Book Reviews

The concise Oxford dictionary of botany. Edited by M. Allaby. Pp. vi + 442. Oxford University Press, Oxford & New York. 1992. Price £18.95 (ISBN 019–866163–0 hardback); £6.99 (ISBN 019–286094–1 paperback).

Dictionaries are keys to information; they cannot replace monographs and detailed subject textbooks, and no single-volume dictionary can ever be a complete reference work on all matters within a subject. On the whole Allaby's handy, pocketable dictionary succeeds in being up-to-date and, as far as I could tell, accurate within reasonable parameters. Certainly this is likely to be a valuable ready-reference for undergraduates and postgraduates of all ranks, serving as a source of modern definitions and concise explanations. I do not think it is designed, as claimed, for the non-specialist unless the person is already well-versed in the biological sciences.

For example, if you look up "Microbiota", the entry leads you to "the smallest soil organisms, comprising *bacteria, *fungi, *algae, and *protozoa", which will be a trifle confusing if you needed to find out what the plant named *Microbiota* is! You can discover what the Fagaceae are, but not the Fabaceae unless you know this is the alternative name for Leguminosae. From obscure (to this reviewer) genera of gram-negative bacteria to world vegetation zones, by way of killing frost and island hopping, from micro-consumers to BP – "Before the present (which is taken to be 1950). The initials should not be confused with BC" – not to mention silage and *Bulgaria* (order Helotiales), this is an omnium gatherum of botanical jargon, arcana and facts, but it is not a dictionary of genera of cryptogams and phanerogams.

Criticizing a dictionary is a thankless task, and could be an endless one too. Leaving aside the editor's choice of entries, especially of genera, on which no agreement is likely, there is one criticism that must be levelled at Allaby's editing. As I 'explored' the world's vegetation zones, I noticed that the explanations included such phrases as "Part of Good's (1974) boreal kingdom . . .", but nowhere could I discover who Good was, nor what his 1974 work was titled. Likewise there is no entry about boreal kingdom. Unfortunately, there is no bibliography nor even a brief list of select references.

Apart from that criticism, I can understand that this particular dictionary will serve the academic fraternity of botanists, but a copy is unlikely to be used frequently by an amateur botanist who is seeking enlightenment about native wild plants.

E. C. Nelson

Wild orchids of Scotland. B. Allan & P. J. B. Woods; photography by Sidney Clarke. Pp. vii + 135; illustrated. H.M.S.O. Edinburgh. 1993. Price £24.95 (ISBN 0–11–494246–3).

During the 20 years I lived in Scotland I took a very active interest in most of the wild and cultivated flora of the country, but I carefully avoided the wild orchids as one of the groups, along with the grasses, hawkweeds and mosses, which were difficult and best left to the specialist. This book has changed all that and is a first rate guide which makes accurate identification easy and also makes orchids and orchid biology accessible.

The fact that I know many of the people responsible for this book and that some of them are old friends is not going to stop me from giving it a rave review. Having declared my interest I cannot say anything other than that this is a marvellous book and it deserves all the praise which will, I confidently expect, be heaped upon it.

Let me list just a few of the virtues of this book: the identification key *works* and is illustrated in a way which gives confidence, even to a novice both in the use of keys and in the structure of the orchids, that one is on the right track; the distribution maps which show the range of each species and subspecies before and after 1970 tell interesting stories about plant colonisation and

disappearance (or on a different level tell us about the collecting habits and knowledge of botanists); Mary Bates' drawings are clear, effective and well labelled; the text is informative and accessible and the book itself is attractively but unpretentiously designed with a clarity which fully supports the book's purpose but which also gives it an approachable and enjoyable feel by devices such as the simple, uncluttered, airy layout of pages which start each chapter.

This unpretentious clarity extends to the photographs which add a whole new dimension to the book. I have long admired Sidney Clarke's photography both for its technical professionalism and for the way in which he shows plants, either as individuals or as elements in a habitat, in an unembroidered and direct way. He uses his photographic art in the service of science and good communication: there is no artiness in the pictures (though I would enjoy seeing the book's endpapers as a furnishing fabric or wallpaper). In a short chapter of only four pages on photography he tells us how he does it but he doesn't mention the lifetime of walking the Scottish hills in pursuit of plants, his deep personal interest in photography and his commitment to the Scottish flora and its conservation which are the essential foundation of his success. The photographs were taken in only three seasons and one is tempted to ask if it ever rains on Scotland's orchid habitats.

To call the text scientific is to hint that it might be scholastic, accurate but rather dull: far from it. Here is a well-written text in the best tradition of good communication. It perfectly complements the photographs by being concise, clear and free of any taint of jargon. Again this artlessness conceals, and is a result of, a lifetime of enthusiasm for the study of orchids by Patrick Woods and his co-authors.

