern New Guinea and of rain-forest in eastern Queensland. Either is to be regarded as a poor bridge-head of the plant world on the other side. The same holds good for the bird and mammal faunas inhabiting these vegetations, and this pattern seems "consistent with what is now thought to have happened in the distribution of land and sea in the geographical history of the southern hemisphere" (p. 401).

Torres Strait, it is assumed, came into existence only ± 6500 years ago, when sea level rose after glaciation. Paleomagnetic work has shown that the site of Torres Strait moved from 47°S in mid-Cretaceous (100 m.y.) to 14°S at the early Miocene (25 m.y.), and since that time only a few more degrees, to 10°S, when New Guinea buckled up against Malesian land and from there must have received, in a manner not yet quite clear, its present flora. South of the New Guinea central range, the climate was arid most of the time, and 17.000-14.000 years before present, New Guinea as a whole must have had a drier climate than nowadays, but ± 8000 years ago, rainfall in Queensland must have been considerably higher than now, and rain-forest penetrated southward in a belt along the East coast. The Australian rain-forest pockets thus are thought to be Malesian relics; differences in the biota of the two land masses are by the geomorphologists as well as by the botanists ascribed to ecological factors. For all the agreement expressed on these points, however, we must conclude from the maps given by Nix & Kalma on p. 88-89, that the tropical rain-forest managed to cover the 2000 km between New Guinea and Rockhampton in 6000 years. For a glacier, this is not bad. As regards the forest, it seems the final proof that in plant geography nothing is impossible. Since all these authors seem to assume that the continent was arid for a very long time before the rain-forest moved in, the implication must be that many endemics of paleotropic affinity in these rain-forests must have evolved during these 6000 years. Nothing impossible in evolution, either?

Another botanical issue is the floristic affinity between the montane regions of New Guinea and the temperate rain-

forests in Australia. Which are these floristic elements, and can they be interpreted as relics of an ancient Gondwana flora said to have occurred in southern Papua and Australia? Before an attempt can be made to answer the question, a complete list of such taxa with their horizontal and vertical distribution must be available. Selected cases are insufficient proof. However assured the pronouncements of the zoologists Schodde & Calaby (p. 262, 292), neither Dr. M.M. J.van Balgooy nor myself are acquainted with such a list. We can imagine the temptation of the idea that ancient elements survive on both sides of Torres Strait especially if, as Schodde & Calaby incorrectly suggest, taxonomists overlooked them. The idea might well turn out to be true. But at this moment, it is no more than an attractive myth, waiting for proof. Some of the attraction was already taken away by Van Steenis, who recently concluded (Blumea 19, 1971, 65-98) that Nothofagus is of Indo-Malesian, not southern origin.

I briefly summarize the botanical papers. L.J.Webb & J.G.Tracy, An ecological comparison of vegetation communities on each side of Torres Strait (p. 109-129). Fifteen pairs are compared on vegetation type, soil, altitude, rainfall, with comments. The cited numbers of genera seem very low, but no lists are given. R.D.Hoogland, Plant distribution patterns across the Torres Strait (p. 131-152). Numbers of genera are tabulated in 7 categories, based on Burbidge, Coode, and herbarium. Species of recently revised genera are mapped and discussed. It is habitat factors that make Torres Strait a barrier. S.G.M.Carr, Problems of the geography of tropical eucalypts (p. 153-181). Australian-Malesian species mapped; ecology and variation considered. Climatic factors held responsible for the present pattern, including long-range dispersal by storms. Extinction may have occurred. B.A.Barlow, The significance of Torres Strait in the distribution of Australasian Loranthaceae (p. 183-196). A few small genera are assumed to be relics. The plants occur in climactic lowland habitats, and have migrated by land. Decaisnina forsteriana (Schult.) Barlow is announced as a new comb. on p. 185, basionym Loranthus forsterianus Schult. An early south temperate phase in the history of the family is suggested. Barlow 1966 and Barlow & Wiens 1971 not cited in the bibliography. N.M.Wace led the Discussion on the plant-geography around Torres Strait (p. 197-211).

Novelties for anthropologists and sociologists are apparently the notes (kept but overlooked in the Sydney Library) of O.W.Brierly who accompanied the Rattlesnake Expedition (1848-49). We hope that more new data will come forth. After this Symposium the mystery of Torres Strait looms even larger. — M.J.

