

Book Reviews

Domestication of Plants in the Old World. 3rd edition. D. Zohary and M. Hopf. Pp. 316. Oxford University Press, 2000. Pbk £22.95. ISBN 0-19-850356-3.

The evolution of agriculture was perhaps the most significant step in the evolution of human civilization. It created the basis of settled living, trade and, for better or worse, the accumulation of capital. Although we have a significant gene-pool of wild crop relatives in Britain and Ireland, especially of hedgerow fruits, so many of our crop plants reached northern Europe by diffusion from the 'cradle of agriculture' in the Middle East. Here is a fascinating account of that process, showing the origin and spread of cultivated crops in S.W. and C. Asia, the Nile Valley and Europe over the last 10,000 years. This third edition of Zohary and Hopf's book has been much updated and expanded, although a chapter on wild-collected fruits such as beech-mast and haws in the first (1988, see review in *Watsonia* 17: 504, 1989) and second edition (1993) has been dropped. The authors wisely suggest that this topic deserves its own book.

They provide an authoritative synthesis of one of the most important fields of contemporary botany. The text is packed with information and laid out clearly as a convenient reference and an absorbing read. Based on an interdisciplinary synthesis of archaeology, genetics and cytotoxicology, chapters are devoted to cereals (especially the breadwheats), pulses (including some of the less obvious vetches), oils and fibres, tree fruits and nuts, leaf and root vegetables, condiments and dyes. All the major crops are included, and plenty of minor ones such as saffron and madder. Rice and sorghum, which probably arrived in Hellenic times from Asia and Africa respectively, are included too, although buckwheat (*Fagopyrum esculentum*), which arrived from C. and N. Asia in the medieval period, is not. Each species account has an introductory section, including variation and genetics, followed by information on its wild ancestry and on Neolithic and Bronze Age archaeological evidence, ending with a most useful recapitulation.

A chapter on representative archaeological sites, mostly in the Middle East, Levant and Europe, which lists facies of crop remains, includes three sites in Britain and one in Ireland. There are 45 black-and-white illustrations and 25 maps to augment the text, and the book ends with an extensive 45-page bibliography. This book deserves a wide readership but will be especially valuable to those studying Mediterranean and S.W. Asian floras.

J. R. AKEROYD

The Changing Flora of Glasgow. J. H. Dickson, P. Macpherson, and K. Watson. Pp. xii + 402. Edinburgh University Press, 2000. £30.00. ISBN 0-7486-1397-8.

This is a remarkable flora by three much respected botanists with contributions by three other distinguished authors and colour photography by T. N. Tait. It is, in a sense, the scientific sequel to Dickson's *Wild Plants of Glasgow*, 1991, which was a selective report on the Flora of Glasgow survey aimed at the general reader (review - *Watsonia* 19: 155, 1992).

It represents a meticulous study of a restricted area, 'The Rectangle', comprising 3.6 hectads which includes urban Glasgow and an almost equal area of green belt. This area has been selected to include the area of the City of Glasgow District Council, but is bounded by Ordnance Survey grid lines. It corresponds fairly closely with the area surveyed in detail by Thomas Hopkirk in 1813 when he recorded 670 flowering plants and 32 ferns. The fate of Hopkirk's plant localities and those of many other botanists over the years have been fully researched and this, together with some archaeobotanical evidence, is the basis of the book's title.

Introductory sections not only cover the area's geology and climate but also include a splendid chapter 'Spreading of the City: Medieval Times to the Late Twentieth Century'. This is superbly illustrated by maps, paintings and photographs, including an amazingly apposite map of 1795, almost contemporary with Hopkirk, which details the area just before the great environmental changes of the 19th century. A further chapter considers pollution. Later in the book, it is fascinating to learn of the effects of air pollution on the distribution of *Asplenium* spp. on walls.