So, is there anything I do not like about this book? No: my admiration for this initiative is unqualified – there are no buts. Everyone associated with its production can be proud of their roles in what is an excellent example of the way in which a variety of different talent can be brought together to deliver an elegant product. It is an outstanding example of what botanic gardens can do so well as 'packagers' of sound scientific knowledge for a wider, enthusiastic and demanding audience. I invite the audience to join me in the applause.

R. B. Burbidge

The vegetation of ultramafic (serpentine) soils. Edited by A. J. M. Baker, J. Proctor & R. D. Reeves. Pp. 509. Intercept, Andover, Hampshire. 1993. Price £47.50 (ISBN 0–946707–62–6).

The Proceedings of the First International Conference on Serpentine Ecology, held in California in June 1991, is a well-focused collection of 36 papers from ecologists, soil scientists, plant physiologists, taxonomists, geneticists and evolutionary and molecular biologists. Approached from these different viewpoints, the volume contains a wide global representation of studies which contribute towards an understanding of ultramafic ecology. Editing and production standards of the book are well above that which we often expect from conference proceedings; this book is a valuable reference work, broader in scope and more comprehensive than a previous excellent review edited by B. A. Roberts & J. Proctor (*The ecology of areas with serpentinized rocks* (1991)).

Soils derived from ultramafic rocks such as serpentine occupy less than 1% of the earth's surface, being widely scattered throughout temperate and tropical regions. They are rich in ferromagnesian minerals, with low silica content, but otherwise they are rather variable. Most evidence suggests that different combinations of nickel toxicity, magnesium toxicity in relation to calcium deficiency, low nutrient status and drought are responsible for an often unusual and distinctive vegetation. Ultramafic floras are often rich in endemic and rare species. In New Caledonia, ultramafic soils occupy about a third of the archipelago and contain 60% of the native flora with 1,844 species, 90.6% of which are endemic. In Cuba, serpentine endemic species represent 15% of the flora, with a much higher proportion found on old serpentine soils exposed for 10–30 million years rather than on soils exposed for 1 million years or less. The endemic content of other serpentine floras may be considerably less, for example accounting for only 3% in the Apennines in northern Italy where they consist mostly of neo-endemics. Plant communities on ultramafic soils range from arctic-alpine, through meadows, communities dominated by trees and shrubs, to rain forests. However, it appears that vegetation cannot be described as 'serpentine' merely as indicated by geological maps; on

ultramafic outcrops in Ireland there is no distinctive vegetation or endemism and no occurrence of rare species.

Hyperaccumulation of nickel by plants, to exceptionally high tissue concentrations of $>1000\mu g\ g^{-1}$ dry weight (compared to normal concentrations in plant tissues of $<5\mu g\ g^{-1}$), is an unusual phenomenon that has received considerable attention and has now been identified in nearly 200 species (1–2%) on ultramafic soils. This extreme metal tolerance trait occurs surprisingly widely in 33 families of plants, although is more common in some such as the Brassicaceae and Euphorbiaceae. It is thought that high levels of nickel in plant tissues may confer greater resistance to attack by insect herbivores.

Ultramafic soils and vegetation provide a valuable resource for ecological study, but many areas remain undescribed biologically. The importance of implementing a conservation strategy for ultramafic sites is addressed in a conference resolution. A large number of sites are substantially disturbed by mining for iron, chrome, nickel and asbestos, or else by burning, grazing, urbanization and agriculture. This book should appear on the shelves of all science libraries, where hopefully it will encourage more people to become interested in ultramafic ecology.

N. M. DICKINSON

The eternal yew. T. Baxter. Pp. 192, illustrated. The Self Publishing Association Ltd, Units 7/10 Hanley Workshops, Hanley Swan, Worcestershire, in association with Trevor Baxter. 1992. Price £19.50 (ISBN 1–85421–148–X).
The yew tree. A thousand whispers. Biography of a species. H. Hartzell Jr. Pp. xvi + 320, illustrated. Hulogosi, Eugene, Oregon 97440. Price US$ 19.95 paperback (ISBN 0–938493–14–0).

The yew is an intriguing plant because there is excellent evidence that some individual living trees of *Taxus baccata* are many centuries old. *Taxus* comprises perhaps seven species, including *T. baccata* (yew) native in western Europe and *T. brevifolia* (Californian or Pacific yew) of western U.S.A. and Canada. Baxter's eternal yew is strictly *T. baccata*; Hartzell misunderstands the word species so his 'biography' is a rambling thesis about both *T. baccata* and *T. brevifolia*, but principally the latter.

