

Book Reviews

CAMPANULAS: A GARDENER'S GUIDE. Peter Lewis and Margaret Lynch. 1998. Timber Press Inc., 133 S.W. Second Ave., Suite 450, Portland, OR 97204-3527. 176 p. 75 color photographs, 5 black and white photographs and 70 line drawings. \$34.95, hardcover. ISSN: 0-88192-463-6.

Having heard one of the authors speak at a symposium in Edinburgh last summer, I was eagerly anticipating this book on campanulas. I believe that I am familiar with campanulas, still I was impressed with the breadth of coverage in this new, revised edition. The authors were able to grasp my attention with striking photographs and descriptions of more than 140 species and many cultivars of *Campanula*.

The introduction gave the reader a good understanding of the scope of the book and explained why the authors chose to handle the treatment as they did. They aptly explained that identification keys have not been included due to logistics and time. For the gardeners the photographs are eminently more helpful, especially for the various cultivars. The brief history was made more interesting by the inclusion of photographs of various historical persons closely linked with the history of campanulas, but left the reader somewhat confused over the early botanical references to campanulas. A second reading did prove to eliminate some of the confusion. Unfortunately some of the information included in the brief history was quite extraneous and in one case appeared to be a stray afterthought, which detracted from the readability of the text and added no real significant information. On the other hand, the chapter on classification and general characteristics was nicely handled. I found particularly interesting that campanulas vary considerably in "size and outline" depending on

where and how they are grown (another reason why keys are not reliable). The species descriptions and specific cultural information of each is presented alphabetically for ease of access. Overall, one could easily gain considerable understanding about the variety of species and cultivars available and their general culture.

The authors present an excellent account of the species and cultivars of *Campanula* and give considerable information on the cultivation and propagation of the plants. However, I would think that gardeners, especially those who have not grown campanulas but would like to, would benefit from some recommendation lists of select species and cultivars. While many recommendations are found throughout the book, some simple lists such as a list of tried and true campanulas or a list of the "great travelers" would be quite helpful to many readers. Also of interest would be lists of campanulas that would grow well together for a border, rock garden, or alpine garden. A list of several plants that, when grown together would give a nice sequence of bloom, could be helpful.

Even without the suggested additions, I found *Campanulas: A Gardener's Guide* to be an excellent source and guide book for anyone who enjoys gardening with or wishes to adventure into growing campanulas. For the commercial grower, there is a list of seed sources and considerable information pertinent to inclusion of new campanulas to their inventory of perennial plants. Of course, I have discovered several campanulas that I look forward to adding to my garden.

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THE GARDENER'S GUIDE TO GROWING DAYLILIES. Diana Grenfell. 1998. Timber Press Inc., 133 S.W. Second Ave., Suite 450, Portland, OR 97204-3527. 160 p. 79 illus. \$29.95 + S&H, hardcover. ISBN 0-88192-461-X.

In the United States, *Hemerocallis* or daylily is the number two perennial in sales. One of the main reasons for the popularity of this plant is the introduction of new hybrids that are nearly everblooming. Within the last few years, several books on daylilies have been published. *The Gardener's Guide to Growing Daylilies* is one of these books and is part of the gardener's guides published by Timber Press. Other guides in the series discuss hellebores, hardy geraniums, lilies, hostas, ivies, fritillaries, irises, peonies, clematis, and pentstemons.

This Guide is divided into 14 chapters that discuss botany, breeding, types of hybrids, cultivars, and cultivation. Chapters 1 and 2 discuss daylily botany and provide a guide to the species. These chapters are not technically written and are aimed for an audience of nonhorticulturists.

More than half of the book is devoted to chapters 3, 4, 5, 8, and 9. The subjects of these chapters are related discussing the various types of hybrids with specific cultivar examples. The section on hybrid terminology is excellent (i.e., watermarks, eyes, blends, bands, crests, etc.). The section on cultivar descriptions is very extensive with many color photographs. The author subdivides the cultivars into several color classes. This is basically a good idea; however, these classes are not defined. For example, what is the difference in color among orange-red, scarlet, blood-red, rose-red, cranberry-red, wine-red, and black-red? I thought scarlet was orange-red.

Chapter 7 is devoted to breeding. The introduction of this chapter states that the only information needed for breeding is a knowledge of flower structure and ploidy level. There is no mention of genetics in the entire chapter! The chapter ends with an essay by David Kirchoff discussing some of the parents he used in breeding. I am not sure how this chapter will help anyone breed daylilies.

The final section of the book provides information on growing daylilies and daylily collections throughout the world. There are separate chapters on

North America, Europe, Australia, and New Zealand. The appendices provide specific data on commercial growers and societies.

There are several new books on *Hemerocallis*. The first comprehensive book, *Daylilies* was written by Arlow Stout in 1934. From 1911 to 1948, Stout was involved in daylily research and breeding at the New York Botanical Garden. His research resulted in the first pink and red cultivars. Stout's book was reprinted in 1986 by J.M. Dent and Sons in England. Since then, several other books on *Hemerocallis* have been published: R.W. Munson, Jr. (1989), *Hemerocallis, The Daylily*; L. Hill and N. Hill (1991), *Daylilies, The Perfect Perennial*; and W. Erhardt (1992), *Hemerocallis, Daylilies*. Each of these books is an updated and modernized version of Stout's book.

