if you go to any place in the British Isles you might expect to be able to identify the dandelions because they should all look more or less alike and, if you looked carefully, you could ignore the ones growing in shade or in the middle of cowpats. But the picture is complicated by dandelion ecology since they are weeds which frequently colonize roadsides and other manmade habitats and the distribution maps presented for all the species show that many of them are widespread. This means that distribution can't be used as an aid to identification, as it can for other difficult groups in the British flora such as sedges, which have very characteristic ecological and geographic ranges.

So why would you want to place a dandelion in one of the many species listed in this book? Their reproductive biology and ecology, although not covered in detail in this book, helps to explain the patterns of variation and there's little doubt that the entities identified are real in nature. However, to my mind there is doubt about why they should be named. Sexual taxa may show a similar amount of variation to that encompassed by dandelions but the variation could only be taxonomically recognized by giving individuals a name, a thing no sane botanist would want to do. By naming apomictic lines taraxacologists are effectively naming every different genetic individual, which is taking taxonomic splitting to absurd extremes. However, someone has gone to the trouble of naming them, and if you're on the lookout for an arcane hobby why not take up taraxacology? But, even with the aid of this book, you need to devote a good deal of time to identify a dandelion: so be warned, as the authors point out, 'dandelions are difficult'.

R. ATKINSON

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**Gardens of Empire: Botanical Institutions of the Victorian British Empire.** Donal P. McCracken. London & Washington: Leicester University Press. 1997. 242pp. ISBN 0 7185 0109 8. £55 (hardback).

This is a fascinating and useful book crossing the boundaries of social and botanical history. A wide range of institutions from Botanic Gardens (in their many varieties) to experimental stations is covered, which is entirely valid, as the distinctions are not clear cut. As many of the major Botanic Gardens (Kew, Melbourne, Sydney, etc.) have their own published histories, one of the greatest values of the present work lies in the information about the smaller institutions of the Empire, about which little has been gathered together and published. The author has used a large range of widely dispersed sources, in particular published reports and the Kew archives. The author is a social historian and so covers a range of fascinating topics that would be missed, or treated with contempt, by a botanist or historian of science with a scientific background. For example I like the story of the unfortunate Mr and Mrs Dunlop who were thrown out of the Sydney Garden for displaying 'uxorious affection'. It is pleasantly free of generalizations and an excellent range of quantified

examples are given in the text and as tables, for example the numbers of books in libraries, salaries of curators, numbers of plants exchanged, etc.

The period covered is from Banks' idea for a network of colonial Gardens, primarily for economic purposes, which reached fruition only during the reign of Victoria, reaching a climax in the heady days of the Empire in the 1870s and 1880s, declining rapidly thereafter. The pre-eminent role of Kew, which has been much vaunted (not least by Kew itself), is treated critically. Their role was considerable, but was always advisory and the network of Gardens was always run by various Government Offices. Even the often-related Kew success stories of rubber and cinchona were not simple, with other Gardens playing important roles. The effect of over-emphasizing these (as has been done by many authors) has been to play down the importance of the distribution and propagation of other economic plants by Kew and the network, for example of forest trees and coffee. The genuinely large amount of help given by Kew is given due credit, for example in its monumental correspondence (14,498 letters sent out in the year 1899!) and distribution of plants and seeds.

Despite all this, several criticisms have to be made. Given the high price of the book, it should certainly have been more profusely and imaginatively illustrated – the subject cries out for such treatment. There are no colour illustrations and the relatively sparse black and white ones are poorly reproduced. The index is confusingly laid out and incomplete (e.g. no plant names included). There are numerous trivial errors in the names of plants and botanists: for example, Wallich was Danish not Dutch; N.B. Ward's middle name was Bagshaw not Bartholomew; M.C. Cooke's middle name was spelt Cubitt. Among the plant names we find: *Cyperus* '*esculentis*'; '*Ladoicea*' (for which the correct epithet is *maldivica* not *seychellarum*); '*Fimbristilis*'; the genus of the Calabar bean is *Physostigma* not *Physostegia* and papyrus is not a grass!

More serious (and I do not say this for chauvinistic reasons) is a virtually complete absence of any mention of the role of the Royal Botanic Garden Edinburgh in this story. Neither it nor Glasgow is even given in the list of University Botanic Gardens. Edinburgh's role was particularly important in the period covered in the introductory chapter. The author mentions the 'centre of botanical enterprise shifting to Scotland' in the pre-Victorian era, but fails to develop this. This role was especially important in India, where Roxburgh, Wight and Cleghorn carried ideas formed under Hope and Rutherford into the Indian Gardens. This influence was still important in the Victorian period, though possibly in many cases more indirect. Though the author implies Edinburgh's importance obliquely, by pointing out that Kew had a deliberate policy to 'eclipse all other rivals, particularly the Royal Botanic Gardens (sic) Edinburgh', he fails to expand on this and the only other mention of Edinburgh is of the MacNabs as an example of a botanical dynasty (what about the Balfours?). Much research is needed on Edinburgh's colonial role, but there are numerous letters in the J.H. Balfour archive from colonial botanists. The author alludes briefly to the number of Scottish gardeners in the colonies. Though many of these were trained at Kew, many of them were, at least indirectly, affected by the influence of Edinburgh in their formative years.

The author seems to have an aversion to the use of capital letters for proper names or adjectives derived therefrom (wardian cases, para rubber). I also strongly object to his use of the collective noun 'botanic gardens' for all such institutions, especially when abbreviated to 'gardens', as in 'in 1884 a gardens was established'. This could be avoided by using the phrase 'Botanic Garden' or 'Garden'; it is the concept that is important, rather than the physical make-up (which may or may not be composite). The use of 'economics' for plants of economic value sounds simply slangy.

I regret having to make these criticisms as the book is a genuinely useful addition to the literature on the history of Botanic Gardens and can be thoroughly recommended. Though historical it contains much of contemporary relevance, for example funding difficulties and varying fortunes depending on how and by whom administered; conflicts between art and science in planting schemes (Mueller at Melbourne), and much else besides.

H. J. NOLTIE

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**Medicinal Plants: Can utilization and conservation coexist?** Jennie Wood Shelton, Michael J. Balick & Sarah A. Laird. *Advances in Economic Botany*, Volume 12. Series Editor Charles Peters. New York: New York Botanical Garden. 1997. 104pp. ISBN 0 89327 406 2. Softback.

This volume, the latest issue of *Advances in Economic Botany*, maintains the series' high standards of quality and topicality. After more than a decade of conservationists' promotion of non-timber forest products – and particularly of medicinal plants – as the potential salvation of the world's tropical forests, it is becoming increasingly clear that the reality of the situation is considerably more complicated than had originally been perceived. Conflicts of interest have become apparent, and the problems associated with balancing supply and demand (and their effects on sustainability and overharvesting) require solutions.

The book, which began as a White Paper for the Rainforest Alliance Periwinkle Project, examines the relationships between medicinal markets and some of the plant species on which they depend, focusing primarily on the situation in tropical forest regions. After a brief introduction to the book and to the role of plants in medicine, the majority of the text is made up of a series of case studies, chosen to illustrate the key points of the argument. These begin with a comparison of wild-collected medicinal plants with cultivated species, drawing on the examples of bloodroot (*Sanguinaria canadensis*) and the rosy periwinkle (*Catharanthus roseus*) respectively, and continuing with a discussion of the sustainability of harvesting of species collected for their leaves (*Pilocarpus* spp.), bark (*Prunus africana*) and roots (*Panax quinquefolius*).

The next chapter deals with the changing role of plants in traditional medicine, focusing on three projects which are actively attempting to combine conservation