Trevor Baxter is an enthusiast, and the author of a couple of 'poems' and some impenetrable prose about yew trees. His book, published in association with a self-publishing co-operative, would have been much less painful to read had it been severely cut by a rigorous editor who could also have corrected Baxter's botanical orthography, and his woeful punctuation, capitalization and grammar. On the positive side, Baxter's chronicle is illustrated with recent black and white photographs of many of the famous, age-less yews that grow in Great Britain and a few in Ireland; as an appendix he has included a list of yew trees with recent measurements. In essence Baxter's book is a modern directory of churchyard yews, and he has not fallen into the trap of assuming that the bigger a tree's various dimensions – whether height, trunk girth, or canopy circumference – and the more decrepit its appearance, the more ancient it is. Yew trees are, as Baxter points out, notoriously impossible to age even by ring-counts due to their capacity to produce 'compound' trunks.

Like Baxter, Hartzell has great difficulties writing lucid prose, and his book would also have benefited from the vigorous attentions of an editor with a good knowledge of the history of botany and horticulture. Among his many extraordinary sentences is this one (p. 125):

> "Many of these remarkable old trees [churchyard yews in England, Ireland, Wales, Scotland and Normandy] bear their myths and historical significance, their stories, legends and poetic inspiration well, surviving a past so long that the entire duration of humankind on earth is only a minute in the day to the span of the yew, whose own ancestors stretch back 200 million years in time".

Hartzell's principal purpose in writing his book was to highlight the need to help protect the splendid yew forests of the Pacific Northwest of America which are being logged so that taxol, an anti-cancer drug, can be extracted from the bark of *T. brevifolia*. The figures are stark; 13·6 kg of yew bark yield only 1 gm of taxol, and 125,000 ancient yew trees may produce about 340-500 kg of bark. The clear-felling of the entire Pacific yew population might yield 334 kg of taxol.

Perhaps this ramshackle tome will help, but it is a confused and confusing work, interweaving

European and American Indian folk-lore with studies of taxol and its anti-cancer properties, uncritically mixing fact with fiction. The section headings are "Old World yew", "Botany and geography", "Living witness of human history", "Culture and geography of Pacific yew", "The modern dilemma" and "The metaphorical yew", with appendices on "Yew trees larger than 20 feet in girth in England and Wales", "Notable topiary and hedges in England", and "Yew species and cultivars". Hartzell's knowledge of the use of yews in gardens is poor – the garden at Castle Drogo, Devon, was created in the 1920s, and the presence elsewhere of Irish yews, none of which can have been planted *before* 1780, clearly indicates nineteenth century embellishments.

Concerning the Irish yew (*T. baccata* 'Fastigiata'), sometimes called the Florencecourt yew, a footnote is required to both books. This distinctive cultivar has a well-recorded history but neither author cited the correct dates which were given in The nomenclature and history in cultivation of the Irish yew, *Taxus baccata* 'Fastigiata', *Glasra* **5**: 33–44 (1981).

The dust-jacket blurbs inaccurately describe Baxter's work as "comprehensive" and Hartzell's as "authoritative" – do not be deceived. For members of this Society, Baxter's book is the more interesting, but neither can be recommended. I suggest that you spend your pocket-money on a well-used second-hand copy of W. Dallimore's *Holly, yew and box* (1908), or J. Lowe's *The yew trees of Great Britain and Ireland* (1897); these may be antique tomes but they are well written and a pleasure to read.

E. C. Nelson

Phylogeny and classification of the Orchid family. R. L. Dressler. Pp. 314, 16 pages (96 photographs) of colour plates, numerous line drawings. Cambridge University Press, Cambridge. 1993. Price £35 (ISBN 0–521–45059–6).

The invitation to review this book came to me not *despite* my lack of specialist knowledge of the orchids, but precisely *because* of it. One of the tragedies of orchidology is that, in proportion to its verbal output, it has given rather little to botany in general. Dr Dressler's earlier book (*The orchids: natural history and classification*, 1981) was a step towards redressing the balance. I was, therefore, happy to review a new book by the same author.

First, however, one must deal with the relationship between this book and its predecessor. Despite the change of title, this is a revised, updated and expanded version of the earlier volume. There has been a great output of orchid literature in the intervening years, and this has obviously been carefully sifted and taken on board. But where there has been no new information of value, then the treatment in the 1981 volume has been retained more or less verbatim. For instance in chapter 2, many of the entries are scarcely changed and eleven out of 16 text figures are the same: but the section on seed-coats has been completely revised (based on recent work by Barthlott and his school). In the colour section at least 25 of the 96 photographs are the same. The classification has been revised by the re-positioning of Neottieae, and by the dispersal of the 'vandoid' orchids: some sections (e.g. Oncidiinae, p. 177) have undergone considerable change, others virtually none; and many of the illustrations are the same. Title page and dust jacket make no mention of the earlier book: a word or two there would have avoided the need for this paragraph.