After the species accounts there are some further chapters in which the pen of Professor Jim Dickson is particularly evident, and some of the material is common to *Wild Plants of Glasgow*. These examine invasions, extinctions, current distribution patterns and conservation. The approach

adopted is to take particular examples and to examine these in some depth, but in a highly readable style that provocatively leads to the exclusive use of English names. Rayed Groundsel (a taxon unfairly excluded from Atlas 2000) is hailed as an example of an extreme urbanophile together with such garden weeds as Lesser Swine's-cress (sic). The less obvious urbanophobes include Changing Forget-me-not and Ground Ivy. There are amazing stories describing the abundance of Broad-leaved Helleborine and the occurrence of Stag's-horn Clubmoss in a cemetery. Then there are the thousands of plants of Round-leaved Sundew found in an abandoned railway siding. The invasions of incomers are traced right through from the late-glacial period, with a fascinating insight into the medieval period through the medicinal plants found in archaeological digs, including the spice Mace, imported all the way from Indonesia. The later invasions along railways and roads are also demonstrated. Since 1998 Dickson has been a champion of the now fashionable concept of archaeophytes and neophytes for plants first recorded before or after the end of Medieval times, taken as AD 1500, and he develops the concept here. The section on conservation suggests valuable input by Keith Watson and all the authors are to be congratulated on the prominence placed on the future of the *Potamogeton* hybrids, especially Bennett's Pondweed. Between these chapters are interspersed 16 pages of fine and relevant colour plates by Norman Tate, a mixture of close-ups and habitat studies including a striking portrayal of the Necropolis.

The species accounts demonstrate first the heroic fieldwork by about 100 members of the Glasgow Natural History Society with the massive assistance and close supervision of the authors. The accounts are meticulous but, in consequence, somewhat difficult to read through. There is much detail of localities and recorders together with tetrad maps. These have a background delineating the urban area, the Clyde and, if you can spot it, the canal. Maps are presented for all except the rarest and ubiquitous species. 'Bladder Campion (*Silene vulgaris* ssp. *vulgaris*)' is, we learn, 'Native and/or accidental in twenty-seven, mainly diagonal, strongly urban tetrads'. This style indicates Dr Peter Macpherson's absorption with plant status, a concept he has carried through with persistence, even in cases where the outcome is indeterminate. We also learn that the principal habitats of Bladder Campion have changed from 'meadows and pastures' in 1813 to roadsides and railways in the 1990s, a neat illustration of a most widespread trend. The localities of hairy and pinkish-flowered varieties of this species are noted. The preface advises us that about 1,500 species are listed but, despite a computer database, there are no statistics to support this. Nevertheless, the total alone indicates the extensive coverage of aliens. From where else in Britain can one find a detailed distribution map of *Agrostis scabra*? This species, we are told, has been persistently present in Glasgow for at least 25 years and is spreading to waste ground sites. Planted aliens are wholly excluded resulting in a treatment of trees that is perverse to a degree. It can also be confusing to find a species listed as a former native solely on the evidence of late-glacial fossils.

The lack of statistics is particularly evident in the treatment of the 100 or so extinctions. Although the reasons for the extinctions are well analysed, it is really no surprise that Corncockle, Herb Paris, Field Gentian and the Bladderworts have disappeared. What is as remarkable is the untabulated number of equally unlikely species that have survived against the odds. Do we not need to know how this pattern of extinctions compares with the wider countryside around, and Lanarkshire in particular? Perhaps the forthcoming Flora of that vice-county will tell us? To test the value of the Glasgow data set, I have carried out an exercise to compare the extinctions of native species with those of a similar sized rural area in Berwickshire and am fascinated to find a close correspondence. It seems that, in relation to extinctions at hectad level, urbanisation may have no more drastic effect on our flora than intensive arable farming. However, the Glasgow data used in this comparison includes the data from its green belt and an interesting study could be made by comparing statistically, at tetrad and hectad level, the relative distributions of the native species in the urban parts of 'The Rectangle' with those in the green belt.

M. E. BRAITHWAITE

The Origin, Expansion, and Demise of Plant Species. D. A. Levin. Pp. 230. Oxford University Press, 2000. Hbk £49.50. ISBN 0-19-512728-5; Pbk £24.95. ISBN 0-19-512729-3.

Precisely as the title indicates, this book deals with the lives of plant species. The subject is treated in four stages, corresponding to a species' origin, expansion, differentiation and extinction. Throughout, it weaves together the wide variety of ecological and evolutionary phenomena and

processes that are involved and, as a result, it encompasses an extraordinarily broad scope but yet still manages to stay focused on the issue at hand. I was very much reminded of Dr Who's tardis: although the volume contains only 180 pages of text, which for a text book is relatively slim, it is deceptively large between the covers. Perhaps most impressive is the wealth of examples and case studies drawn from an extensive survey of the literature; based on observations, experiments and theory, they illuminate extremely well the various points being made. In this respect I was also reminded of Briggs & Walters' *Plant variation and evolution*, to which Levin's book, in some ways, could be considered a companion volume. One other thing to say about the examples and case studies is that, refreshingly, they are derived not just from North American situations but also from European and British ones as well (not to mention Africa and Asia). Indeed, B.S.B.I. members will recognise very many of the species names; it is always easier to appreciate or understand the significance of an example when one has a mental image or experience of the plant concerned.