Ward, R.G. & D.A.M. Lea (ed.), An atlas of Papua and New Guinea, 101 pp. incl. maps. Format 21 by 26 cm. Collins, Longman; 144 Cathedral Street, Glasgow C4, U.K.; 1970. Price c. £ 1.80.

A collection of sketch-maps on 51 subjects, each with an elaborate commentary by experts. A group of subjects is preceded by an introduction; these are on Population, Physical environment, Economic activities, Services. Of general interest are the maps which show the alterations in district boundaries, in 1950, 1951, 1966, 1968, 1969; and the maps showing the coverage by various kinds of maps including the CSIRO land system reports. Of special interest to the botanist are Landforms, Soils, Rainfall (quite detailed), and Vegetation (not very detailed). A most useful compilation of geographical knowledge on the eastern half of New Guinea, the Bismarcks, and Bougainville, prepared at the University of Papua New Guinea, nicely executed. — M.J.

The Wealth of India. A dictionary of Indian raw materials & industrial products. Volume IX: Rh—So. 1972, 4°, xxxvi + 472 pp., xiv, 144 fig. (partly in col.). Publications & Information Directorate, CSIR, New Delhi.

This is another volume of this scholarly and extremely well executed, important dictionary. It contains elaborate treatments of many plant species, herbs as well as trees, of which the short descriptions are accompanied by data on phytochemistry, anatomy, sylviculture, pests, and by industrial data. Our congratulations with the progress in printing this mine of information. — v.St.

Whitmore, T.C., Palms of Malaya, xv + 132 pp., 106 fig., 16 phot. Oxford University Press, Kuala Lumpur, Singapore, London, 1973. Price £ 7.25 (M$ 35.00).

Palms reach one of their heaviest concentrations of subfamilies, genera and species in the Sunda Shelf lands; lying in the middle of this area is the Malay Peninsula with a grand total of about 350 species, in a global context, a very rich palm flora indeed. Yet, since the monumental works of Beccari on Malesian palms, only Furtado has contributed significantly to our knowledge of the Malayan palms. This neglect of the princes of the plant world is greater still in the neighbouring islands of Sumatra and Borneo and very little has been done to clarify the relationships of their floras with that of the Malay Peninsula. Renewed interest in the palms of this region is thus long overdue; maybe an introductory account of the palms of Malaya would stimulate such interest. E.J.H. Corner's inspiring though frequently inaccurate and irritating "Natural History of Palms" (Wei-

denfeld & Nicolson 1966) certainly has done much to reawaken interest, and now we have a book devoted entirely to the palms of Malaya. Dr. T.C. Whitmore has written an enthusiastic introductory book. The date of publication is apparently three years after the submittance of the manuscript - a most regrettable delay; some significant changes in Malayan palmology have occurred in the last three years which now render parts of the book out-of-date.

This slim green volume with attractive palmy dust-cover, contains many drawings, silhouettes, maps and photographs and accounts of palm morphology, palm subfamilies, palm cultivation, keys to Malayan palms and their distinctive characters, descriptions of selected palms, extensive text notes, glossaries, references, indices, and a checklist of Malayan palms.

Superficially it is a most attractive volume; when perused in detail however, many errors, omissions and clouded reasonings become evident and in the end prevent the reviewer from recommending the book to the public for whom it was apparently intended. The great danger is that this superficially attractive book will be regarded in the absence of other introductory texts as the palm gospel of Malaya. Admittedly Dr. Whitmore's enthusiasm for the group will be appreciated by and possibly infect the reader, but surely factual information so often wrong and speculation so tenuously based is to be deplored; enthusiasm on such shaky foundations is dangerous. Consultation with other palmologists could have decreased significantly the errors and increased the book's value.

At the outset is is not entirely clear for what the book is intended - is it an identification manual or a popular introduction? Unfortunately it seems to fall between these two goals - Corner's book is still far more inspiring as an introduction and for anyone serious enough to wish to know the name of a wild Malayan or garden palm, older monographs and horticultural treatises will have to be referred to for a satisfactory result to be obtained.