The better-known aspects of orchid-pollination were well-covered in the first book. That section has now been dropped, but there are two pages (pp. 222–223: 'pollination' does not occur in the index!) with the provocative heading "False advertisement and the evolution of efficiency". The first phrase refers to such devices as the display of dummy anthers (patches of yellow hairs on yellow swellings) that attract pollen collectors but offer nothing in return; or the mimicking by orchids of nectariferous flowers amongst which they grow, without offering nectar themselves. Insects are quick learners: false advertisement depends on a good supply of gullible, inexperienced, insects. The mimics may show only 2–50% pollination compared to 80–95% in related species offering nectar. This is the 'evolution of inefficiency'. The pay-off comes because the insects usually visit only one flower in an unrewarding spike; thus most of the fruits set have been cross-pollinated. The higher fruit-set of nectariferous species is due to pollination from one flower to another on the same spike. These two pages offer no 'false advertisement': they give real food for thought.

Dr Dressler is not afraid to set out his views on species. They show a very sensible approach to the

taxonomist's problems, and lead to the conclusion that only special creation could have given us a world with all species neatly defined, whereas under evolution "we should find a spectrum of not species, almost species, just barely species, and clearly defined species, and that is exactly what occurs in nature". An admirably clear statement – but it is a statement of the situation. The problem of where to apply binomial nomenclature remains.

Parallelism is a central feature of evolution, and orchids provide a treasure trove for its study. (The index takes one only to a brief entry on p. 233: the meat of the subject is on pp. 218–222). After listing some early straightforward examples, the author introduces two new terms: integrational and contingent parallelism. Here only two comments are possible. His definition covers really only the qualifying adjectives. He writes "By 'contingent parallelism' I refer to features that may evolve only after another feature is present . . . Thus feature A permits the evolution of feature B, and B may . . .". This defines an evolutionary pattern (see Burtt in *Transactions of the Botanical Society of Edinburgh* **42**: 138, 1974); it only becomes a parallelism if it is recurrent in different lineages. Dressler's voice on such wide topics is not authoritative, but it is a fine stimulant for the reader to put in some hard thinking for himself.

Don't pass over this book because of its title. Even if you cannot tackle the orchid-classification amidships, fore and aft, it is well worth any botanist's time.

B. L. Burtt

Květena Českе Republiky (Flora of the Czech Republic). Edited by S. Hejny & B. Slavik. Vol. 1. Huperziaceae – Urticaceae. Pp. 557 with numerous line drawings. 1988. Vol. 2. Fagaceae – Empetraceae. Pp. 540 with numerous line drawings. 1990. Vol. 3. Brassicaceae – Malvaceae. Pp. 542 with numerous line drawings. 1992. Academia, Praha. Price not given (ISBN 80–200–0256–1).

These are the first three volumes of the *Flora of the Czech Republic*, describing the flora of a key area in central Europe. The work covers the Czech Republic (the western half of the old Czechoslovakia), the Slovak flora being covered in a separate series.

The work is in Czech. The first volume includes a summary and glossary in English by M. Kovanda, and each other volume includes a brief introduction in English, and it does not take long to make sense of the accounts. The books are hardback, in A4 format and are clearly printed with a good binding.

Accounts of families or genera have been prepared by specialist collaborators in addition to the editors and their assistants. Each family is given a description and a key to genera, and likewise each genus. Relevant literature is listed. For each species, Latin and Czech names are given, with synonymy and representative specimens where appropriate. The descriptions of each species are very detailed. Flowering times and chromosome numbers are given. There are often notes on the morphological variation, ecology, vegetation types and distribution, both in the Czech Republic by the phytogeographical district and elsewhere. Hybrids are treated in full.

There are numerous black and white line drawings of the majority of species (cross referenced in the text). These are beautifully drawn in large format and capture the look of the plants perfectly.

Such a detailed comprehensive flora will be invaluable for any British botanists visiting the Czech Republic, which has a huge potential for botanical holidays and excursions. It will also be a valuable reference book for armchair botanists. It is highly recommended; if only we had a flora like this in Britain!

T. C. G. Rich

Nouvelle flore de la Belgique, du nord de la France et des régions voisines. 4th edition. J. Lambinon, J.-E. De Langhe, L. Delvosalle & J. Duvigneaud. Pp. cxx + 1092; illustrated. Editions du Patrimonie du Jardin botanique national de Belgique, Meise. 1992. Price BEF 1,720 (ISBN 90–72619–07–2).

This is a concisely written excursion Flora of Belgium, Luxembourg, N.E. France, S. Netherlands and a small part of Germany. The fourth edition is extensively revised, having drawn on the detailed

work of the Institut floristique belgo-luxembourgeois and the Institut floristique franco-belge for distributional data as well as on recent taxonomic and nomenclatural studies. Many more adventives are treated than in the third edition, and a new key is presented to the trees, shrubs and lianes using mainly vegetative characters; this allows rapid identification not only of native arborescent species but also of cultivated and planted specimens.