Each updated volume has its strong points and weaknesses. Munson's book has the most comprehensive discussions on the history of daylily breeding and judging daylily flowers. It is weak on species and cultivar descriptions. Erhardt's book has the most detailed species descriptions and is the only book with a key to the species. Erhardt's book, however like Munson's book, is weak on cultivar descriptions. Grenfell's book has the most comprehensive cultivar descriptions, but is weak on breeding and species descriptions. All of the books, including Stout's, are weak on basic biology, pathology, propagation, and genetics. They are all written for the general gardening audience that has little or no knowledge of scientific horticulture.

Grenfell's book is recommended for the amateur gardener, but not for the professional horticulturist.

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APPLES. Frank Browning. 1998. North Point Press, A division of Farrar, Straus and Giroux, 19 Union Square West, New York, NY 10003. 241 p. \$27.00 hardcover. ISBN 0-86547-537-7

Among all fruit crops, apple and winegrape probably have been the sub-

ject of the most verbiage, both scientific and lay. In the case of apple, there have been some interesting prose in the popular press that I recommend, including the wonderful and authoritative *The Book of Apples* (1993) by Joan Morgan and Alison Richards, published in association with the Brogdale Horticultural Trust of England; *Pomona's Harvest* by H. Frederic Janson (1996), an illustrated chronicle of antiquarian fruit literature that has much information on apples, and, although no longer new, I need to mention a long profile (One Hundred Thousand Varieties) by Berton Roueche that appeared in *The New Yorker* (11 Aug. 1975). Finally, the late Miklos Faust had completed a manuscript "The Apple," which, hopefully, will be published soon.

Apples by Frank Browning, a Kentucky fruit grower, writer, and a reporter for the National Public Radio, is the latest contribution to apple lore. This short book (241 pages) is one that apple lovers and knockers will want to add to their library, especially those with a historic bent. Browning has grafted much of the romance of apples and apple growing in a very unusual and interesting way. For starters, who would have thought that the boy god Apollo may in fact be a transmutation of Balder, a Nordic God, who may be related to the Norse word, abal, the origin of our word for apple. There is more than some might want to know on the history of cider, the relation of wassail to apples, and the images, erotic and otherwise, of transected apples. Throughout there is some great writing; I quote a paragraph that caught my eye to give the full flavor of the book:

"Should we call these brave new orchards "natural"? The only genuinely honest answer is that nature herself is a trick, a confection of Enlightenment thinking, a projection to some lost pristine paradise that periodically resurfaces in utopian fantasies. Neither today's apples nor Grandad's was natural. Aside from stumbling across Thoreau's scattered fence-row seedlings, to find a truly wild apple we will have to march backward through the millennia, across an ocean into the faded tunics of Mesopotamia and onto the backs of donkeys and horses across the mountains of the Caucasians, and into the lands of the Uzbeks and the Kazakhs, up the streams running through the town of Almaty, called "the father of apples," where the first fruit fell to the

ground long before the authors of Genesis".

The author visited The New York Experiment Station in Geneva in New York and the book is redolent in Cornellians including Herb Aldwinkle, Roger Way, Jim Cummins, Susan Brown, and Phil Forsline, to name a few. Still, Browning gets mixed up now and again. He misses the big story of the triploid nature of 'Jonagold' and its relation to the pioneering work of John Einset, Charlotte Pratt, and Barbara Imhoffe. Included is the tragic story of N.I. Vavilov, a martyr of science, as well as bits on Aimak Djangaliev, the Russian expert on the apples of Ama-Ata. There is much mouth watering description of heirloom apples but, in my experience, they usually disappoint; so much for nostalgia. I am pleased the PRI apple 'Gold Rush' was mentioned in the appendix (Twenty or so Prize Apples), despite the misspelling. I purchased a copy just before I received the review copy, which I promise to donate for the ASHS auction next year. I urge you to bid on it.

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THE COLOR ENCYCLOPEDIA OF ORNAMENTAL GRASSES SEDGES, RUSHES, RESTIOS, CAT-TAILS AND SELECTED BAMBOOS. Rick Darke. 1999. Timber Press, Inc., 133 S.W. Second Ave., Suite 450, Portland, OR 97204-3527. 328 p. 506 color photos. \$49.95 + S&H. Hardcover. 0-88192-464-4.

Rick Darke's *Color Encyclopedia of Ornamental Grasses* is a major contribution to this group of ornamental plants. He has collected information, photos, and history from floras and references throughout the world. The photographs are exquisite. They are worth the price of the book alone, to see the clarity and beauty of the grasses, many which have not been pictured elsewhere and are notorious for being a difficult group of plants to photograph.

There are six chapters before the encyclopedia, three of which tell their story in photos with descriptive captions: The Beauty of Grasses; Learning from Grasses in Native Habitats; and Designing with Grasses.

