

XI. REVIEWS

(continued from p. 1821)

Aubréville, A.: Essais sur la distribution et l'histoire des Angiospermes tropicales dans le monde. *Adansonia* 9 (1969) 189-247.

This paper deals with many problems also discussed in van Steenis's land bridge theory. Aubréville also rejects long distance dispersal and 'reluctantly' accepts Wegener's Eocene supercontinent as providing the necessary migration routes. He also postulates that the Eocene equator was far displaced, not making clear whether this is his own idea or somebody else's. He bases this apparently on the 'tropical' character of the floras of the European Eocene, of which he is firmly convinced. Aubréville does not realize that Dutoit already in 1937 has rejected Wegener's Eocene reconstruction as necessitating an 'absurdly late date' for the main drifting movement. To my knowledge nobody else has since accepted this reconstruction. In Aubréville's reconstruction of continents + equator, movements of 60 cm/year are necessary to get everything in place in time, which is more than 10 times faster than what is admitted as possible and likely by geologists (cf. E.R.Deutsch in *SEPM, Spec. Publ.* 10, 1963).

These two basic weaknesses make much of Aubréville's reasoning unrealistic and irrelevant.

A further source of weakness is his uncritical acceptance of certain fossil Fagaceae and Proteaceae which forces him to strange ideas about the history of these families.

An interesting suggestion is made on p. 238, that the older floras living in the tropics were not highly adapted to tropical conditions and that they were gradually displaced to the North and South, leaving montane relict stations in between, by a younger 'wave' of more specially adapted plants, from which the present day megatherm elements evolved.—J.Muller.

Coode, M.J.E.: Combretaceae. *Manual of Forest Trees of Papua and New Guinea. Part 1 (revised).* Division of Botany, Lae, 1969, 86 pp. mimeogr., 32 (page) fig., 8 maps, 10 fotogr.

Since the 1st ed. (1964) of the Forester's Manual was out of print and much new material had accumulated, a thorough new revision proved necessary; 4 new species of *Terminalia* are incorporated, officially to be described in *Kew Bull.* (in press). Problems to be solved are indicated.—v.St.

A Dictionary of the Generic and Family Names of Flowering Plants: New Guinea & South West Pacific Region. Division of Botany, Lae, *Bot. Bull.* 3, 1969, 124 pp. offset.

This list consists of two parts, first an alphabetic list

of the generic names to which is added the abbreviated family name, second a list of the same genera but now arranged under the families (the latter in alphabetical order). The designation of family names and of genera to families follows the arrangement of the Lae Herbarium.

This dictionary is certainly a useful asset, were it only for memorizing names. In the Introduction it is stated that it is not designed to be a source of information about what is found in New Guinea. It contains mainly genera occurring in the Territory of New Guinea, but also an unstated number of genera known from surrounding areas closeby; no further indication is given of the delimitation of the area, nor of the 'South West Pacific Region' mentioned in the title. It is also 'tried to include introductions'. Maybe the latter then accounts for the name *Staphylea* under *Staphyleaceae*.

The list is correlated with Shaw's edition of Willis, with occasional differences. Cross-references are inserted where necessary and are convenient.—v.St.

Erdtman, G.: Handbook of Palynology. Munksgaard, Copenhagen, 1969, 486 pp., 125 pl., 49 fig.

This book has an undertitle: 'Morphology-Taxonomy-Ecology. An introduction to the study of Pollen grains and Spores'. As a matter of fact it is no handbook, but more a textbook. It contains a lot of condensed information and outline of methodologies and terminology. This is spiced by many examples and critical remarks to what extent pollen and pollen characters can be used, how pollen is dispersed, occurrence of dimorphism in pollen, etc. Of special interest are the chapters in the headings on: pollen as a tool for taxonomy, delimitation of orders, families, genera, and species; this is appended with an alphabetically arranged list of families on which taxonomical remarks are made.