One of the most valuable features of this Flora, written in French but with additional Dutch and German vernacular names, is the attention paid to infraspecific variation. Despite the concise format, in which almost all comparative descriptive data are confined to the keys, space is found for detailed observations on taxa such as *Parnassia palustris* var. *condensata* Travis & Wheldon; subspecies and interspecific hybrids of *Mentha* alike are treated in a single key. Special attention is paid to the zinc-loving variants of species such as *Armeria maritima* and *Thlaspi caerulescens*, and notes are also provided on the varied medicinal and other uses of many of the plants.

An exhaustive glossary is provided, and the Latin, French, Dutch and German indexes are preceded by a list of nine new combinations dated "December 1992" but seemingly published in April 1993. One of these establishes a new subspecies of *Scabiosa columbaria* (subsp. *pratensis* (Jord.) Duvigneaud & Lambinon) for material with several pairs of more frequently divided cauline leaves, inhabiting deeper alluvial soils than the typical subspecies. This taxon could perhaps occur in old meadows in southern England, although in Belgium it is "en fort régression".

Numerous illustrations are interspersed in the text, largely of diagnostic characters; in this respect the Flora should prove specially useful to the inexperienced botanist. In size the book is similar to the first edition of Clapham, Tutin & Warburg's *Flora of the British Isles* (1952); the price (which approximates to £35 at mid-1993 exchange rates) represents good value for a work of over 1200 pages. The book deserves to be bought by private purchasers as well as by institutional libraries.

J. R. EDMONDSON

The fern guide. A field guide to the ferns, clubmosses, quillworts and horsetails of the British Isles. J. Merryweather & M. Hill. Pp. 101–188, with numerous drawings and 29 colour plates. AIDGAP, Field Studies Council, Preston Montford. 1992. Price £5.25 incl. p&p (ISBN 1–85153–211–0).

There are now several field guides to the ferns and fern allies of the British Isles. *The fern guide* is in the usual AIDGAP format of extended, copiously illustrated keys, and is aimed at teaching field identification to beginners. For someone with plenty of time in the field (and prolonged fine weather as it takes a while to work through the main fern key of 48 pages) it should provide a great deal of pleasure and names for most of what one can find. One is led efficiently step by step, and the very good illustrations, including 29 colour photos, are integral to the process and make it generally clear whether one is on the right lines. (When one isn't, backtracking can be difficult as there are no back references to the dichotomy one has come from.) The book contains many helpful hints, including one for *Equisetum* × *littorale* that works and that was new to me. The forms of *Athyrium filix-femina* in open and shaded situations, so distinct and so puzzling to the beginner, are for example mentioned and well illustrated in colour. There are, though, some cases where the book misleads. For example, the glands on the indusium of *Dryopteris oreades* are not as constant a character as is implied, and the much better character of the broad, divergent teeth at the apex of the pinnules is not mentioned and is indeed belied by the drawing.

The book has several major drawbacks. It may enable users to put names to the plants they see, but it does little to teach them about fern classification and relationships. It thus fails to provide any basis for a deeper understanding of the group and hence any hope of real certainty in identification. Genera, for example, are not described, and as their constituent species often key out in different parts of the key the reader gets no idea of how the species are grouped into genera. In several groups of ferns, microscopic characters are essential to confirm identifications. While it is obviously reasonable for a field key to omit these, it should surely be stated that, for example in *Polypodium*, such characters must be used if the identification is to be definite. In *Isoetes* it is misleading to say that hand lens examination of the megaspores of *I. lacustris* and *I. echinospora* "may help" to confirm the species. The vegetative characters are often completely unreliable and examination of the megaspores, by something more powerful than a hand lens, is *essential*. (The AIDGAP key to

woodlice uses microscopic characters quite extensively, and several groups of ferns are at least as difficult to identify as are the woodlice, with or without a microscope. Why should the identification of ferns be taken any less seriously?) It is not in the long run helpful to anyone to suggest that the identification of ferns is easier and more foolproof than it really is.

The list of books under 'Further reading" would have been more helpful if it had been annotated so that the beginner had some idea of what to turn to next, and for what. Infuriatingly, we still lack a comprehensive book for identifying ferns, that would combine the clarity and wealth of characters (including microscopic ones) provided by Jermy & Camus in *The illustrated field guide to ferns and allied plants of the British Isles* (1991), the descriptive detail and the coverage of hybrids provided by Page in *The ferns of Britain and Ireland* (1982) and the taxonomic and educative framework provided by Hyde, Wade & Harrison in *Welsh ferns* (1969). Of these main contenders, Jermy & Camus is the best as a field guide but has the great drawback of having very little on hybrids. Page, magisterial though it is, is inadequately illustrated and has only very partial keys, making it daunting for the beginner. Hyde, Wade & Harrison is very out of date and inadequately illustrated. The book under review can be recommended to anyone wishing to take up fern identification from scratch, but it should not on its own be relied on to give foolproof identifications and, if it does its job, its users will very soon need to graduate to Jermy & Camus and to Page.

