

REVIEWS

E. H. WALKER, *A Bibliography of Eastern Asiatic Botany — Supplement 1*. Sponsored by the National Science Foundation, Washington, D. C., U. S. A. Published by the American Institute of Biological Sciences, Washington, D. C., U. S. A. 1960. xxxviii + 430 pages + subject index, 2 maps. Size 22 × 29 cm, double column, buckram cover. Price \$ 18.50 to individuals and industrial libraries, \$ 16.50 to A. I. B. S. members and all other libraries.

The publication of the supplement 1 of the well known and essential reference work of "A Bibliography of Eastern Asiatic Botany" is very welcome. It is a continuation of the original work, which closed with 1936, and extends through 1958. It covers the botanical literature on eastern Asia, as indicated by the title, which comprises China, Japan, Korea, Ryukyu, Mongolia and Soviet eastern Asia, as well as the major published papers appertaining to adjacent areas. It has been prepared on essentially the same pattern as the original volume while the subject index has been treated perhaps in a more thorough manner.

The volume contains over 11,000 extensively and carefully annotated entries occupying 414 pages. The work is in English but the titles, papers and author names in oriental characters are fully cited, which is an improvement as compared with the original volume. It includes now the original Chinese, Japanese and Korean titles and author names as published in oriental characters as well as translations or transliterations of them. In addition, the supplement fortunately covers the extensive Russian literature, nearly 1600 entries, on Soviet eastern Asia. All Russian titles are transliterated into Roman letters and are also translated. All these improvements make this bibliography more complete than the original volume and extend its usefulness.

The term botany has been broadly interpreted in order to cover most publications dealing with the plants of this area and make it available not only to botanists in different fields but also to pharmacologists, anthropologists, ethnologists, and librarians as well. This policy has been emphasized and reflected by the entries of the supplement. I have read it with pleasure and interest and paid special attention to the Chinese entries.

As one scans this volume, one is impressed by the quantity and details of the entries, the admirable format and printing, and the excellent binding. Dr Walker has done his best to attain a high degree of completeness so far as the articles written by the authors of eastern Asia are concerned and he should be congratulated for what he has accomplished.

In a comprehensive work like this and with the great difficulties encountered in its preparation, one should and must allow for some omissions and printing errors. I am glad to say that through the author's care, the number of printing errors is at a minimum as far as I can see in the Chinese entries. Here I may just mention one of them, which occurs on the title page; according to the Chinese characters of the title, the transliteration of "supplement" should be "Tscheng pu" instead of "Pu i".

In regard to the omissions, except the difficult-to-obtain publications, for example, some Chinese botanical literature, those appeared in some less promising serials, and those incidentally missed, there are some major works, important monographs and revisions published under general titles or under the titles of special geographical areas which are not included in this bibliography although they include important information concerning eastern Asiatic botany. Some examples are: C. Linnaeus: *Species Plantarum*. Vol. 1. A facsimile of the first edition, 1753, with an extensive historical and bibliographical introduction (xiv + 176 pp.) by W. T. Stearn; A. C. Smith: *The American species of Hippocrateaceae* (*Brittonia* 3, 1940, 341—555, fig. 1—12, & literature); and K. U. Kramer: *A revision of the genus Lindsaea in the New World* (*Acta Bot. Neerl.* 6, 1957, 97—290, 82 fig., & references).

In the introduction of the original volume (p. v), the authors have stated: "The objective has been to record those papers to which botanists who are concerned with the study of the plants of this area must or should refer". In the light of this principle I was surprised to miss the *Flora Malesiana* among the entries, except for the "Dates

of publication" by M. J. van Steenis-Kruseman and W. T. Stearn. Neither the Flora itself nor any revision of the families published in it has received an entry. As the authors of the bibliography have expressed clearly and rightly also in the introduction of the original volume (p. viii) that "The primary use of the bibliography is to aid students and investigators dealing with eastern Asiatic plants to discover what has been written on their special subjects, and to direct them to such works", the omission of an important work, as for example, the Flora Malesiana, seems unwarranted and would give the students of eastern Asiatic botany a quite incomplete information about the literature of some special groups.