Pollen spectra, diagrams, profiles are also subject of special chapters. Importance to economic geology and paleobotany, even to criminology, and other uses of pollen is equally subject of separate chapters. In appendices one finds listed and pictured microfossils other than pollen and spores which are frequently found in palynological preparations. The methods of acetolysis, microphotography, set-up of a palynological collection, and a glossary are concluded by a large number of captioned examples of pollen grain types. As an introduction a useful book.—v.St.

Ferguson, I.K.: Index to Australasian Taxonomic Literature for 1968. *Regnum Vegetabile* vol. 66, 1970, 62 pp. \$ 5., for members IAPT \$ 3. (I.A.P.T.: Tweede Transitorium, de Uithof, Utrecht, Netherlands).

This is the first of a proposed very briefly annotated

bibliographic series, to be published annually, providing a convenient index to current literature and names of new taxa relevant to the study of the systematics of vascular plants of Australasia (Australia, Tasmania, New Zealand), New Guinea, and Polynesia (west of 135° W to 105° E, incl. Micronesia, Hawaii and Easter I., but excl. Galapagos and the islands off the eastcoast of Asia). Papers and books are fully cited and arranged under headings according to subject matter (general, biography, institutes, Floras and Floristic studies arranged by subareas; Pteridophyta and Spermatophyta in alphabetical sequence). The appendix lists the journals (and their abbreviations used) extracted for the purpose.

This index is very closely modelled to a similar one on 'European Taxonomic literature'. AETFAT issues a list for Africa, the Gray & Torrey Indices cover America, and Flora Malesiana Bulletin Indo-Malesia. These bibliographies are of course not all according to one model, but together they pretty well span the globe.

It is rather remarkable that a former attempt has not been mentioned in the introduction, viz. 'Australasian Herbarium News', which was a mimeographed journal issued by the Systematic Botany Committee of sect. M. Botany of ANZAAS. Of this numbers 1-14 appeared in the years 1947-1954. This issue was abandoned through lack of money and personnel. From that time I have intentionally incorporated all systematic botany of Australasia in Flora Malesiana Bulletin, as quite some botany of especially North Australia and New Zealand is of interest to Malesian taxonomists and plant geographers. The Pacific islands flora has always been incorporated in Flora Malesiana Bulletin.

Mr. Ferguson assumed in his introduction that Flora Malesiana Bulletin covers "South East Asia" and that "Australasia & Pacific appeared to lack a convenient guide except where an overlap from the Flora Malesiana Bulletin existed".

It must be realized though, that this overlap is, at least for essential taxonomic botany of Australasia, about 100 %. His Index is more lavish in its concept of taxonomic botany than Flora Malesiana Bulletin, containing also papers on morphology, anatomy, chromosome counts, vegetation studies, etc. and many marginal odds and ends. It lists also accurately all new taxa which we hardly ever do in Flora Malesiana Bulletin.

The Index is certainly a welcome addition with which the author can be congratulated.—v.St.

Flora of Phulchoki and Godawari (Nepal). Publ. by Govt. of Nepal, Ministry of Forests, Dept. of Medicinal Plants, Thapathali, Kathmandu, 1969, 144 + xxi pp., some photogr.

An anonymous Flora of Phulchoki Mt, 2715 m high, c. 16 km

from Kathmandu, with at its foot Godawary Kund, a small lake. A brief introduction about the vegetation is followed by the systematic enumeration, each species being provided with a very concise description, local names and flowering dates. There are no keys; 527 spp. are recorded, 15 of which new to Nepal. The enumeration is based on plants collected by the collectors of the Medicinal Department. Obviously Nepalese botanists have checked identifications at Calcutta and the British Museum. The photographs of the habit of some plants are not well reproduced. As a checklist this booklet is welcome to visitors of Nepal and serves as a local Flora.—v.St.