Learning from Grasses in Native Habitats is a pictorial look at habitats

throughout the world. The photos capture the beauty of grasses in their natural settings: during rice harvest, a meadow in Pennsylvania, or the mountains of Japan.

The design chapter recommends allowing grasses to "interplay with other perennials, annuals, biennials, trees and shrubs. Gardens must be at once inspiring and conserving, high-spirited and low maintenance. They must reflect and sustain the rhythms of our lives and our homes, and they must speak to us eloquently of the sun and seasons. Delightfully, grasses are sympathetic to all these ideals." Many of these photos show the same setting at different times of the year, reflecting seasonal beauty and variation. Some of the photos were first shown in Darke's *Ornamental Grasses for your Garden* (1994).

Darke stresses getting to know the direction, strength, and periods of sunlight in your garden. "Think of the times of day a garden path will be used and the direction from which the sunlight will be coming when planting a grass such as *Chasmanthium latifolium*," he advises. Grasses and conifers are similar, having much of their appeal based on texture and form rather than on colorful flowers. Examples are given of combinations of grasses and bulbs, *Sporobolus heterolepis* and *Narcissus* 'Hawera'; and decorative container ideas such as hakone grass and blue Lyme grass.

The three chapters Families of Grasses and Their Relatives, The Names of Grasses, and Growing and Maintaining Grasses contain complete information and text including line drawings and photos of cultural practices such as division or cutting back in the spring.

The most recent information on new pest problems *Miscanthus* mealy bug and foliage leafspots are discussed. Darke has a realistic look at grasses as invasive plants, from a garden view or an ecosystem. He cites problem species and where they have become invasive.

The bulk of the book is the encyclopedia of hundreds of grasses and grasslike plants. Darke pays particular attention to native habitat and how that will affect garden culture.

He includes history and origin of cultivars and details from grass experts from around the world. *Carex*, for example, include 45 species, and many more cultivars. Over 20 pages are devoted to *Miscanthus*. New and unusual plants are described, such as restios, a

group of South African rushlike plants, in the Restionaceae family, which occur in the Southern Hemisphere, especially South Africa. Restios have a strong resemblance to horsetails.

There is an extensive bibliography with newest taxonomic references. Darke splits *Stipa* into several new genera, clarifies the confusion on several other names in the trade such as *Carex nigra* and *C. flacca*; *Miscanthus floridulus* and *M. giganteus*; and *Calamagrostis xacutiflora* 'Stricta' and *C. xacutiflora* 'Karl Foerster'. A large, color, European hardiness zone map, which is rarely seen, is also included.

This book will be useful to designers, home gardeners, nursery people, and educators. Although there are several books on ornamental grasses, I predict Darke's book will become the standard reference.

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NATIONAL GEOGRAPHIC GUIDE TO AMERICA'S PUBLIC GARDENS. 1998. Mary Zuazua Jenkins. National Geographic Society, 1145 17th St. N.W., Washington, D.C. 20036-4688. 384 p. soft-cover, \$25.00. ISBN 0-7922-7152-1.

This book may well be worth its weight in gold if you are planning to drive to the ASHS Annual Conference in Minneapolis this summer. Or, perhaps you are planning a family vacation on the highways. What better way to escape the noise and rage of the interstate highway than to relax for a couple of hours in the serene surroundings of a restful garden? This handy little book describes 300 of the best gardens in the United States and Canada, so you are almost certain to pass near one or more of these gardens, whatever your destination.

The U.S. portion of the book is arranged by geographical regions from east (New England) to west (the Pacific) and further subdivided into states within each region. Gardens are listed in 43 states and the District of Columbia. Other states may not have gardens of sufficient merit to be listed or the author was not aware of them. The Canadian portion is arranged similarly with listings from Nova Scotia to British Columbia. There did not appear to be any particular scheme for listing of gardens within a state.

Each individual garden rates one-half to three pages depending on its scope and importance. Details of its history, design, and special collections are developed in interesting storybook fashion rather than a tedious listing of facts. Necessary information on address and general location, times of opening, available amenities, and plant hardiness zone are provided in concise form at the end of each entry. Almost every garden is documented with at least one lavish color photograph; some with more than one.

This book may well serve as an inspiration and initial information source for those ASHS members considering a Horticultural Landmark nomination. The book seems to be constructed to withstand heavy use; perhaps even in the glove compartment or other storage area in the car.

Most publishers are anxious to provide review copies. But in this case my two requests went unanswered. So, I had to buy the book to provide the review. Well, that just goes to show you the dedication of some Book Review Editors.

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WILD ORCHIDS ACROSS NORTH AMERICA, A BOTANICAL TRAVELOGUE. Philip E. Keenan. 1998. Timber Press, 133 S.W. Second Ave., Suite 450, Portland, OR 97225. 321 p. \$39.95, hardbound. ISBN 0-88192-456-3.

Philip Keenan is a gifted photographer whose photographs have been annually featured in the American Orchid Society's magazine *Orchids*. Keenan has driven and flown >100,000 miles and walked several hundred more in search of native North American orchids. This book describes his struggles to find and photograph these orchids.