I may quote another statement made by the authors in the introduction of the original volume (p. v) that "Special attention has been given to bibliographies, because of their value in indicating other data accessory to those made directly available here". With respect to this it may be pointed out that if the selected, concise and useful bibliographies published in the Flora Malesiana and Flora Malesiana Bulletin had been consulted, many omissions could have been avoided. Unfortunately, none of these bibliographies has received an entry in the supplement.

In conclusion, it is sincerely hoped that Dr Walker with his indefatigable spirit, great experience and detailed knowledge of the bibliography of eastern Asiatic botany will envisage to continue his bibliographical work on the flora of eastern Asia for the compilation of future supplements.

DING HOU.

H. H. ALLAN, *Flora of New Zealand, Vol. 1, Indigenous Tracheophyta: Psilopsida, Lycopsidea, Filicopsida, Gymnospermae, Dicotyledones*, 8°, 1085 pp., 40 fig., 4 maps, April 1961. — Govt. Printing Office, Wellington, New Zealand. Clothbound £ 5.5.—

This new flora is a posthumous work seen through the press by Miss Lucy B. Moore, who was associated with the late author in this major botanical work; the typescript of this work was obviously ready before Dr. Allan passed away, a most remarkable coincidence with Cheeseman's 1925 edition which was under similar circumstances edited by Oliver. It is not an improved and up to date third edition of Cheeseman's Manual, but an entirely new Flora, both in keys and descriptions. The number of species increased from 1184 of Cheeseman to 1273 (Dicotyledons only). Although several species were reduced, new revisions in the past decades added many species specially in some large genera, e. g. *Carmichaelia*, *Dracophyllum*, *Aciphylla*, *Epilobium*, etc. Also in this work many new transfers and combinations are made and there is a special section containing latin descriptions of new taxa, by Dr. Allan and his collaborators Mr M. B. Ashwin, Miss J. A. Hay, and Miss L. B. Moore. Among them are three new genera. Comparing the major sections of this work with that of Cheeseman it appears that the History of botanical discovery is replaced by a chronological bibliography of major works for the New Zealand flora 1769—1958. The list of Maori names, synopsis of classes and orders, glossary of technical terms, and full index remained. New sections are a glossary of author's names, the list of new taxa, a list of abbreviations, a very succinct ecological-geographical sketch of the New Zealand botanical region, and supplementary notes (by Miss Moore) containing corrections and omissions and supplementary additions including also literature of 1959. Furthermore most valuable new assets are the general identification keys to genera and families. Cheeseman's appendix list of naturalized plants has been omitted but will probably follow in the 2nd volume on the Monocotyledons. The nomenclature in the work is brought up to date, in all ranks, and the impression is that extremely great care is given to its composition. Ref. is of course incapable to judge the floristic merits as the proof of the pudding is in the eating and the pudding is too far away from him, but he trusts that the very large knowledge, and unequalled experience of the late Dr. Allan and sound work of other New Zealand botanists has led to a supreme effort for a proper evaluation of the native flora of New Zealand. A major, and almost unique feature in the way of floras is the insertion of a very large amount of commentaries, suggestions, remarks, and criticisms on both species and genera, relating to variability, polymorphism, hybridization, discrimination of genera and species, heteroblasty, growth forms, etc. which seem unusually instructive and give great merit through the large amount of critical observation stuffed in these commentaries. The figures, accompanying mostly large or critical genera, are clear and well executed.

As is usual with local Floras of far-flung areas, some literature has obviously escaped attention. A few examples are Danser's work on *Loranthaceae-Loranthoideae*, reference to which should replace that to Van Tieghem's obsolete work, Ding Hou's revision of *Gaimardia*, that of myself on *Nothofagus*, and Schlittler's on *Liliaceae*. The contraction "Handbk" for Handbook is rather peculiar.