Hallé, F. & R.A.A. Oldeman: Essai sur l'architecture et la dynamique de croissance des arbres tropicaux. Collect. Monogr. Bot. & Biol. Végét. (ed. Prof. P. Champagnat) vol. 6, 1970, 178 pp., 75 fig. 8°. Masson & Cie. Paris.

The authors have distinguished and amply depicted 21 types of tree forms as defined by their final shape and the growth dynamics which led to its structure and physiognomy, each type called 'model'. Each is provided with a name dedicated to a prominent botanist who has contributed to the knowledge of tree shape, mode of ramification, etc. The term tree is taken in a broad sense, e.g. including Musa, ratan, Agave, Cereus, Bocconia. The field is certainly interesting and the book contains many new observations, and is gladly brought to the attention of tropical residents for testing the validity and distinction of the types proposed, and extending observation on living plants in a matter seldom recorded in exploration results on herbarium labels.—v.St.

Hartog, C. den: The sea-grasses of the world. Verh. Kon. Ned. Ak. Wet., Afd. Nat. ser. II, 59, 1, 1970, 275 pp., 63 fig., 31 fotogr.

A monograph preceded by a general chapter on origin, evolution and geogr. distribution. Den Hartog regards the marine phanerogams (Potamog. 9 genera & Hydroch. 3 genera) as derived from freshwater plants. According to fossil evidence sea-grasses were already developed in the (Upper) Cretaceous. Of all genera a map is given; their sometimes peculiar (sometimes bipolar) ranges are discussed in relation to fossil sea connections. Seeds are sinkers and land (shallow sea) is needed for their dispersal. *Zostera noltii* is the only sea-grass known from inland seas (Caspian, Aral Lake) and is a relict from an old connection with the Tethys. A special key to the genera is given for identification of sterile material; 12 genera are distinguished, among which 2 are new (Heterozostera, Australian, split off from *Zostera* and *Thalassodendron*, a segregate of *Cymodocea*). Keys are

given to the marine subfamilies and within them to the genera and in turn to the species. In all there are 48 spp., among which 3 are new; 3 new combinations. Australia is the continent by far richest in marine phanerogams.

The work contains numerous new data on structure of flowers, seed, fruit and vegetation; it will become a classic in its field.—v.St.

Hedge, I.C. & J.M. Lamond (ed.): Index of Collectors in the Edinburgh Herbarium. Dept. of Agriculture & Fisheries for Scotland, Edinburgh, 1970, 147 pp. Clothbound, £ 3.10.

This valuable compilation was issued in 1970 at the occasion of the tercentenary of the Royal Botanic Garden. Although lists of acquisitions were available for some years, up till now no record on the contents of this Herbarium was published.

In part I some general information on history, geographical areas, and number of specimens is given. From our point of view here is some comment. Region 6 (cf. map on p. 2, and p. 24), termed 'Malaya', comprises former Indochina, Thailand, Malaysia, Indonesia, the whole of New Guinea, and the Bismarck Archipelago. The concept 'Malaya', however, is generally understood to comprise the Malay Peninsula and Singapore. As area 6 is constituted of Malesia (as used in the Flora Malesiana, written with e after the political name Malaysia was coined for Malaya, Sarawak and North Borneo), Thailand and former Indochina, the term 'Indo-Malesia' would have been more adequate.

Part II gives geographically arranged lists of collectors of vascular plants and those of cryptogams (subdivided), with literature references.

Part III, occupying the greater part of the book, is a 'Main List of Collectors', alphabetically arranged, with concise information on country and year of collecting, sometimes literature records, mention of the herbarium from which the specimens were received, reference to obituary, and last but not least on details of the labels, as use of a special ink, use of initials instead of the full name of the collector or collecting locality.

Apart from some minor inaccuracies which can hardly be avoided in a publication like this, the lists seem reliable. A few inexactitudes as far as Malesia is concerned are: Alderwerelt van Rosenburgh and Blume did not collect in Ambon; Bonaparte did not in Malesia; Albay is a place name in the Philippines; F.Guard is no personal name but 'Forest Guard'; Kürubach is Kaernbach.—M.J. van Steenis-Kruseman.