Most native North American orchids are very rare and elusive. Many grow in nearly inaccessible habitats such as floating sphagnum bogs. Once found, however, the journey is far from over. Native North American orchids, unlike their tropical relatives, have a short blooming period that is highly dependant upon the weather. One must time their visit with the ever changing blooming season! Because most people will

never be able to see their native orchids in flower, books like Philip Keenan's hold a great interest. In the past, Niles (1904) (*Bog Trotting for Orchids*) and Morris and Eames (1929) (*Our Wild Orchids*) have written similar books. These books are delightful reading, but are very outdated. The face of North America has changed considerably since 1929. Keenan provides a modern account of the search for wild orchids.

Wild Orchids Across North America is divided into seven sections: Alaska, Canada, New England, mid-Atlantic/midwestern states, southeastern states, western states, Botanist's Notebook, and Appendix. Each chapter focuses on a particular species. Besides providing a travelogue, Keenan provides additional details on orchid biology, ecology, history and conservation. Of course, there are many color photographs (170). One of the most impressive pictures is a clump of *Isotria medeoloides* with four flowering stems all in prime condition (p. 106)! This is the rarest orchid in North America. The very few people whom have seen this plant have seen it in flower, much less with four flowers.

The Botanist's Notebook section is a great addition to the book. This section discusses many of the difficult aspects of orchid identification. Keenan provides a good diagnostic key for the myriad of little-green-flowered species. Other chapters in this section focus on *Spiranthes* and *Goodyera*. The Appendix contains a species checklist and identification synopsis. The identification synopsis section describes the habitat for each of the species. This information is lacking in most guide books of North American orchids.

I strongly recommend this book for anyone interested in native North American flora.

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AN ILLUSTRATED HISTORY OF GARDENING. Anthony Huxley. 1978. Paddington Press, New York; 1998. Reprinted by Lyons Press, 123 West 18th Street, New York, NY 10011. 368 p., 500 b&w illustrations. \$35.00. ISBN 1-55821-693-6

The history of gardens and gardening has an enormous literature. Two

subjects are intertwined: the history of gardens, usually concerned with esthetics and rightly belongs to the sphere of landscape design and architecture, and the history of gardening, more allied to what we now think of as horticulture. There are great collections of these books many in specialized libraries in the United States, e.g., Dumbarton Oaks, Washington, D.C.; The Hunt Botanical Library, Pittsburgh; The Massachusetts Horticultural Society, Boston; and the National Agricultural Library, Maryland. A quarterly scholarly journal (*Journal of Garden History*) is now devoted to this field. There is a tremendous number of historical garden books, most profusely illustrated, with many devoted to particular eras or locations. A splendid example is the *Gardens of Pompeii* by Wilhelmina F. Jashemski (1979). For those interested in garden history and who wish to start a collection on a particular period, I recommend you contact Elisabeth Woodburn, Books at Hopewell, N.J. (609-466-0522) and get on the mailing list to receive ongoing catalogues. The illustrations used in the general history of gardens and gardening are often derived from common sources. Many of the historical illustrations are derived from Marie Louise Gothein's classic work *Geschichte der Gartenkunst (History of Garden Art)*, first published in 1913, and from Sir Frank Crisp's unbelievable collection called *Medieval Gardens*, printed in two volumes in 1924 (reprinted by Hacker Book, 1966). For scholarly treatments of various historical eras of garden design, I recommend the various monographs from the Dumbarton Oaks *Colloquium on the History of Landscape Architecture*. In contrast, the best popular history on gardening is still Richardson Wright's *The Story of Gardening*, published in 1934 by Dodd, Meade & Co.

Popular coffee table books on gardens and gardening include *The Garden: An Illustrated History* by Julia Berrall (1966), *A History of Gardens and Gardening* by Edward Hyam (1971), *The History of Gardens* by Christopher Thacker (1977), and *An Illustrated History of Gardening* by Anthony Huxley (1978). This latter work has been republished by Lyons Press in 1998 with a new Foreword by Charles Elliott. Huxley, the indefatigable editor of the Royal Horticultural Society's *Dictionary of Gardening*,

concentrates on tools, techniques, paraphernalia, and devices. It is truly a history of garden activities rather than esthetics and will be of most interest to horticulturists, in contrast to landscapers, designers, and architects. Unfortunately, the illustrations in the reprint are not as crisp as the original and, worse, the color plates have been converted to black and white. The original book sold for \$24.95; this inferior reprinted version costs five bucks more but, considering inflation, is a good buy. I recommend that gardening history buffs add this to their library especially those with a love for gadgets and gizmos, but my suggestion is to find a used copy of the original edition; you will get more for less.

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FLORIDA WILDFLOWERS IN THEIR NATURAL COMMUNITIES. Walter Kingsley Taylor. 1998. University Press of Florida, 15 Northwest 15th St., Gainesville, FL 32611. 370 p. 500 color photos. 12 figures. 5 maps. \$24.95, softcover. ISBN 0-8130-1616-9.