The book is excellently bound and has been well printed on very thin paper, about that used in Encyclopedia Britannica, apparently facilitating its easy transport during field work. Although of excellent quality this thin paper requires thumbing skill in consulting the book. It would have been charming if a biography of Dr. Allan could have been added; I hope this will be inserted in the 2nd volume.

C. G. G. J. VAN STEENIS.

FRANK KINGDON-WARD, Pilgrimage for Plants — Harrap & Co. Ltd, London, Toronto, Wellington, Sydney, 1960 — 191 pp. including subject index, and many photographs; — bound in cloth. Price 18/—.

With the possible exception of the Japanese, no people seems to have developed so high an horticultural standard as the British. Nowhere is there so much devotion to the cultivation of flowers and the fostering of public and private gardens. In the many English books on gardening and horticulture, the proverbial English understatement seem to surrender completely to a disarming sentimentalism, and the enthusiasm for the possibilities of adding novelties to the assortment sometimes even surpasses that for much urgent realistic needs.

Kingdon-Ward and his wife — who edited this last book after her husband's death — are typically British in these respects. Ward — Kingdon being his mother's name — devoted practically all of his adult life to plant hunting, and his own statement "of no fixed abode" is typical of his errant life. For a working area he chose the long and lofty mountain ranges of the Himalayas, Southern China, Burma, and Assam which abound in deep and steep gullies as well as in countless species of the most worthy herbaceous and woody representatives of the holarctic flora. The pilgrimage for them, in many cases shared by Mrs. Kingdon-Ward, has been recorded in charming "short-stories", each devoted to a major group: the *Magnolias*, *Nepenthes*, the Blue Poppies (*Meconopsis*), *Prunus* and *Primula*, *Rhododendrons*, *Lilies*, *Gentians*, and *Orchids*, etc.; most of them enlivened by a very readable historical, horticultural, and anecdotal fringe, the last chapter being devoted to "Geography and Living Standards in South-east Asia". The well-known authority on cultivated plants, Dr. W. T. Stearn, of the British Museum (Natural History), added a short biography, listing all of Ward's travels (24 between 1909 and 1957) with a yield of over 23,000 numbers. Stearn also added a bibliography of Ward's numerous publications of which no less than 23 are books. There are two line illustrations in the text, some area maps on the inside covers and a great many photographs in black and white (including a portrait of the author); most of these are of a very good quality and depicting remarkable plants or scenery. It is to be regretted that no colour plates could be added (save that on the dust cover, whose identity I failed to detect), but it is understandable that this would have considerably raised the price which is very reasonable for a book of this standard and quality.

H. J. LAM.

KNUT FAEGRI, Coast Plants, in Maps of Distribution of Norwegian Vascular Plants, edited by K. Faegri, O. Gjaerevoll, Joh. Lid & R. Nordhagen, vol. 1 — Oslo University Press, Oslo 1960 — 134 pp., 54 plates, bound in cloth. Price N. Cr. 75.—.

The first volume of this atlas contains maps of distribution in Norway of 156 species of coast plants. Coast plants here means terrestrial plants, which in Norway are restricted in their distribution to coastal districts. Littoral species are not included; their distribution will be dealt with in a future volume of the series.

In an introduction Prof. Nordhagen discusses the history of botanical inventory

work done in Norway. The data of the present atlas are based on herbarium material in Norwegian as well as in Swedish collections, on printed records, and manuscript ones. The working-method is amply discussed. The authors have tried to make the maps as complete and as accurate as possible, leaving out of consideration taxonomically doubtful taxa until future revision will be done.

Detailed data on Norwegian topography, geology, climate and on the ecology of the species dealt with, precede the maps.