Holttum, R.E.: Plant Life in Malaya. Longman Malaysia SDN Berhad, 44 Jalan Ampang, Kuala Lumpur. First paperback edition, 1969. Mal. \$ 6.

This well-illustrated balanced account of various topics of tropical plant life had various impressions (1954, 1957, 1961, 1964), testimony of its usefulness. There are only slight alterations in the original edition, notably p. 105 on breeding of bananas and p. 80 on the insect pollination of rubber.

The cover is provided with a colour-photograph of *Achasma triorgyale*, taken at Ipoh.—v.St.

Hotta, M.: Taxonomy of the family Araceae in Eastern Asia. I. General Part. II. Systematic Part. Kobe, 1969, 99 + 167 pp. mimeogr., 33 fig. Thesis.

The general part contains general remarks on affinity and morphology of Araceae carefully tested and illustrated by examples, and the anatomy; this is concluded by a chapter on karyotypes and chromosome numbers, to which the author contributed with countings of 30 spp. of *Arisaema*, and some remarks on the geographical distribution.

The systematic part contains a list of herbaria from where material was studied (6 Japanese herbaria only); for types in Europe he depended on notes of these made earlier by Hara, Koidzumi and Nakai, available in Kyoto and Tokyo herbaria. A key is given to the subfamilies, and one to the tribes and genera in Eastern Asia and Malesia. The proper systematic revision is confined to the Araceae of Japan, Korea, Ryu Kyu Is. and Formosa, in all 17 genera and 60 spp. Keys to species are given in *Arisaema* (by far the largest genus) and few others, and to varieties. There are no formal descriptions, but the main synonymy and distribution inside the area is mentioned and collectors are cited. Of *Rhaphidophora* there is a new species described, and there are quite some new varieties.—v.St.

Keng, H.: Orders and Families of Malayan Seed Plants. Univ. of Malaya Press, Kuala Lumpur, 1969, xxiii + 429 pp., frontispiece, 207 fig. (by Ro-Siu Ling Keng & author). Only obtainable from the University of Malaya Co-operative Bookshop, Faculty of Economics & Administration, Univ. of Malaya, Pantai Valley, Kuala Lumpur, Malaysia. M\$ 60. Bound.

This is primarily a textbook for students, providing a synopsis of orders and families of Gymnosperms, Dicotyledons and Monocotyledons native, naturalized, and commonly cultivated in Malaya and Singapore. It emerged from a syllabus prepared by the author in 1960. There is a brief introduction. The bulk of the work is taken up by the descriptions of orders and families, each provided with a succinct dis-

cussion. Of most families one species is figured, the figure consisting of a habit drawing with a diagram and flower analysis; obviously almost all are original. There is a key to the orders, within each order a key to the families, and appendix 2 gives a simple artificial key to the common families. Within the families there is mostly a key to most genera. Appendix 1 lists family names with their Malay and Chinese equivalents and the book is ending with a glossary, addenda, and an index.

The work is extremely well produced and is very recommendable for students' courses in systematy in Malaysia, Indonesia, Thailand, Burma, Indo-China, and the Philippines. The main frame is also distinctly useful in a much wider area, Ceylon, India, Pakistan, S. China, Formosa, but of course these areas contain other genera and the species figured are there not often applicable as to available material for students. The price is for students rather prohibitive. However, a student edition will be out soon. The price of this will be M\$ 20, just one third of the original price.—v.St.

Nemenzo, C.A.: The Flora and Fauna of the Philippines. 1851-1966. An annotated bibliography. Nat. Appl. Sc. Bull. 21 (1-2), 1969, 1-307.

This bibliography consists of two parts, flora and fauna. For the first it contains 1498 entries covering both Thallophyta and Embryophyta. The value for Philippine residents is the fairly large annotations of each entry. "It is intended to guide researchers, teachers and students of general science, botany and zoology to the literature of the subjects".