A. O. CHATER

Supplement to Flora of Cheshire. A. Newton, with cover illustration by W. Young. Pp. 52. Privately published, Leamington Spa. 1991. Price £5.75; available post free from N.M.G.M. Enterprises, P.O. Box 33, Liverpool L69 3LA.

This nicely produced booklet brings knowledge of the Cheshire flora up-to-date (1990), and monitors changes over the past 20 years. Aquatic species are particularly vulnerable as the remorseless destruction of the water-filled marl pits so characteristic of the Cheshire scene continues. On the other hand, the number of alien and adventive species grows, and many appear here in a two-page listing. Attention might have been drawn to the misguided practice of introducing into Nature Reserves species not native to the area (e.g. *Rosa rugosa*).

It is pleasant to find that some species supposed extinct or nearly so have been refound, such as *Rhamnus catharticus* at Kingsmarsh. The troublesome genera *Taraxacum* and *Rubus* are well covered with 90 species of the former and 27 of the latter.

The index is unsatisfactory; the page references are all one page in advance of the text; thus *Salicornia* is indexed as on p. 15 whereas it actually appears on p. 14. Nevertheless, with colourful stiff covers the *Supplement* is a valuable addition to the county *Flora*.

N. F. MCMILLAN

Marianne North at Kew Gardens. L. Ponsonby. Pp. 128, 128 colour and four black and white illustrations. Webb & Bower, in association with the Royal Botanic Gardens, Kew. 1990. Price £15.95 (ISBN 0–86350–309–8).

Outstanding among the women who were lone explorers and botanical painters in those Victorian days of more difficult travel, Marianne North gave her 832 paintings of plants in many countries to the Royal Botanic Gardens, Kew. Many visitors will have seen these in the Marianne North Gallery at Kew, now extensively renovated in recognition of the centenary of her death. Laura Ponsonby, an authority on Marianne North, selected 130 of the paintings, many of which have not before been published, to illustrate her biography and extensive account of those remarkable travels. An added interest in the book are the detailed captions to these paintings which show scenes of plant life and natural beauty from around the world. Sadly, now a hundred years later, it would be hard to find

such unspoilt scenery and such a profusion of flowers in many of the places visited by Marianne North.

M. BRIGGS

Stearn's dictionary of plant names for gardeners. W. T. Stearn. Pp. viii + 363. Cassell, London. 1992. Price £16.99 (ISBN 0–304–34149–5).

The latin (or latin-form) names given to plants by botanists are often a great puzzle to gardeners. How plants got the names they have and what those names mean or represent are matters that are dealt with cursorily, if at all, in most of the horticultural-botanical literature. The present book, which covers these subjects, is a revision of A. W. Smith's *Dictionary of plant names for gardeners* of 1963, including "the addition of many more entries, the expansion and emendation of others [and] the omission of materials considered irrelevant . . .". These changes are so extensive that the book is really a new one, and has been so treated by the publishers.

The main part of the book (pp. 27–315) consists of an alphabetical listing of generic names and specific epithets used for garden plants, with explanations of their meanings and origins. Though Professor Stearn makes no claims for completeness, I have not been able to dig up any names that are not included. Most of the entries are short and concise, but some are more extensive, for example, those for 'Forsythia' (17 lines) and 'paxtonii' (14 lines). Professor Stearn brings a lifetime's experience to his task and the range of erudition he displays is enormous: names from many languages are cited (including Thraco-Palasgian (pre-Greek, see the entry under 'Hyacinthus')) and the amount of biographical information condensed into a small space is astonishing. In spite of his quotation of Dr Johnson's definition of a lexicographer on p. 316, Professor Stearn wears this erudition lightly and many of the entries include touches of humour or even the grotesque.

Gardeners will use this section extensively to find out the meaning of such unlikely words as 'aiolosalpinx' (as in *Rhododendron aiolosalpinx* – it means the trumpet of Aeolus, the god of the winds) and to discover, for instance, who was the Rudbeck after whom the well-known Composite genus *Rudbeckia* was named, thus increasing the interest provided by the plants they grow.

This main index is preceded by an "Introduction to Botanical Names" (pp. 17–26) which discusses the principles used by botanists in naming plants and the various kinds of name that are used. It also touches on the rules of botanical nomenclature especially as they affect such thorny subjects as why familiar names seem to be wilfully changed by botanists in order to confuse and irritate the gardener.

The final section (pp. 317–329) is a very sensible essay entitled "An Introduction to Vernacular Names". The advantage (". . . vernacular names should not be despised and disregarded. When only a few plants need to be distinguished within a limited area, vernacular names can be just as useful, precise and stable as their scientific equivalents intended for international use." – p. 318) and disadvantages of these are presented calmly and rationally. This is a section that could be read with advantage by taxonomic botanists as well as gardeners.

A glossary, bibliography and index complete the volume, which is well produced and contains few printing errors. It should be on the shelves (or, more likely, on the desk or bench) of every gardener or botanist interested in garden plants.