Florida's terrestrial wildflowers are discussed and categorized in this new field guide according to their natural communities. This novel approach is so practical, even a novice to wildflower identification should be placed at ease. Guesswork narrows considerably if you know what plant communities are found around the state of Florida and, since Walter Kingsley Taylor provides excellent descriptions and locations of Florida's plant communities, plant identification is much less cumbersome. Conversely, knowing the location of its community facilitates finding a plant species. This is particularly useful for locating the various wildflowers of limited distribution.

Taylor had two motivations in writing this book: first, to help the reader discover, learn and enjoy Florida wildflowers and, second, to motivate the reader to be actively involved in protecting and preserving these plants and their natural communities. He has included 175 species that are endemic in Florida. A number of these

species have such limited distribution that they have never been documented photographically in a book of this type before. He repeatedly stresses the fragility of certain communities and the plants that reside in them. Federally endangered or threatened species are specifically noted and he consistently notes a plant's uniqueness as an endemic.

This book is divided into two major parts. Part I describes in detail, Florida's major terrestrial communities. He discusses pine flatwoods, sandhills, clayhills, scrubs, temperate hardwood forests, coastal uplands, rockland pinelands, rockland hardwood hammocks, and ruderal sites. Geology, topography, history, and field biology are combined to orient the reader to the complexities of the various plant communities. Valuable information about the locations of these communities is provided so that finding plant species among the third largest flora in the lower 48 states is easy. Part II of Taylor's guide is a listing of the species by plant community. Further, he organized the species alphabetically by family, then genus. Each of the more than 450 species listed includes a color photograph, common name, synonym, botanical description, flowering time, habitat, range, comments on status as threatened, endangered or endemic and conservation information. Care must be used when using the species descriptions. Each plant is only listed once and even though Taylor does cross-reference a species to other habitats, this may cause confusion. For example, shiny blueberry (*Vaccinium myrsinites*) is listed for pine flatwoods and it is noted in the habitat section of the description as also being found in scrubs, upland mixed forests and sandhills. However, shiny blueberry will not be listed under these other habitat sections of the species descriptions. The reader must be diligent in becoming actively involved with the complete text to use it successfully.

One of the most valuable parts of Taylor's book is the 13-page Places to Visit section. Here he lists the various plant communities' locations throughout the state by county. Most of these are preservation areas such as parks, but a few are simply areas he directs the reader to by mentioning major roadways and county lines. Taylor includes a long list of selected refer-

ences, an index to people and places, and an index to species and families.

Overall, *Florida Wildflowers in their Natural Communities* is a thorough, well-considered field guide. It should be kept in the car rather than on the bookshelf.

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LANDSCAPE PLANTS FOR SUBTROPICAL CLIMATES. Bijan Dehgan. 1998. University of Florida Press, 15 Northwest 15th Street, Gainesville, FL 32611. 638 p. Line drawings. \$24.95, softcover. ISBN 0-8130-1628-2.

Landscape Plants For Subtropical Climates is, as the name implies, a plant materials text for subtropical climates. Discussions of plant groupings are arranged in a taxonomic hierarchy. Major headings include ferns, gymnosperms, angiosperms—monocots, and angiosperms—dicots. Within these larger categories, plants are covered alphabetically by family and then genus. For each family information on genera covered, geographic distribution, growth habit, description of leaves, flowers, and fruit, and economic uses are included. In addition to the plant discussions, a short introductory section dealing with plant taxonomy and a few key plant morphology features used in identification are included. A glossary of plant identification terms and an index round out the book.

The bulk of the information in the text is presented in an encyclopedic format and is of good technical quality. For each species listing a pronunciation guide, one or more common names, derivation of the scientific name, growth form, size, hardiness zone, native habitat, descriptions of leaves, stem, bark, flowers, and fruit, cultural information, potential problems (diseases, pests, etc.), propagation information, potential landscape uses, and a short comments section are included. Related species or subtaxa are sometimes mentioned under the comments section for each species, but little information beyond a name is provided for these additional taxa. The range of species covered is fairly extensive and line drawings assist in visualization of features. While not all taxonomic authorities will agree with

every assignment of scientific names nor the taxonomic ranking of each taxon, the plants are consistently and logically presented. The use of example plant taxa in definitions in the glossary is a nice feature for students.

Florida students in introductory plant materials courses and Florida industry or extension personnel interested in plant identification will find the text useful. While the title of the text implies that the book is intended for a wide geographic region, and in fact the back cover carries the banner "Plant selection and care for USDA zones 8 to 11", the information presented on cultural considerations is almost exclusively geared to Florida. This severely limits the utility of the text for students and professionals in other regions. A detailed discussion in the introduction concerning the climates, soils, other cultural conditions associated with the different regions in the state of Florida might allow greater extrapolation of information presented about plant taxa to other regions with similar conditions or might allow recognition of limitations related to plant usage in similar USDA zones that have different precipitation patterns, soils, etc.