It is by no means a complete bibliography, as already in 1926 Merrill's Enumeration vol. 4 had a bibliography of about 1900 entries. This is obviously due to the fact that the consulted sources enumerated are only the libraries, private and official, which are present in the Philippines. With each heading is indicated where the paper is located in the Philippines.

The compiler has unfortunately classified the entries of Phanerogams under general and further under some taxonomic headings, viz. "Bryophyta, Tracheophyta, Pteropsida, Filicæ, Coniferae, Cycadae, Angiospermae, Dicotyledonae, and Monocotyledonae". This makes the bibliography rather difficult to handle, as many papers and books contain data on several or all of these groups and must hence be repeated. It gave also rise to serious omissions, for example Merrill's Enumeration vol. 1, giving a complete account of Philippine monocots, is omitted under that heading.

The bibliography is certainly of local use within the Philippines, but can by no means be considered to be representative of the botanical literature on the flora of the Philippine islands.—v.St.

Rain Forest Issue. Malayan Nature Journal 22, no 3-4, Sept. 1969, 99-205, pl. 18-44, many text fig. M\$ 10. or + US\$ 4.

This issue is most interesting; it deals with rain-forest of Malaya, but the subjects treated relate to general rain-forest problems. They are original observations written by experts in a clear and concise way. Whitmore & Burnham open the issue with a treatment of altitudinal sequence of forests and soils on granite on the Malayan Main Range, including observations on summit peat and the leaching effect by microphyllous montane scrub-forest. P.F.Burgess accounts for the ecological factors in hills and mountains and pays special attention to vegetation changes. J.B.Kenworthy's subject is the water movement in relation to evaporation and water movement in the tree. J.A.Bullock & Khoo Bin Khong contributed on data on litter and its decomposition on the basis of observations and experiments. Dransfield accounts for palms in the Malayan forests and their role in the vegetation types. Anne Johnson described a quadrat in rain-forest restricted to mosses, ferns and herbs. Wiedemann offers the same for trees in Ulu Gombak F.R. Cockburn sketched the botany of the first botanical visit to G.Mandi Angin, 1400 m, Main Range, a very unaccessible place. P.F. Burgess described colour changes in the forest, 1968 being a year with unusually rich flowering and fruiting and early 1969 by production of new leaves. There are also two contributions on bird and mammal populations. The two final papers are by Wycherley on Forests and Productivity and Bullock on the Productivity of the Rain-forest Ecosystem, data useful for conservation of nature.

All in all an issue which contains so much general stimulating observation that I wish it in the hands of all people interested in tropical forest ecology.—v.St.

Rupp, H.M.R.: The Orchids of New South Wales. Facs. ed. 1969. With a supplement by D.J.McGillivray. Issued by the National Herbarium of New South Wales, Sydney, as Flora of New South Wales No. 48. Government Printer New South Wales, I-XV + 177 pp., 23 pl. Clothbound Austr.\$ 5.

The original edition was published in Dec. 1943; its author died in 1954. The Supplement is primarily based on published data and does not include new names of species or combinations. All name changes and range extensions but also reductions are listed; a few are provided with a comment. The supplement which follows the generic sequence of the original, is not provided with an index.—v.St.

Stone, B.C.: The genus Pelea A.Gray. Phan. Monogr. 3, 1969, 180 pp., 70 fig., 22 maps, 8 pl. Publ. J.Cramer, Lehre, Germany.

This is a complete monograph of this Rutaceous genus restricted to the Hawaiian archipelago and the Marquesas. A key is given with the allied genera, *Evodia*, *Acronychia* and *Melicope*. Four sections are distinguished, with 68 spp. and a large number of varieties, and 2 spp. in the Marquesas.—v.St.