J. CULLEN

Red data books of Britain and Ireland: Stoneworts. N. F. Stewart & J. M. Church. Pp. 144, 14 colour photographs, numerous line drawings and maps. Joint Nature Conservation Committee, Peterborough. 1992. Price £15 (ISBN 1–873701–24–1).

This particular *Red data book* breaks new ground in covering the entire British Isles: the vascular plant red data books for Great Britain and Ireland were published independently in 1983 and 1988. In this instance, however, we have the pleasure of a single volume introduced to us by both Ministers responsible for the environment of the U.K. and the Republic of Ireland.

Although technically algae, stoneworts have always been treated as being within the legitimate purview of the B.S.B.I. – their large size makes them conspicuous in the field, so that many vascular plant botanists have been attracted to pay some attention to them. In recent years, active interest in the group has increased. The sensitivity of stoneworts to pollution makes them of considerable value as indicators of good water quality.

As defined by the authors, there are 33 British and Irish species of stonewort, with about 400 worldwide; two species are endemic to these islands. Problems of nomenclature and taxonomic ranking are dealt with briefly on pp. 37–39, and in a useful table. There are considerable differences between the species as defined in this work and those of the B.S.B.I. handbook of 1986. However, the authors have striven to include sufficient synonymy to enable the user to locate a species in the major earlier works.

The book is well illustrated by colour plates of habitats, and there are excellent line drawings by Margaret Tebbs (many previously published in the B.S.B.I. handbook) of individual species. The section on habitats stresses among other things, the difference between calcium carbonate-rich and nutrient-rich water bodies, and the damaging effects of pollution. The chapter includes a table where the habitat preferences of each of the 33 species are presented.

The principal criteria for listing a species as a red data book species are that for Great Britain it should have been recorded in 15 or fewer, and for Ireland ten or fewer 10-km grid squares since 1970. Together with other qualifications this produces a total of 57% and 48% (17 and 12 species) of the stonewort floras respectively. Table 4 tabulates the threats to each species and gives each a Threat Status (Extinct, Endangered, Vulnerable, Rare, etc).

The species accounts give useful notes on identification (with a line drawing), the distributions in Great Britain and Ireland (with a distribution map), world distribution, ecology, main threats, existing protection and conservation priorities. An appendix gives a key to all British and Irish species using field characters requiring only the use of a hand lens. It is interesting to compare the distribution maps with those in the B.S.B.I. handbook. For those few species where there are two exactly corresponding maps additional records appear in the *Red data book*.

The book is an attractively presented and well designed summary of the conservation status of stoneworts in the British Isles and is a model of clarity. I found it readable and packed with fascinating and useful information as well as the expected data on threat status, etc. Anyone interested in these plants, or in plant conservation generally, should purchase a copy.

P. HACKNEY

Flora Europaea, second edition, vol. 1: Psilotaceae to Platanaceae. Edited by T. G. Tutin *et al.*, assisted by J. R. Akeroyd & M. E. Newton. Pp. xlvi + 581. Cambridge University Press, Cambridge. 1993. Price £100 (ISBN 0–521–41007–X).

The publication of the 5-volume *Flora Europaea* between 1964 and 1980 was a landmark in European botany. Various reviewers of volumes of the first edition predicted that this work would stimulate further taxonomic research on the European flora and this has indeed been the case. The initial volume was published in 1964 and, because it was the pioneer part, of necessity it was the one most in need of revision since it contained more errors than subsequent volumes. All European botanists will therefore welcome this revision, produced 29 years after the original. It is partly financed by using the royalties from sales of the series which were lodged in a trust fund, administered by the Linnean Society of London. This new edition continues to remind us of the great vision of the original group of taxonomists who initiated and successfully saw the project through to completion. *Flora Europaea* has received much acclaim and has been recognised as the definitive reference for botany by the Council of Europe.

Volume 1 contains treatments of the 25 families of Pteridophyta present in Europe, the five families of gymnosperms and the first 49 families of angiosperms from the Salicales to the Rosales (in part). Major families include the Caryophyllaceae, Chenopodiaceae, Cruciferae and Ranunculaceae. This is certainly not just a reissue of the previous edition because the editors have carried out extensive work on updating. Any taxa new to Europe since 1964 have been incorporated and many descriptions have been improved. The keys have also been extensively revised and, in many cases,

made easier to use, while all synonyms are cited in the text. The fact that 250 species and 150 subspecies have been described from Europe as new to science in the 79 families covered by Volume 1 shows that there is still much taxonomic activity on the Continent and that there is still much to do in order to have a definitive taxonomic account of the region. The new records and alien species included means that the new edition has about 350 extra taxa; in compensation, only 20 taxa have been deleted. The useful appendices of the first edition have been revised by R. R. Mill. It is a pity that the author abbreviation appendix has not adopted the standard abbreviations of Brummitt & Powell *Authors of plant names* (1992) or for the book citations those of Stafleu & Cowan *Taxonomic literature*, 2nd ed. (1976–1988), or indeed of any other standard work. Researchers will be glad to see the inclusion of the complete synonymy of the species which will greatly facilitate comparison with previous works.