The book is intended for "botanists, evolutionary biologists, and conservation biologists, as well as all broadly curious students of the biological sciences". The word 'professional' has been omitted here but, although the book is quite technical in some places, any amateur B.S.B.I. members who would regard themselves as belonging to any of the categories listed above should get a copy of this book and read it: they will undoubtedly learn something of interest. Conservationists will find the section on the decline and fall of species especially worthwhile. In short, this is an excellent book and I recommend it highly.

R. J. GORNALL

Wild Orchids of Sussex. D. Lang. Pp. 144, with 102 colour photographs, a number of b&w photographs, charts, maps and drawings. Pomegranate Press, Lewes, Sussex 2001. Pbk £14.95. ISBN 0-9533493-3-0.

With the sustained and intense level of interest in wild orchids, recent publications in the field have reached new heights, in the quality of their scholarship and production alike. In the context of such distinguished forebears, both in the local and international fields, it would be hard to imagine that a new local county orchid flora could find a significant place. It is vastly to the author's credit that he has achieved that aim, with a combination of scholarship, wit and above all with a collection of stunning photographs.

The book has sections or chapters covering orchid habitats in Sussex, structure of orchid flowers, germination and growth, reproduction, classification, hybridisation, and mapping: all fairly routine stuff, but which have to be covered, and are dealt with competently by the author. My only reservation in this regard is that the author might have considered including some indication of the time period covered by the solid circles or open circles on the maps. He touches briefly (perhaps slightly too briefly) on current and ongoing research into the taxonomy and nomenclature of many of our orchid species, based on the extensive DNA work of several authorities. Having referred to this aspect, the author decides to stay with traditional nomenclature. Whilst (as one of the slightly older school myself) I have considerable sympathy for the rationale of this decision, it might perhaps have been a good idea to include the revised nomenclature in the section headings for each species. It is a minor criticism. For me, however, one of the highlights of the 'peripheral' sections is the wonderfully interesting and entertaining chapter entitled, somewhat eccentrically, 'Sussex Botanologia'. This is a review of the illustrious botanists, past and present, who have graced the county with their lives or work.

The 'meat' of the book is, of course, the 33 sections on the individual orchids, written in a very readable narrative style, which I personally prefer to the pseudo-scientific laconic 'notes' which have begun to creep in in recent years. These sections are beautifully illustrated with the author's own photographs. It would be churlish to suggest that some indication as to whether or not the photographs were taken in Sussex or elsewhere might be welcome. In the majority of cases, each species is illustrated with a full plant shot and a flower-head close-up (although in one or two cases these are perhaps a little too similar in scale and magnification), and a number of subspecies, varieties and variants are also illustrated. The quality of the photography is outstanding, and it is worth noting here that the quality of reproduction in the printing process is also excellent: as far as I can see, the colour balance is more or less perfect. As I know only too well, that is no mean achievement, unless the author himself has been intimately involved with the proof stages of the colour process.

Whilst one could perhaps quibble with the slightly optimistic total of 33 orchid species for the county (after all, the Red Helleborine, *Cephalanthera rubra*, remains to be confirmed in the county, and the Lesser Twayblade, *Listera cordata*, if it ever existed in the county, was probably only imported and quickly disappeared again), there is no doubt that Sussex is a county of vast botanical riches, often in the past somewhat overshadowed by the more celebrated rarities to be found in neighbouring counties; this book goes a long way towards redressing that balance. From the riches of the Brighton Downs (Early Spider Orchid, *Ophrys sphegodes*, significant among them) to the more mundane but no less delightful Marsh- and Spotted-orchids (*Dactylorhiza* spp.) populations of the Ashdown Forest, and the newly-colonising populations of several orchid species on the roadside verges of the county, this is a vivid account of the orchid flora of one of the richest orchid counties in the British Isles. I commend this new work to committed enthusiast and newcomer alike, as a valuable addition to the considerable body of literature on this absorbing subject.