Green industry professionals in the southern United States in USDA zones 8, 9, and 10 outside Florida will likely find that Riffle's (1998) *The Tropical Look: An Encyclopedia of Dramatic Landscape Plants* and Odenwald and Turner's (1996) *Identification, Selection, and Use of Southern Plants for Landscape Design* (3rd ed.) provide cultural and design information more readily extrapolated to their regions. However, the costs of both of these texts are two or more times that of Dehgan's text. Professionals on the western coast of North America, Northern Mexico, and the warmer regions of the southwestern U.S. will likely find the *Sunset Western Garden Book* (Brenzel, 1995) to be more directly applicable for cultural information and appropriate species selection, although probably not for plant identification issues.

Direct alternatives for use as plant materials texts for Florida in the same general price range as Dehgan's book are two older books: *Florida Landscape Plants: Native And Exotic* (revised ed.) by Watkins and Sheehan (1975) and *Florida, My Eden: Exotic and Native Plants for Use in Tropic and Subtropic Landscape* by Stresau

(1986). Watkins and Sheehan's text is arranged similarly to Dehgan's, but is less technically exhaustive in descriptions and thus somewhat more readable. In several respects, Dehgan's text can be thought of as an updated version of Watkins and Sheehan's book. Stresau's book offers a plant materials text presented from a landscape architect's perspective. Stresau's text is arranged by landscape usage categories, is less technical in descriptions, and less extensive in species coverage than Dehgan's book, but provides color plates for all major taxa and is written in a style that may appeal to the less-structured plant materials student.

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TROPICAL FRUITS. H.Y. Nakasone and R.E. Paull. 1998. CAB International, New York, NY. 445 p. 35 color plates. Many botanical drawings and black and white photographs. \$50.00, softcover. ISBN 0-85199-2544.

Tropical Fruits will appeal to students, extension faculty, research scientists, teachers, commercial growers, and fruit enthusiasts interested in tropical and subtropical fruit crops. The book describes the cultural practices for five major fruit crops (i.e., banana, mango, pineapple, avocado, and papaya) and many other commercially important tropical and subtropical fruit crops (e.g., guava, carambola, litchi, and passion fruit). Regionally important fruit crops of the Asian (e.g., durian, mangosteen, and jackfruit) and American tropics (e.g., acerola and sapodilla) are also described. The book has 35 very good color plates and numerous excellent botanical illustrations, black and white photographs, figures, and tables.

The book begins with a chapter on climates and soils of the tropics and a chapter on general fruit culture and postharvest handling. These chapters set the stage for the 12 chapters that describe the culture of specific fruit crops. The sequence of information in each chapter (or section within a chapter) follows logically from botanical classification, important genera and species within the family, origin and distribution of the crop, ecological

requirements (i.e., soils and climate), general botany and phenological characteristics of the crop, cultivar development, cultural management (e.g., propagation, fertilization, pest management), harvesting and postharvest management, and crop use.

There are several minor drawbacks to what is otherwise a very good book. There is an inadequate description of subtropical climates; sections of text are not referenced frequently enough, thus making identification of the source of information difficult; references cited in the text are listed in either the chapter or at the end of the book, which makes the reader search in two places for a citation and; some information from major, well-established research work is not used and referenced. One major defect is the specific pesticide recommendations made in the pest management sections of some chapters. These should be removed before reprinting this otherwise excellent book.

Despite the problems mentioned above, *Tropical Fruits* is a valuable update to *Fruits of Warm Climates* (J.F. Morton, 1987), which also describes many tropical and subtropical fruit crops. *Tropical Fruits* is ideal as a textbook for undergraduate horticultural students and as an introductory text for a graduate level course on tropical fruit culture. The book is also a valuable reference for extension faculty and commercial producers. The price (\$50.00) for this softcovered book is reasonable.

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A HISTORY OF MINNESOTA FLORICULTURE. Richard E. Widmer. 1997. University of Minnesota Agricultural Experiment Station Report 238-1997, MES Distribution Center, 1420 Eckles Avenue, St. Paul, MN 55108-6069. 232 p. 49 black and white photos.

Barbara Gastell, in her article "A Strategy for Reviewing Books for Journals" (*HortScience* 31:635-637), questions the advisability of someone to review a book if the author were a former mentor or student, as a conflict of interest could occur. Her advice is to suggest another candidate for the review. I did not follow her advice, al-

though Richard Widmer was my undergraduate advisor at the Univ. of Minnesota and also was the unofficial advisor for my MS degree. I feel no guilt at reviewing his book, however, as he always was candid with me when I was a student and I always have been candid with him. I felt that my experiences at the Univ. of Minnesota helped me in the review of this very thorough book.

I use the word thorough for a very good reason—it is a thorough review. The only way an author could get such information is to dig for it in whatever archives are available, to interview people about the history of their establishments, and to know the people involved in Minnesota floriculture for the last 4 decades. Many readers, unaware of the families involved in the industry, might want to skip over several pages they may consider to read like Genesis with all the "begats," but those lineages are very revealing. Why did some greenhouse firms thrive briefly and then completely disappear while others thrived generation after generation?