The selection of palms within the book is arbitrary indeed. Descriptions, silhouettes and drawings of Lodoicea, Phoenicophorium and Verschaffeltia are given - all genera are represented in Malayan gardens by perhaps a dozen trees, whereas Rhopaloblaste ceramica, quite frequent in Singapore gardens is not mentioned at all, and Actinorhytis calapparia, certainly commoner than the three Seychelles palms in Malaya, occurs only in the checklist. Rhopaloblaste ceramica would puzzle a student - so like Whitmore's description of Oncosperma tigillarium and yet thornless; and Actinorhytis calapparia would probably be passed over as a robust, slen-

der crownshafted, arcuate-leaved betel palm. Such probable sources of confusion should have been clarified. The genera native to the Peninsula receive very varied treatments. Areca, Arenga, Borassodendron, and Borassus receive complete treatments; that is, all species native to Malaya are described - we are even stimulated further by the author's comments on Areca latiloba and Areca montana which he believes are only forms of Areca triandra (the reviewer remains sceptical - A. latiloba in Sumatra appears to be at least a subspecies of A. triandra if not a distinct species): similarly in Arenga the bait is thrown out concerning "kerjun", a plant distinguished by aborigines but as yet not distinguished by botanists; here is a fine problem. The rattan genera as one might expect receive a very skeletal treatment and the reader is referred to Furtado's works (not easily available - what a shame this is -) many of the widespread rattans are very distinctive and easily learnt; even a handful of conspicuous species described would have laid the base for the interested student to go further. Eugeissona and Oncosperma with two species each, receive complete treatments. Pinanga with 25 species has only 12 described in full; Iguanura has seven species described and all Ridley's species referred to in detail (though no mention is made of the fact that Dr. Ruth Kiew has done research into the taxonomy of the genus) - some of the Iguanura species are rarer than Pinanga species undescribed. For Licuala we are referred, after the description of three common species, to Furtado's monograph. Species of Livistona, Salacca and Johannesteijsmannia (in this work referred to by its old name long since changed - Teysmannia) are enumerated in detail. The writer of a popular introduction is entitled to be somewhat arbitrary, but the degree of arbitrariness of Whitmore's book is disturbing, and coupled with the curious selection are gross errors.

Under Nenga, the reader is told that "the genus can very easily be confused with Pinanga except in details of the fruit"; indeed in this very book, Whitmore confuses the two genera though with practice they can be told apart on inflorescence details, and even sterile! Figure 3 and Plate 2 bottom right should read Nenga pumila var. malaccensis, not Pinanga malaiana (N.B. Spiral flowers combined with sepals longer than petals in the plate) and the arcuate inflorescence, here in the female state, in the figure, with its twisted tips, the all male portion of the inflorescence, is never found in Pinanga malaiana, which has strongly reflexed stiff rachillae in one plane, with distichous flowers, the calyx a fraction of the length of the corolla. In Nenga macrocarpa, the petals and sepals are about the same length

and very obtuse (Plate 2 bottom left, which does indeed represent Nenga macrocarpa); Figure 67 is not N. macrocarpa but N. pumila var. malaccensis. The reviewer, furthermore, doubts very much if Malayan Nenga pumila is equivalent to Javanese Nenga pumila - hence the use in this review of Beccari's combination N. pumila var. malaccensis. In Borassus, Whitmore states that there is one variable species throughout the world, later qualifying this statement by saying that variation is such that up to seven species have been described; with whatever drastic lumping Whitmore might approve, Borassus heineana of New Guinea would sit most uncomfortably within Borassus flabellifer. The whole fruit of Borassus illustrated in Figure 21 is surely not Borassus but Borassodendron - Borassus has a flat almost concave wide top, the whole fruit being wider than tall. Furthermore the fruit of Borassus is described as ripening yellow - yet throughout Malaya and West Indonesia the reviewer has seen only purplish brown-black ripe fruits, albeit with yellow mesocarps - confusion in store for readers of the book when buying "sea coconuts" in Penang and N. Malaya. Likewise the fruit illustration of Borassodendron machadonis (fig. 19) is almost identical to that of B. borneensis in Reinwardtia 8 (1972) p. 360. In Rhapis excelsa the leaf is described as bearing about 11 leaflets - in the silhouette (Fig. 95) only four to five leaflets are visible - is this really Rh. excelsa ? In Plate 3, the plant illustrated as Daemonorops longipes is certainly not this species. In this species the spathes drop at anthesis - the plant illustrated is probably new and represents an anomalous member of section Cymbospatha of Daemonorops. Readers may like to know that the rattan illustrated in Plate 7 as "rotan kertong" is juvenile Myrialepis scortechinii. Despite the reduction in size in Plate 9 the plant illustrated as Ptychoraphis singaporensis still displays visible crownshafts and compound terminal leaflets - this suggests a Pinanga or Nenga rather than Ptychoraphis. In Figure 89, the fruit of Plectocomia griffithii gives the impression of being smooth whereas it is covered up to maturity with upward pointing, fimbriate almost spiny scale tips and long persistent stigmas; and any kampung child in Java would dispute that the fruit in Figure 98b belongs to the cultivated salak, Salacca edulis, which in the text is described correctly as being top-shaped. On page 106, Korthalsia and Salacca are described as being palms of Sundaland in contrast to Metroxylon in Sululand; yet a few pages earlier we are presented with a map correctly showing Korthalsia stretching through to Celebes and New Guinea. Maybe this last example is hair-splitting, but there are many such contradictions, which surely could