Subramanyam, K.: Aquatic angiosperms, a systematic account of common Indian aquatic angiosperms. Botanical Monograph no 3, 1962, VIII + 192 pp., 63 fig., 1 unnumbered coloured plate, 5 pl. (photographs). Council of Scientific & Industrial Research, New Delhi.

The publisher has obviously taken great care with this book which is printed on good glossy paper.

The first 112 pages contain extensive descriptions of families and genera, and short descriptions of species. The species descriptions are in many cases followed by interesting details on embryology, anatomy, ecology, flowering biology and medicinal uses, etc. There is a key to the families and within these keys to the genera and under the genera keys to the species. The second section of the book contains the illustrations. The final section consists of the references, a list of chromosome numbers of Indian aquatic plants, and an index.

The author "had to take the commoner plants for discussion and leave rarer species to the specialists". This point of view is fully understood. Nevertheless, with little further trouble the author could have recorded the number of aquatic genera by which each of the families is represented in India. As it is among the Hydrocharitaceae the genus *Thalassia* has not been recorded, and among the Araceae the genus *Lagenandra* has been omitted. The Droseraceae, represented in India by the peculiar aquatic genus *Aldrovanda*, are not mentioned at all.

It would also have been little trouble for the author to mention the number of species by which each genus is represented in India. Now it remains uncertain to the user whether the species mentioned under each genus are only a selection from a larger number, or form the complete Indian set. The keys can of course only be used for the identification of the selected species. The fact that this has not been clearly stated may become a pitfall for unexperienced botanists and students, who may come to wrong identifications. The same danger is hidden in the genus treatises where only one species is described and thus no key has been added; although several of these genera are monotypic or represented in India by one species, there are among them some which have also in India several species, e.g. *Cryptocoryne* (at least 7 species) and *Halophila* (5 species).

The key to the families starts, as is so frequently done, by separating monocots and dicots by means of three criteria. The author apparently does not realize that this brings along unnecessary uncertainty for a student, and even for anyone using the key. The criteria are the number of the cotyledons, the venation ('net-veined' against 'parallel-veined'), and the arrangement of the vascular bundles. The first character is difficult to observe, and one must have ripe seed. As to venation "nervation" would have been the better term, thus parallel-nerved or curvinerved (as in *Halophila*). But in Lemnaceae, some Myriophyllums, and Podostemonaceae venation is absent or difficult to observe. The third character, vascular bundles, said to be scattered in all monocots, also does not hold as in the monocot *Halodule* (*Diplanthera* in the book) there are two pericentral vascular bundles arranged in a very regular way, and in *Cymodocea* vascular bundles are arranged in a circle, hence in both cases not 'scattered' as in other monocots. Besides, the bundles can only be observed in cross-sections which are sometimes difficult to make in dried material. The author should have drawn a new practical key based on more easily observed characters.

The descriptions of the taxa are clear; inaccuracies were found only here and there, e.g. on p. 76 where it is stated that the ovary in the Lemnaceae contains 1 or 2 basal ovules and that the fruit is a 1-7 seeded utricle. In the description of the Alismataceae and its genera the term 'stylodium' has been used instead of 'style'. The synonymy is rather incomplete, also where names used only for Indian material are concerned, only some old synonyms being mentioned. I have checked this for the Hydrocharitaceae, the Lemnaceae and the Alismataceae.

The illustrations, although representing quite different styles of drawing, are very clear and generally of a high standard, exceptions being fig. 13 of *Callitriche stagnalis*, fig. 55 of *Potamogeton pectinatus* and *P. perfoliatus*, and fig. 56 of *Zannichellia palustris*. In the author's note (p. V) it is stated that "the illustrations, as far as possible, are drawn from fresh materials; but information available from other sources has also been incorporated". The author should have had the courtesy to mention these sources. In at least 7 cases it is obvious that figures have been copied (with or without slight alterations) from *Flora Malesiana*. The figures 37, 40, 42, 44 and 45 show a more than accidental agreement with fig. 1, 5, 9, 16 and 13 respectively in the revision of the Hydrocharitaceae (den Hartog, *Fl. Males. I*, 5, 1957); fig. 52 is very similar to fig. 4 in the revision of the Alismataceae (den Hartog, l.c.) and fig. 53 is almost identical with fig. 1 in the revision of the *Butoma-*