One can tell when one is reading the book that Widmer is not only enthusiastic about the history of floriculture in Minnesota but also is proud of Minnesota horticulture in general. Three public parks had been donated by individuals in St. Paul in 1849, before New York City had its Central park. These green spaces revealed an appreciation of the public for grass and trees 150 years before some other cities discovered this innovative idea. The role of the university in the development of horticulture also is mentioned. Daniel A. Robertson, the first president of the Minnesota State Horticultural Society (1866), also was the first Univ. of Minnesota professor of agriculture (1869) and Samuel Green was its first professor of horticulture (1888). In 1895, the Horticulture Department was offering five courses in horticulture, several years earlier than such a course was available at universities that later developed strong reputations in horticulture.

The history of Minnesota floriculture also is a good case study on the economic and social changes that occurred. The flu epidemic after World War I, which caused so many deaths, also gave birth to many new greenhouses as the demand for flowers increased. The optimism of society in the 1920s is substantiated by the continued increase in greenhouse construc-

tion and new firms during that period. The increase was not confined to the Twin Cities but also occurred in small towns throughout the state. Twin City growers who had supplied small town florist shops with plants and flowers lost those customers who began to buy locally grown products. Then the depression came along, and expansion declined but did not stop completely. There is a saying in commercial floriculture that "when times are bad business is good" because the more expensive recreational activities are curtailed and gardening is enhanced. World War II caused a decline in the availability of labor and supply shortages, but floriculture still flourished.

The advent of jet freight brought cut flowers from Florida and the West Coast, and cut flower growers in Minnesota were hard pressed by the competition. The problem was intensified when the cultural technology improved in Central and South America, and the same need for change occurred in Minnesota as in all other states. Some growers solved the problem by going out of the flower business, while others changed the crop they were growing.

Although Minnesota winters can be harsh and make greenhouse heating expensive and deliveries sometimes impossible, Widmer and the growers do not pay attention to hardships as much as most outsiders would.

Widmer is quite candid about the impact that curtailment of state and federal funds is having on horticulture programs, not only in Minnesota but in almost every state. He seems particularly to regret the loss of the one-on-one relationships that growers and academic personnel enjoyed in the past. I cannot think of anyone who was more adept at this form of communication than Widmer. He had an advantage in that most Minnesota growers were in the Twin Cities area, but he did not confine his technical assistance to local growers. He also stressed the need for support from industry for academic programs, and few growers' associations exemplify that support better than Minnesota growers.

As is true of every book that an author has the courage to write, this one is not free of mistakes. In a discussion on the successful solution to the chrysanthemum stunt problem, Widmer credits Curt J. Olson, but the plant pathologist's name was Conrad J. Olson. One error that probably wasn't

this is in the caption for one photograph that states John Erwin is on the left and Mark Strefeler is on the right, while it is really the reverse. Widmer also listed people affiliated with the Univ. of Minnesota who became ASHS presidents, but he neglected to mention Russell Larson, who obtained three degrees in horticulture from the university and eventually attained the position of professor at Pennsylvania State Univ.

I can't think of any one aspect of floriculture that Widmer doesn't cover in this comprehensive history. Such histories can only be written if the historian is willing to spend a great deal of time and effort on such a project, and they usually cannot expect a large audience. Perhaps some readers of this review will have contemplated writing a history of their segment of horticulture. I strongly recommend *A History of Minnesota Floriculture* as a good example of a thorough compilation of historical facts.

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LILIES: A GUIDE FOR GROWERS AND COLLECTORS. Edward Austin McRae. 1998. Timber Press, Inc., 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-3527. 392 p. 27 line drawings. 108 color photos. 4 botanical paintings. \$34.95 + 5.50 S&H. ISBN 0-88192-410-5.

This is a book for lily growers, amateur or professional. Chapter I describes the genus *Lilium*, botanically and horticulturally, and the several variations or forms of the bulb, stems, leaves, flower types, inflorescence, and seed capsule.

Chapter II deals with lilies as a garden or woodland plant with a list of species and hybrids suitable for these locations. Other uses include rock gardens, with shrub plantings, in containers, and how to recycle the lily used as a potted plant.

Lily propagation is described concisely, with excellent illustrations. It is essential to know the germination type of each lily propagated by seed to provide the proper environmental conditions. Vegetative methods are described: bulb division, bulb scales, bulblets, and bulbils. Tissue culture is reviewed as a laboratory technique and for a gar-

dener. Embryo culture techniques make it possible to germinate seed from crosses that have a weak embryo.

The cultivation of lilies is reviewed, covering phases such as bulb, site, and soil selection; light requirements; watering; and mulches.

Two chapters cover pests—aphids, bulb mites, and nematodes—and diseases, including viruses and their identification, transmission, and control. Lily growers will appreciate the list of varieties that are tolerant or virus free. Other diseases are described with control indicated: root rot, botrytis, and damping off of seedlings.

Section two may be of greatest interest to the lily fancier. Chapter VI describes >85 species, many of which have one or more botanical varieties. Each species description includes comments on the origin of the species name, country of origin, date of introduction, growth characteristics, and important varieties or hybrids.