M. N. JENKINSON

The Flora of the Bristol Region. I. P. Green, R. J. Higgins, C. Kitchen and M. A. R. Kitchen, edited by S. L. Myles. Pp. vi + 276. Pisces Publications, Newbury, 2000. Hbk £27.50. ISBN 1-874357-18-8.

This is the fourth published Flora centred on the city of Bristol and the first to map the wild plants of the area. The area covered, the short-lived and recently abandoned county of Avon, is similar to that in its predecessor, J. W. White's monumental Bristol Flora (1912). Although not covering Watsonian vice-counties 6 and 34 completely, there appears to be no gap nor overlap with recent publications on Gloucestershire (1986), Wiltshire (1993) and Somerset (1997).

This atlas Flora deals "almost exclusively with records made since 1983". The lack of historical continuity with White's Flora is a disappointment, but then, as White wrote, finality in field botany is fortunately unattainable. 1,600 vascular plants are mapped over 1,500 1 km squares or their distribution is described if a map would have little value. The field work was a collaborative undertaking and began as a job creation scheme. Around 1997 a decision was evidently made to complete the project. Species accounts, mainly by Ian Green, one of the authors of the recently completed Somerset Flora, were drafted from the maps and from field experience, and the introductory text was shared out as described in the acknowledgements. Thus the Flora is the work of a committee and the editor and publisher deserve credit for a neatly laid out and attractively presented book.

The dustcover bears an idealised view of the Avon Gorge, the showpiece of the regional Flora, looking south towards Brunel's famous suspension bridge. Whilst perfectly capturing the spirit of the place, it misplaces *Veronica spicata* and surely swaps *Leucanthemum vulgare* for *Matricaria recutita*. There are eight pages of colour photographs of plants and habitats - revealing two of the authors in the field. Charming pencil or line illustrations by Brin Edwards include a perfect Bristol Rock-cross, locations such as Inglestone Common, and a collection of the tools of a botanist's trade.

The introductory material starts with a brief account of the geography, geology and climate of the region. Comprehensive accounts of the major habitats and sites of interest follow. Homage is paid by Professor Willis and others to a century of botanists, though, surprisingly, White and his contemporaries are mostly omitted. Schoolmasters, solicitors, accountants, tax collectors, doctors and dentists and even a retailer of bathroom units meet here with professional botanists as they did in the field, largely ignorant and careless of each other's weekday chores. This reviewer's doctoral thesis on the Avon Gorge has some further information, references and unpublished portraits. The bibliography is a single page, as quirky as any botanist's bookshelf, though additional references are given in the accounts of individual botanists. There are separate appendices of natives and casuals not recorded during the current survey. Unfortunately, they give only the plant name and the date last recorded, so cannot be easily followed up and investigated, thus denying readers that encouragement to out-do the authors which White recognised as adding "zest to the pursuit".

Since survey results were the main basis of inclusion of plants in the body of the work, additions to the flora should be relatively easily traced from the literature or in the field or herbarium.

Spiraea, for example, has six taxa and twelve localities recorded for Somerset but only three taxa (one dated 1983) and four localities in the Bristol list. Critical genera other than Rob Randall's *Rubus* are imperfectly dealt with and nothing is said of the "new species" of *Sorbus* claimed in *BSBI News* 75 (April 1997). Only four *Euphrasia* species were noted during the survey. The species distribution accounts are mostly short summaries, as compared to the locality lists in the Somerset atlas, and unashamedly planted species like the monkey-puzzle tree opposite Bristol Zoo are given no less space than the rarities for which the area is famous. Aliens are not so well distinguished from natives in the main text as they are in the appendices.

The evenness or otherwise of coverage has attracted some critical comment. A map of the relative density of species recorded in each 1 km square is given, but without any legend. Square ST5071 between Nailsea and Long Ashton has no density spot and since both the Holly and the Ivy are not mapped therein (as well as several common wayside grasses and clovers), the suspicion is that there were no records incorporated from that square. Such incomplete or uneven coverage must inevitably devalue the record if, as seems possible, less common species are unevenly covered. Probably the reviewer was wrong to advocate the use of so small a recording unit. The Somerset Atlas has less than 1,000 tetrads and was completed in half the time.