ceae (van Steenis, Fl.Males. I, 5, 1954). We appreciate the fact that the drawings of Ruth van Crevel in Flora Malesiana have been selected by the author as being good enough to be used in his book; however, an acknowledgement would not have been out of place. The general impression is that instead of being a new, fresh, critical book, too much has been compiled from literature.—C.den Hartog.

Tralau, H. (ed.): Index Holmensis. I. A World Phytogeographic Index. Compiled by M.Andersson, A.Scotland, S.Olsson, and J.Weytko. The Scientific Publishers Ltd., Zürich, 1969, 264 pp. offset. 4°.

This first volume covers the bibliography of Equisetales, Isoetales, Lycopodiales, Psilotales, Filicales, and Gymnospermae. The intention is to give a bibliography of all plant maps hitherto published, complete or partial for each taxon of both living plants and fossils. With this a desideratum is filled, the need of which we expressed in the bibliography of Pacific Plant Areas in which Mrs. M.J. van Steenis-Kruseman set an example for a limited area of the globe, but which only covers living Phanerogams.

This work will be extremely useful, but also a formidable task for which the world literature must be scanned. Dr. Tralau is certainly encouraged to complete it and is admired for his courage.

Within each phylum plant names are alphabetically arranged and under each name references in the same way. Sometimes titles of papers are cited in full, sometimes not; from the very brief introduction the criterion for this procedure is not clear.

The commentary under each entry is very brief and consists only of the mention of the countries covered. From this it is not discernible whether or not the complete range or only a partial range is covered.

I find this a distinct drawback, as the composers in scoring a map could easily have observed whether the map covers the complete range of the taxon or not.

No mention is made of the way how maps are composed: dotted localities, shading, parameter-lining, etc. In the preface it is explained that there are so many ways that this was omitted for that reason.

The 'closing date' of the bibliography is not mentioned in the preface; I miss for example the generic map of *Tapeinidium* published in Blumea 1967.

A technical improvement would be desirable in having some blank space between the names of the taxa to make the text somewhat less compact and facilitate consultation. Also a topline indicating the group and alphabet would facilitate consultation. Both desiderata would cost some space, but

would be of advantage, and could easily be coped with if titles of papers which seem rather superfluous would be omitted.

The volume is adequately dedicated to Professor Hultén who has probably composed more maps than anybody. The authors acknowledge the great profit they had from his works.—v.St.

Wade, L.K. & D.N. McVean: Mt. Wilhelm studies I. The alpine and subalpine vegetation. Research School of Pacific Studies, Dept. of Biogeography & Geomorphology Publ. BG/1, 1969, 325 pp. offset, 13 fig., 22 photogr. Australian National University Press, P.O.Box 4, Canberra, A.C.T. 2600.

This is a shortened version of a thesis by McVean. Discussed are the geomorphology, rocks and soils, animals and their effect on vegetation, forest and grassland types, alpine heaths and tundra, landslip communities and related vegetation, and mires, in various plots on different altitudes and situations. A number of associations are defined and their composition is shown in elaborate tables. Finally a comparison is made with mountain vegetation in other parts of the world.—v.St.

## VARIA

### SHOOTING SPECIMENS

The Varia on p. 1578 gave Mr. T.B. Worthington of Peradeniya reason to comment. He agrees on the inefficiency of a 12-bore shotgun, and of a .22 rifle because of wind sway in the tree tops. But a .410 with No.6 shot aided him considerably to acquire material for collection and photographs. "No.360 in his 'Ceylon Trees' - which, by the way, are out of print - is a composite of seven pieces, though normally the twig is shot clean. Targets above fifty feet were seldom attempted."