have been eliminated with careful reading of the manuscript.

The illustrations to "Palms of Malaya" consist of some beautiful plates (Plate 1 and 5 are exquisite), some sketches and many silhouettes. The annotations to the sketches and silhouettes are often careless and misleading - for example, "flowers of Arenga westerhoutii" (Figure 15) where one flower is illustrated - a beginner could be forgiven if he thought each stamen represented one flower; and in Figure 63 "Metroxylon sagu in flower growing out of low scrub" is a silhouette of a tall stem, bare of leaves, surrounded by basal leaves; this stem is not flowering but already dead and long past flowering, and the basal leaves belong to suckers. The silhouettes are generally a great disappointment; they do not convincingly resemble the plant intended, and in nearly all cases careful drawings would have been better. The silhouettes of Cocos, a Calamus and Livistona tahanensis are, however, very pleasing. Oncosperma is very different - the two species normally nicely ecologically separated and very distinct in crown can be easily distinguished on the difference in the orientation of the leaflets; a diagram, stiff and probably unrealistic, would have brought out the difference better than the intricate smudgy silhouette. The silhouette of Orania is particularly bad. The reviewer is very sceptical that the two leaves silhouetted in Figure 11 really came from "one tree" of Areca triandra; variation in leaflet width and number is a feature within populations of Pinanga, Areca, and Iguanura - the reviewer has never observed such inconsistency in one individual where leaves are very similar. We are invited to note the terminal leaflets in a silhouette of Phoenix paludosa from afar, and "a truly terminal inflorescence branch" (sic) in Plectocomiopsis; in both instances diagrams would have clarified details which require imagination and faith to be seen in silhouettes.

The text is generally quite readable, but leans heavily on Corner's Natural History. Some of the statements are very vague; the description of the leaf of Salacca rumphii - suggests a mode of development so anomalous as to be quite inconsistent with other palms - yet there is no evidence for the description. The keys are generally quite good, though the reviewer would not recommend the use of the list of distinctive characters for use in identifying palms in the field.

In summary, the whole book gives the impression of being written in haste and isolation; many of the irritating errors could have been excluded by a critical reading of the manuscript before submittance to the publisher and increased

the value of the book considerably. The price for such a slim volume is high and will place it beyond the reach of most Malaysian students. Surely what is really required in Malaya now is definitive treatise on the native palms. — John Dransfield, Herbarium Bogoriense.

Willis, J.C., A dictionary of the flowering plants and ferns, 8th edition, revised by H.K. Airy Shaw, xxii + 1245 + lxvi pp. Cambridge University Press 1973.

Essentially, this book is the same as the 7th edition which was extensively reviewed on page 1586-1590 of this Bulletin. Additions and corrections have been made. Most important among the additions are the Hybrid generic names of orchids, classified into 7 categories of 'usage, accuracy and acceptability'. New and most useful is the list of 'Family equivalents in this edition of the Dictionary, Engler's Syllabus ed. 12 (i.e. the Melchior one), and in the Genera Plantarum'. For instance Willis 8: Bonnetiaceae, Engler-Melchior: Theaceae, Bentham & Hooker: Ternstroemiaceae. Another valuable addition is the list of Family names of Pteridophyta (50 in number). But the biggest addition is in figures on the jacket: US dollar 18.50 or £ 5.00 for edition 7, US dollar 32.50 or £ 10.00 for edition 8, hardcover; it is also issued as a paperback. — M.J.