Some typographical and technical errors have been noticed during review. White's initials are incorrectly quoted on the title page and Skene is mis-spelt in the bibliography. Brunel's pioneering transplant of *Scilla autumnalis* (pages 26–27) was in the early 1830s, during the construction of the piers, not in 1860, when the Clifton Suspension Bridge was being completed. H. S. Thompson's herbarium is surely still at Birmingham University, not Bristol Museum. *Koeleria vallesiana* (page 23) and its hybrid (page 29) are said to occur at Dolebury Warren, but the flora text and maps fail to confirm either.

Overall, this is a useful atlas flora in the modern style, graphic enough to draw the reviewer's thoughts out of Africa and to inform him of the wider distribution of some species and the persistence of some plants he found 20 years ago. Two generations after White, the writing of this book was overdue, but the authors have left space for a more traditional account of the floristic record and its discovery.

C. M. LOVATT

An annotated topographical checklist of the flowering plants, conifers, ferns & fern allies of the Burren Region. Compiled and edited by E. C. Nelson. Pp. vii +115. Privately published at Outwell, Norfolk. IR£11.00. ISBN 0-9524847-1-4. Spiral bound.

For some years *FCB* (Webb, D. A. & Scannell, M. J. P. (1983). *Flora of Connemara and the Burren*, Cambridge University Press) has been out of print and, despite the appearance of many books on the Burren, there is still a need for a new edition of this celebrated work. This Checklist endeavours partly to fill the gap. The area covered by the *Checklist* approximates to districts 1–3 of *FCB* but, for very pragmatic considerations, sadly omits the Aran Islands which are administratively in Co. Galway.

The *Checklist* is in quite conventional format and follows the Kent-Stace nomenclature and order with English names and Irish civil service translations. The font is small but readable, but the attempt to put a cover on a spiral bound book is less than satisfactory. Some salient points with regard to the identification of each species is given, too brief to help in the identification of most species and most certainly not productive for critical species such as the Dandelions. Up to 40 publications are referenced with, helpfully - for those who have access - the relevant pages number for *FCB* and *An Irish Flora* (Webb *et al.* 1996. Dundalk) for each species. A considerable effort has been made to bring the text up to date with recent findings. Opinions are expressed on the status of species that are scarce or perhaps extinct. Coincidentally, another publication on the Burren has come to hand (Scannell, M. J. P. and Jebb M. H. P. *Flora of Connemara and the Burren – Records from 1984. Glasra* 4: 7–45 (2000)). The latter (restricted) publication contains additional information together with a critical reassessment of some records published in the Checklist. When the B.S.B.I. Atlas appears, the ingredients should be ripe for a revised edition of the *Flora of Connemara and the Burren*.

D. NASH

Plants and Plant Lore in Ancient Greece. J. E. Raven. Edited by F. Raven, W. T. Stearn, N. Jardine & M. Frasca-Spada. Pp. xvii + 106. Leopard's Head Press, Oxford, 2000. Hbk £25.00. ISBN 0-904920-40-2.

John Earle Raven (1914–1980) was, like his father Canon Charles E. Raven, a Cambridge scholar who was also an amateur botanist and leading member of the B.S.B.I. (see his obituary in *Watsonia* 13: 244–246 (1981)). His detective work in 1948 on the dubious botanical records of Professor J. W. Heslop Harrison on Rum has recently become known to a wide audience through Karl Sabbagh's book *A Rum Affair*, reviewed in *Watsonia* 23: 349 (2000) by Michael Braithwaite. This new book brings together in an attractive format John Raven's four J. H. Gray Lectures delivered in Cambridge in 1976 (previously published in *Annales Musei Goulandris* 8: 129–180 in 1990 and providing the book's title), another lecture that he gave to the Alpine Garden Society of Oxford in 1971, related essays by Alice Lindsell, William Stearn, Nicholas Jardine and Peter Warren, talented flower paintings (by Alice Lindsell) and good colour photos (by John's widow, Faith). As John was my official Classics supervisor and informal botanical mentor when I was an undergraduate, I am delighted to review the book.

Faith Raven writes in the preface that the Rum exploit and the lectures “bring to botany the same qualities: of detection and deduction, of questioning of received wisdom – and of humour”. “The first lecture,” writes the late William Stearn in his introduction, “made evident ‘with unholly glee’ the unreliability of some identifications by Sir William Turner Thiselton-Dyer (1843–1928) of plants mentioned in classical Greek literature.” He says that Raven treated him “harshly but not altogether fairly”, but Nicholas Jardine suggests that “John's animus against Thiselton-Dyer and his ilk was motivated not just, as Stearn maintains, by their dogmatism, but also by their *method*” – “literary and philological” rather than “botanical or historical”.