Important information is given as to already existing maps of distribution (Norwegian as well as general ones). Notes on the first record of each species for Norway, a discussion of the Norwegian distribution and of altitude limits, a critical survey of excluded or doubtful stations and details about the habitat accompany each map.

This Atlas will be welcome not only to all botanists working on the Scandinavian flora, but also to many others who are engaged in the distribution of European vascular plants.

S. J. VAN OOSTSTROOM.

F. J. W. BADER, Die Verbreitung borealer und subantarktischer Holzgewächse in den Gebirgen des Tropengürtels. Eine arealgeographische Studie in dreidimensionaler Sicht. Nova Acta Leopoldina N. F. 23 (No 148): 1—544, 95 Tabellen, 15 Karten, 16 Profile. 8°. 1961. Verlag J. A. Barth, Leipzig. Paper cover DM. 33.—.

In this voluminous work the author has tried first to give in detail the horizontal distribution of the ligneous, boreal (holarctic) and subantarctic genera which are also tropical-montane, second, to describe and discuss their altitudinal behaviour at different latitudes and their association with plant communities.

Besides, the study is chorological and contains of course a distinct element of genetic plant geography.

The data have largely been derived from literature, to which occasionally private information from specialists has been added. The extensive bibliography covers c. 1600 titles, large volumes as well as small papers.

On what basis the genera have been selected is not stated and is not clear, as among the distinctly northern genera I find in superficial checking the following unmentioned: *Illicium*, *Skimmia*, and *Deutzia*, and among subantarctic ones: *Aristotelia*, *Hebe*, and *Kelleria*. The author informed Ref. that he had intentionally omitted *Erica*.

The first part is taxonomically arranged (pp. 23—330) and contains the factual base of the work; 65 genera have been found eligible, belonging to Gymnosperms and 25 families of Angiosperms. Most of the latter are represented by one genus only, the Gymnosperms have 17 genera, *Ericaceae* 8, *Fagaceae*, *Betulaceae* and *Rosaceae* each 4. Of 37 genera distribution maps have been given on 15 maps which are unfortunately on a very small scale and too crowded.

Under each genus there is a discussion of its subdivisions, an enumeration of all species with their altitudes in various places. The largest genera are *Rhododendron* c. 400 spp., *Quercus* 400, *Lithocarpus* 350, *Vaccinium* 350, *Weinmannia* 200, *Gaultheria* c. 160, *Prunus* c. 100, further *Evonymus* and *Rhamnus*. The author points out that species centres do not always reflect the origin of the genus, but he fails to point out that concentrations of infrageneric centres will carry weight in this respect. He finds two main origins rooting in the northern and southern hemispheres respectively; among the total of 65 they stand in a ratio 2:1. No genus has only reached the tropics in Africa. Further, among the northern hemisphere genera only three are not circum-arctic, but among the 19 southern hemisphere genera there are 7 not circum-southpolar. This is of course easily explained by the much larger amount of the land on the northern hemisphere.

This first part is concluded by a survey of the distributional types which are 6 in number, viz: neotropical, neotropical-african, neotropical-Pacific, pantropical, African-Pacific, and Pacific montane.

In the second part (pp. 381—461) the altitudinal zonation is elaborately discussed for each genus, with its relation to plant communities, within these 6 types. For the large genera the altitudinal data are arranged in tabulated form. In the profiles the altitudinal range of the genera is delineated at various latitudes to give a picture of the spatial relations of the ranges.

No final conclusions or theses finish the work, and the two pages general remarks contain no new plant-geographical aspects. There is unfortunately no index.

As can be expected in such a large work details have sometimes been overlooked, e.g. *Nyssa hollrungii*, the only New Guinea record of the genus is *Alangium* (cf. Wasscher), and some papers have been omitted, for example: Diels, Ueber die Ausstrahlungen des holarktischen Florenreiches an seinem Südrande (Abh. Preuss. Ak. Wiss. 1942). But on the whole the treatise seems to be fairly complete.