Seeing the result of the revision, we should be grateful that the *Flora Europaea* editorial committee was not just disbanded after the publication of Volume 5, but decided to embark on a revision of Volume 1. Given the extent to which new taxa have been added in this revision, it is a pity that there are no current plans for revisions of the other four volumes. It is much more useful to have the changes and additions gathered together into a revised volume than spread throughout the literature in a large number of papers.

The principal editors of this revision of Volume 1, J. R. Akeroyd and M. E. Newton, are to be congratulated on the thoroughness of their work. Botanists truly interested in the European flora will need to have this new volume, rather than rely on the first edition, because it contains so much additional information.

G. T. Prance

Origin and geography of cultivated plants. The late N. I. Vavilov, translated by D. Löve, foreword by A. A. Filatenko. Pp. xxxiii + 498, 28 line diagrams and 33 half-tones. Cambridge University Press, Cambridge. 1992. Price £75 (ISBN 0–521–40427–4).

This is an English translation of a work first published in Russian under the (transliterated) title *Proiskozhdenie i Geografia Kul'turnykh Rastenii* by the Leningrad (now St Petersburg) branch of 'Nauka', the Russian science publishing house, in 1987, to commemorate the centenary of the birth of the great Russian plant geographer, ecologist and plant breeder Nikolai Ivanovich Vavilov (1887–1943). That volume, in turn, was a collection of 25 of Vavilov's most important papers, originally published in various Russian journals from 1920 onwards, some of them posthumously. The volume under review is the first in which all these papers, many of them of seminal importance, have appeared collectively in translation. Doris Löve's translation is masterly on the whole, although there are a few idiosyncrasies.

The titles of the papers show the immense breadth of Vavilov's interests in cultivated plants (and domesticated animals) and their origins. They range from 'On the origin of plants', 'Asia – the source of species', 'Plant resources of the world and the mastering thereof' to 'On Soviet science and the study of the problem concerning the origin of domesticated animals'. Most papers are quite short, but the book includes his magnum opus, 'Centres of origin of cultivated plants', which runs to 112 pages. This contains, among other sections, a long, detailed, and utterly absorbing account of the origins of cultivated hemp, *Cannabis sativa* – of more than academic interest to British botanists now that E.C. legislation allows *Cannabis* to be legally grown, for fibre, once again in the British Isles!

Vavilov was a great explorer in his search for elusive genotypes. As well as travelling through most of Asia, he also visited the New World, in particular Mexico and Central America. Two papers, 'Mexico and Central America as a basic centre of origin of cultivated plants in the New World' and 'The important agricultural crops of pre-Columbian America and their mutual relationship' resulted from these explorations.

The sense of amazement and wonder that Vavilov so obviously had on his travels, expressed with deep feeling in many of his papers, shines through with undiminished radiance in the translation. The papers contain a deep, rich mine of information and theory on the origin of almost every one of the world's economic plants. Some of this is now outdated, if only because radical changes in

agricultural practices in the last five decades have sadly reduced the gene pool of ancestral species to a fraction of what it was in many of the areas where Vavilov carried out his pioneering studies. The nomenclature has also been largely left as it was in the original papers; the correct current name is, however, always indicated in square brackets in the index to Latin plant names, and occasionally there are helpful insertions by Doris Löve, also in square brackets, in the main text to clarify or update Vavilov's writings.

The book has been sumptuously produced by Cambridge University Press. As supplied for review, it had no dust jacket; instead, there is a striking gold-embossed Oat panicle on the dark green cover, with the title and author's name gold-embossed on a black background. The rather small print is nevertheless easy to read; misprints appear to be extremely few, although, disconcertingly, Nikolai Ivanovich's first name appears in no fewer than three other variants (Nickolay, Nikolay and Nicolay) in the first few pages of introductory matter, pp. i–xiv. One irritating feature is the use of American English spellings throughout. I do not mind, indeed I expect, "centers of origin" in a book published in America, but in one published by one of Britain's most highly respected houses I abhor it. Sadly, this appears to be a growing trend, but should be strongly resisted. My other main criticism is the very high price. This will deter many a student or library from acquiring this book – indeed, a colleague from Jerusalem actually told me that his library could not afford it. That is a pity, because it is a fitting memorial, not just to an almost legendary Russian scientist the likes of whom we are unlikely to see again, but also to the richness of a genetic 'landscape' now greatly diminished. I hope that a much cheaper, durable paperback edition will be made available so that a wider public can appreciate Vavilov's enthusiasm and lifetime's energies.

R. R. Mill