John Raven's characteristic style, accurate and logical, but complex and ornate, with numerous qualifications and asides, pervades these lectures, a *tour de force* which enthralled his Cambridge audience in 1976. Here too is that self-deprecation which will be familiar to anyone who knew John or has read *A Rum Affair* (“But if you care to invite me again, which after this evening is inconceivable, ...”). With exemplary scholarship he discusses the plants mentioned by the poets Homer (some 60 out of the Greek flora of about 4300, 32 of them either trees or shrubs), Sappho, Hesiod and Theocritus (his favourite), and the work of the two best-known ancient Greek botanists, the philosopher Theophrastus (c. 370–285 B.C.), who named 500 species, and Dioscorides, a Roman army doctor in Nero's reign. However, the most memorable passages are digressions describing his own searches for the three wild tulips of Crete – apparently to contrast his own enthusiasm for first-hand fieldwork with Theophrastus' chiefly home-based study – and his step-by-step detection of what he believed to be the very pool on Cos “into which the suddenly love-stricken nymphs dragged young Hylas” in Theocritus' Thirteenth Idyll! Like John's fieldwork and like his exposure of Heslop Harrison and Thiselton-Dyer, these reveal what most motivated him – “the enthusiasm of the hunt”.

There is an intriguing subplot in this book, relating to the contributions of Miss Alice Lindsell – papers entitled ‘A Note on Greek Crocus’ (1937, previously unpublished, where she argues that “Sir William Thiselton-Dyer, like Homer, nodded ... over the crocus”) and ‘Was Theocritus a Botanist?’ (published in 1937) and reproductions from “a marvellous book of pencil and wash portrayals of native Greek plants ... evidently done on the spot, and dated from 16th October 1930 to 18th May 1931”. It seems that these came into John's hands from “Andrew Gow, Fellow and Tutor of Trinity College [John's first college] and the leading Theocritus scholar of his generation”, usually “reserved and severe” but uncharacteristically impressed by Miss Lindsell's scholarship. John was impressed too and paid her generous tribute: sometimes, one feels, she outshines him at his own game!

P. H. OSWALD

The Sussex Rare Plant Register. Edited by M. Briggs. Pp. 126. Sussex Wildlife Trust, 2001. £10.00. ISBN 1-898388-16-4.

The full title of this spirobound volume is “The Sussex Rare Plant Register of Scarce and Threatened Vascular Plants, Charophytes, Bryophytes and Lichens”; it is edited with the assistance

of P. Harmes and A. Knapp, and published on behalf of the Sussex Botanical Record Society and the Sussex Biodiversity Record Centre. Furthermore, 18 authors have contributed to the species accounts, so it is truly a cooperative venture.

The categories are clearly set out in the introduction, and conform to our Society's guidelines, that is, plants that are Nationally Rare and Scarce, plus local rarities (three or less sites in a vice-county; in this work, in either vice-county). Other native species have been included where they are important in a Sussex context, or where they have greatly declined but are not yet in the above categories. Alien species are only included where they have been well established for more than 50 years.

The species accounts are a model for other writers. They are succinct, they give the feel of the situation, and the records, praise be, almost all have 6-figure grid references, date of last records (all post-1986) and initials of recorders. As always, it is the orchids that have slightly less details; I suppose we have to accept that they and the rare ferns are the last preserves of the collectors (and cranks), but for all the rest we must nail the shibboleth about secrecy. By and large we need to tell people where plants grow to protect them from mis-management. What a change, over only 30 years or so, from when it was the collectors who were the supposed bugbear!

A propos the above the only extra item I would have tried to include would have been a note of whether the site had any "protection" as a S.S.S.I., Wildlife Trust reserve or whatever.

So, all in all, I would heartily recommend this little volume and look forward to seeing more of its kind. I hope the data are available both for updating and for incorporating with our own Threatened Plants Database.

D. A. PEARMAN

Grazing Ecology and Forest History. F. W. M. Vera. Pp. 528. CABI Publishing, Wallingford, 2000. Hbk £55. ISBN 0-85199-442-3.

This is a LANDMARK BOOK. At last someone has dealt comprehensively with the thorny problem of what the vegetation of the "Wildwood" of temperate Europe, and to some extent of eastern North America, was really like.

