

number of species illustrated, though most of the additions are really not "alpines". Over the wide range in latitude - from 42° to 71° N - spanned by this book the tree limit descends from some 2300 metres on the Alps to near sea level in Northern Scandinavia. Tree limit is usually taken as the lower boundary of alpine vegetation. It is ecologically much more significant than an arbitrarily fixed altitude, meaningless over such a huge latitudinal span. This is no criticism of the content, only of the title of this book. Anyhow, many of the readers will botanise from foothills to high mountains; for them this field guide caters well, in spite of its somewhat disconcerting title.

There are a number of good features. Text and illustrations are face to face. The

description of each species is appropriate and succinct, and it helps to have the diagnostic features in italics. Two keys based on drawings of flower shapes and one, for trees, based on leaf shapes help with preliminary identification. A number of plates give comparative drawings of one or other important diagnostic character in the case of the species of a few difficult genera or families: for instance, calices for the genus *Dianthus*, fruits for some umbellifers, and so on. The illustrated glossary is very clear.

Three minor criticisms: the use of English names for families; the invention of an English name, by translation from the latin binomial, for species which do not have one; and the omission of the author's

name after the botanical name. We should not fall into the deplorable habits of American field guides. This guide is dedicated to the Alpine Garden Society which celebrates its Golden Jubilee this year. It will make a most useful companion, as a pocket field flora, to the book *Mountain Flower Holidays in Europe*, just published by that Society. I am sure all members, and those of the sister Scottish Rock Garden Club, will need, and make good use of this guide.

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Orchid growing

Orchids in Colour. By B. and W. Rittershausen. Pp.192. (Blandford: Poole, Dorset, UK, 1979.) £4.95.

THE attraction of this book by two well-known orchid-growers lies principally in Robin Fletcher's beautiful photographs, the authorship of which, despite the book's title, is not even acknowledged on the jacket. Over one hundred different species or hybrids are illustrated, sufficient to give an idea of the astonishing range of form and colour of these plants, whose increasing popularity is easily understood.

The introductory text comprises general remarks on the Orchidaceae, followed by separate sections dealing with the history and cultivation of the principal groups now grown. This first part suffers from an occasional tendency to become romantic at the expense of botanical accuracy, with such remarks as those with regard to nourishment (which "the orchid has learnt largely to do without"); the "meagre needs" of epiphytes "are totally satisfied by the moisture of the atmosphere". Fortunately in the separate sections that follow, quite full notes on various aspects of orchid culture are given, particularly as regards temperature and humidity (both of which are critical to successful orchid growing), the use of composts, and the timing of repotting and other cultural practices. Under modern centrally heated conditions, many orchids can be grown in a normal living room, and the suitability of various groups is duly noted. Brief notes on pests and diseases are also included in these sections of the book.

Apart from the breeding of new hybrids, large numbers of which are created every season, modern orchid propagation relies for many groups on "meristemming", the excision and subsequent culture of the growing tip of a shoot; and it would have been useful to include a more detailed description of this practice. There is also virtually no account of the genetics of the

extremely interesting and complex nature of multigenic hybridisation.

Detailed notes (facing each plate) are given on the history and culture of the actual varieties illustrated, and these also deal with related species or hybrids. As a whole, however, the text could do with considerable editing: besides a tendency to be repetitious and thus sometimes confusing, it is at times so ungrammatical as to be obscure and irritating for the

reader to a degree that should not occur in a book of this style and authority. One point in its favour is the small format of a volume that one might have expected to see published as a much larger 'coffee-table' book.

Peter Collins

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Man's use of dry lands

Dry Lands: Man and Plants. By R. and M. Adams and A. and A. Willens. Pp.152. (Architectural Press: London, 1979.) £12.95.

This volume is written by two landscape architects, a horticulturalist and an agriculturalist, who are concerned to put their expertise to use in the careful management of dryland ecosystems. As a background to this aim the categories of arid land and their special characteristics are represented in some detail. Causes of aridity are discussed, and methods of supplying an index of its severity presented. This is followed by a survey of Northern and Southern Hemisphere desert zones; desert morphology and soils are presented next and desert vegetation types described, including methods of adaptation by plants to arid conditions. This leads on naturally to plant selection for arid regions and the way in which man may manage and modify desert ecosystems. Subsequently, survey and planning methods are expanded, and design and implementation procedures are outlined.

To deal in detail with such an extensive remit would be difficult and in seeking ways to overcome these difficulties the authors have been both inventive and shallow in turn. Overall, the book is attractive in both its presentation and treatment; it follows through from ecological considerations to methods of developing areas agricultural, for forestry and horticultural

purposes, and then to urban landscaping and the development of a coastal site - marina, shops, hotels, airport hotels and gardens. The designs for urban spaces look attractive but the nearest I have experienced to them, in practice, is in Venezuela rather than in the arid zones of Africa or the Middle East. In the course of developing such plans a site survey checklist is presented. This includes hydrological features, geology, topography, soil characteristics, climate, and ecological components. Enough detail is given of the necessity to consider each feature in turn but usually this would not allow a basic understanding of the way in which the various factors operate or how they interact. Where attempts are made to give a basic understanding (as where features of C₃, C₄ and CAM photosynthesis are explained) these can be confused in their presentation and attribute findings to authors who have merely carried along investigations initiated decades previously by other workers.

As an interesting excursion into the application of ecological expertise to planning and land management in difficult situations, this book can be recommended. The work is a useful guide for the ecologist seeking to apply his knowledge. For the planner or landscape architect, seeking the scientific basis for his art as applied to the arid zone, it falls short of a *vade-mecum*.

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