Summarizing, in this compilation the author has brought together a large amount of raw material unearthed from literature, which may be useful for consultation.

C. G. G. J. VAN STEENIS.

NYHOLM, E., *Illustrated Moss Flora of Fennoscandia. II. Musci*, fasc. 3, 189—287, 1958; fasc. 4, 287—408, 1960.

These two fascicles are a continuation of the well-known moss flora of Nyholm, of which the first two fascicles have been reviewed in *Blumea*, 8 (2), 1957, p. 533. Fasc. 3 and 4 deal with the *Eubryales*, *Schistostegales* and part of the *Hypnobryales* (mainly those with isodiametric leaf cells). The only groups of Musci to be treated in the coming fascicles now are: *Hypnobryales* p.p. (viz *Amblystegiaceae*, *Brachytheciaceae* and the suborder *Hypninae*), *Sphagnales*, *Andraeales*, *Buxbaumiales*, and *Polytrichales*. It is to be hoped that a general index as well as a key for all Musci, leading directly towards the genera, be given at the end of the book.

All fascicles published so far are quite uniform in both outline and set-up. A few additional remarks will therefore suffice. Again the reader is impressed by the excellent, original descriptions of the species, although one would wish to have the diagnostic characters italicized. This flora is partly based on original observations and uses original characters, also in the keys, for instance the difference in number of papillae on the lamina cells between *Stroemia obtusifolia* and *S. gymnostoma*. Number and arrangement of papillae on the cells, often neglected characters, are, by the way, used throughout the book.

Several taxa, which are merely credited with varietal rank in other floras, e.g. *Orthotrichum fastigiatum* and *Neckera oligocarpa*, are rightly treated as species here. Some opinions are very original, for instance that the well-known, widespread species *Orthotrichum affine* is probably a hybrid between *O. fastigiatum* and *O. speciosum*.

Nomenclature seems to be mostly correct and up-to-date. In taxonomic respect it mainly follows Brothrus, which means that the genus concept is narrow. In some cases, e.g. *Barbula*, a remarkably wide concept is adopted, however.

It is a great pity that the illustrations are not too good, especially those showing the habit of the plant. Drawings of leaf cells are not very clear either. The figure of *Antitrichia curtispindula* does not show the recurved teeth at leaf apex, so typical of that species.

The keys to the genera and in some cases even those to the species often make use of unnecessarily difficult or uncontrollable characters, f.i. sporophyte characters. The genus *Zygodon* can only be identified with fruits, although it hardly ever fruits in these regions. It is rather embarrassing and quite unnecessary for a practical key to separate the genera of *Mniaceae* on the sole basis of peristome teeth and capsule stomata. The same characters have to be examined to identify striking species as *Orthotrichum diaphanum* and *O. lyelli*, which can easily be told apart without them. The student will therefore often be obliged to follow many different lines in the keys, although the book is said to have been written because in other floras "workers... have often been obliged to devote much time and work to even the simplest moss identification"!

In addition the keys contain some errors, e.g. in the genus *Mnium*. *Mnium affine* certainly does not always possess acute teeth down to the base of the leaf. The teeth of the leaf margin in *Mnium serratum* are not less sharp than in *M. hornum*. Why has *Mnium stellare* (leaf border not thickened, with single row of teeth) been included in the group of species with a strongly thickened border and biseriate teeth? It is, for that matter, without making a transversal leaf section, difficult to decide whether

the leaf border is one or two cells thick. When identifying *Tortula laevipila*, one has to choose "large species" growing "on living trees", whereas this moss may be quite small and may grow on calcareous walls and stone (roofs).

The descriptions of the habitats are decidedly better than in Dixon and often even than in Moenkemeyer. Yet, one would wish them to be more detailed. In the genera *Ulota* and *Orthotrichum* for instance it is important to know whether the species grow in woods or on wayside trees, on broad-leaved trees with rich, neutral bark or with poor, acid bark.

J. J. BARKMAN.