As a result of pollen analysis studies, many interpretations have been made of the nature of this primaevial vegetation. Hitherto published interpretations have tended to imply that these forests, in Europe at least, were extremely dense and almost impenetrable, with little light able to reach the forest floor in summer, and with few or no large herbivores present. This has become the accepted story of the European temperate forests. However, there is another very different interpretation of the history of the nature of European temperate forests, namely that these forests were in fact pasture-woodlands with many glades and open areas, due to the dominance of large native herbivores including the European Bison, the Wild Ox or Aurochs, and the wild horse or Tarpan. There were also various species of deer.

Dr Vera has produced a splendid, scholarly book, and he is to be congratulated. He has produced a comprehensive and in-depth study, leading to a re-interpretation of previous studies by woodland ecologists. Vera's concept of the primaevial forest would have had far more light and biodiversity than the dense closed forest (without large herbivores), envisaged by most earlier ecologists. These concepts, as presented by Dr Vera, delighted me when I first read of them because, for some twenty years and more, I have been convinced by my own studies in the field that the primaevial forest, at least of western Europe, must have been quite open in places; in fact with numerous glades and lawns, much as in the New Forest in Hampshire today, where the original wild herbivores have been replaced by domestic stock. If the primaevial forest was uniformly dense, where else did all the numerous light-demanding species of plants and invertebrates evolve? Most of our forest wildlife is adapted to light as well as shelter. The greatest diversity in our British (and European) woodlands is found today along edges and rides. The denser parts of our managed forests have far less biodiversity. It is clearly evident that the richest floral displays in our woodlands are where there is a combination of adequate light and some shelter from wind, promoting higher humidity. This is not just true of the vascular plants, but also for many other groups of organisms. For example, most epiphytic bryophytes and lichens clearly need sufficient light as well as humidity to flourish and it is also in well lit but sheltered glades in woodland that the majority of forest birds and butterflies are found.

The vegetation of northern temperate forests must have been evolving for millions of years, ever since the long cooling of the Pliocene had gone far enough for temperate conditions to replace the former tropical climates and ecosystems, as indicated by the fossil records. Ecologists seem often to put too much emphasis on evidence from Interglacial and Devensian (Postglacial) changes, forgetting that these periods were quite short in terms of time for evolutionary changes, compared to the millions of years that the Pliocene era lasted. The Pliocene must surely have been the key period for the evolution of recent temperate ecosystems. The changes in flora would clearly have reacted with the fauna. Perhaps too often the role of large herbivores in the development of our forest vegetation has been under-emphasised: the large animals must have been a major driving force, interacting with the available flora by creating and maintaining open habitats.

It is no accident that dense, closed canopy high forests have a low biodiversity. The intense internal shading ensures this. Many believe, quite wrongly in my view, that grazing by large herbivores impoverished the flora and fauna of a wood. It certainly must reduce the biomass of the ground flora, but in an ungrazed forest this is very limited in species diversity anyway. I first raised these issues myself in the small book *Pasture-Woodlands in Lowland Britain* (Institute of Terrestrial Ecology; NERC 1986) with Paul Harding as co-author. At that time few woodland ecologists seemed to agree with us, so I was naturally delighted when Dr Vera produced in 2000 his magnificent and in-depth study of the history of temperate forests. One series of phenomena which convinced me of the truth of this concept of temperate forest history, was the observed behaviour of epiphytic lichens. It became clear to me years ago that well developed woodland lichen floras are closely correlated with open, rather park-like pastured woodland. For me, the implication is that during their long history such forests were almost certainly open rather than dense, otherwise their evolution would have been quite different.

Other writers, such as George Peterken, have suggested that in the North American temperate forest, particularly in the east, bison and other large herbivores were of no great importance in the dynamics of the forest. Peterken deduces from his studies that fire and storms were more important factors than the large herbivores. Vera's research has included study of earlier historical accounts, dating from the early 17th century. These seem to indicate that the forests were far more open at that time, and that bison were abundant.

I would reiterate that in my opinion this is an extremely important book for those interested in just how the vegetation of temperate Europe north of the Alps, evolved in the post-glacial Devensian period. There has been so much misinterpretation of this story for many years.

F. ROSE

The Cambridge Illustrated Glossary of Botanical Terms. M. Hickey and C. King. Pp. xii + 208. Cambridge University Press, Cambridge, 2000. Hbk £52.50. ISBN 0-521-79080-8; Pbk £18.95. ISBN 0-521-79401-3.

This volume, similar in format to the authors' *100 Families of Flowering Plants* (1981) and *Common Families of Flowering Plants* (1997), will be welcomed by users and admirers of these earlier works. After a brief introduction which includes a useful couple of pages on symbols, general and numerical prefixes, suffixes and taxonomic ranks, the work progresses to a 46-page glossary, followed by clear illustrations which elucidate what many of the terms in the glossary mean. The illustrations of 'features of certain plant families' are particularly useful, and help to remind the reader of terms which are peculiar to such groups as orchids and pteridophytes (lower plants are not included).

When reviewing glossaries it is inevitable that the reviewer will quibble about the meaning of some terms, and berate the authors for excluding other terms. My personal quibble is the definition of stolon as 'a lateral stem growing horizontally at ground level, rooting at the nodes and producing new plants from its buds ...'. If this is correct, what should one call the arching stems of *Rubus fruticosus*, which cannot be described as 'growing horizontally,' but for which I can neither find (nor want to find) another term. As far as the inclusion of terms goes, the Glossary is most likely to be consulted by people interested in plant morphology, looking up terms which they come across when using keys, or studying species descriptions. I can think of no important morphological term which has been omitted; if anything, the authors tend to be too inclusive. There is an uneasy boundary between the necessity of using precise terms to describe a feature,

and cluttering up one's work with unnecessary jargon. In my opinion a few of the terms in this book fall into the latter category. For example, do we need 'chiropterophilous' when we can use 'bat-pollinated'? However, while people continue to use jargon, the compilers of glossaries have a duty to include them.

I shall keep the work on my desk, where, no doubt, I will frequently consult it. I encourage others to do likewise.

A. R. VICKERY

Loch Lomondside: Gateway to the Western Highlands of Scotland. J. Mitchell. Pp. 232. Harper Collins (*New Naturalist*), 2001. Hbk £34.99. ISBN 00-220145-3. Pbk £19.99. ISBN 00-220146-1.

With Scotland poised to have its first National Park designated, after a very long gestation, this latest addition to the *New Naturalist* series is very well timed and serves as an invaluable reference source. Such an important book could have had no better author than John Mitchell, who has had a long and intimate relationship with the area, through both work and play. Working since 1966 for the former Nature Conservancy as Reserves Warden, the author has developed a comprehensive knowledge of the area, thoroughly researching the wealth of literature and contributing a number of articles of his own. The product is a compact distillation of all the factors that produce the dramatic landscape and natural heritage that greets the millions of visitors who enjoy the area every year.

The book is divided into three main parts: the first two, comprising the first half of the book, look at the physical geography and the impact of the various human groups on the landscape. The effects of climatic events such as great freezes and gales and the impact of devastating fires on the relict Scots Pine woodlands are discussed. Direct human actions have affected the loch water levels and surrounding forests and caused drastic agricultural changes. In addition the reader can learn about stag hunting, the last wolves and the curious wild white mountain bulls, and also learn about introductions such as the Capercaillie and the Red-necked Wallaby.

The latter half of the book is concerned with the natural heritage in chapters on the loch, lowlands, woodlands and mountains. Each chapter summarises the vegetation and botanical interests, describing common and rare species: detailed information is provided on the oak and yew woodlands and on famous botanical residents such as the Scottish Dock (*Rumex aquaticus*), Elongated Sedge (*Carex elongata*), Pillwort (*Pilularia globulifera*), Eight-stamened Waterwort (*Elatine hydropiper*) and Mudwort (*Limosella aquatica*); wider botanical interest includes bryophytes and lichens. The chapters, as would be expected from the author's all round knowledge, also provide fascinating accounts of the rich fauna.

The text is very well written and manages to communicate complex issues in a succinct and very readable manner. The text is supported by 120 black and white photographs with eight plates providing high quality colour. One criticism is the lack of a detailed map; any reader would be advised to have a good map to hand, to allow for orientation. There is a further reference section, although this might have been more useful if it had been linked to individual chapters or subject headings.

I found the book a fascinating read and, although not primarily a book about plants, any botanists with an interest in Scotland and the understanding of the complex issues influencing our natural inheritance will be well rewarded.

K. WATSON