The chapter "Hybrid lily classification" presents the eight divisions of lily hybrids developed by the Royal Horticultural Society in 1964. The North American Lily Society in 1995 revised this into 10 divisions, because many newer hybrids are produced from more detailed pollination, seed germination, and embryo culture.

The three most important groups of hybrids—Asiatic hybrids, Chinese trumpets, and oriental hybrids—are each considered in separate chapters. A chapter on polyploid lilies begins with an explanation of polyploidy followed by a discussion of some of the important tetraploid lilies. The final section includes other topics, starting with exhibiting lilies as a way of seeing new hybrids firsthand.

Other chapters include hybridizing, lilies around the world, lily bulb production in Oregon and Washington, and commercial cut flower and potted plant production. The final chapter comments on >30 persons worldwide who have contributed to our knowledge of lilies.

McRae is a professional lily grower and hybridizer, and the book is written for either the gardener or commercial grower in an easily read manner. A glossary of terms, a short bibliography of books on lilies, and >100 color photos add to the value of the book to the reader.

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EDIBLE LEAVES OF THE TROPICS. 3rd ed. Franklin W. Martin, Ruth M. Ruberté, and Laura S. Meitzner. 1998. ECHO, 17430 Durrance Road, North Fort Myers, Florida 33917. 194 p. 56 black-and-white illustrations, \$29.95 hardback; \$14.95 + S & H paperback. ISBN 0-9653360-1-8.

The title of this long awaited third edition is an apt description of its contents. The book is divided into 10 chapters that cover a range of topics: 1) the place of green leaves in the diet; 2) culture and care of green-leaved vegetables; 3) poisonous tropical leaves; and 4) specific crop groups, including a) green leaf herbs, b) vegetables, fruits, and ornamentals, c) common weeds, d) tropical trees, e) spices and teas, f) temperate zone leafy greens, and g) lettuce.

This reference book will be of special interest to horticulturists, extension agents, nutritionists, gardeners, NGOs dealing with agriculture, and others living in the tropics and subtropics. As a Peace Corps volunteer living in Thailand, I was amazed to watch people gathering presumably edible leaves from a number of shrubs and other plants that I struggled to identify. This book explains that there are at least 140 genera of plants, encompassing >1500 species, with edible leaves. Martin's preface explains that edible leaves have an invaluable role in the diet of many people in the tropics, especially those with limited financial resources. Unlike their temperate counterparts, sources of tropical leaves are usually perennial, are rarely cultivated as edibles, and are often found in close proximity to the household. As the world's population increases, this book will become an increasingly valuable reference for those of us working to make sure everyone has a nutritionally adequate diet. It will be especially important to those trying to combat xerophthalmia.

As the senior author says, edible leaves do not have a large caloric role in diets since daily consumption should be limited to one-half cup of cooked leaves. They are, however, important sources of vitamins, especially vitamin A. He found that "of the thousands of leafy vegetables available throughout the tropics, relatively few are great winners." The preface highlights the ten most important of these, adding that another 25 are frequently avail-

able. Chaya (*Cnidocolus chayamansa*) has joined his "top ten," replacing cassava leaves (*Manihot esculenta*). The discussion on poisonous plants in Chapter IX ends with useful caveats for those wishing to try heretofore untested species. The most important being "know the species before attempting to eat the leaves" and "leave experimentation with unknown leaves to the laboratory of experts."

This edition is easier to use than the second edition, primarily because of changes in formatting. The references in Chapter I have been italicized and the italics used for scientific names are more pronounced. Other changes include: the addition of a section discussing the "place of green leaves in the diet" (Chapter I); adding *Althernanthera sissou* and Compositae plus noting Florida's noxious weed concerns (*Ipomoea aquatica*) (Chapter II); adding *Psophocarpus* and radish, grouping the Euphorbs, and increasing the discussion on chaya (Chapter III); Portulacaceae has been regrouped with the edible weeds (Chapter IV); and the tables in Chapters VII, VIII and IX have been incorporated into the text. That has also reduced the number of pages from 235 to 194. The illustrations are mostly the same as in the second edition and are somewhat less sharp; the four new photographs are very clear. The lack of a header for all but the beginning of the species list makes it more confusing than the second edition.

The appendix listing seed sources and resources has been updated and now contains Internet addresses, where available. The nutritional references are contemporary as are the cookbooks. The selected bibliography has 75 additions, though a few are not the most recent editions (*Knott's Handbook for Vegetable Growers and World Vegetables*). A personal favorite, Tindall's *Vegetables in the Tropics*, was not included. Regrettably, the discussion of some of these references in Chapter I was not expanded to include some of the newer references. The food composition tables are still quite dated. The bibliography is, however, a more comprehensive list of references than will be found anywhere else.

The cost of this book is well within the reach of most anyone who might need to use it. I recommend it to those who are curious about edible

leaves as well as to those who will use it in their work and to add diversity to their diet. Personally, I now view the weeds and other plants in my subtropical garden in a new light! If you know a missionary, Peace Corps or other volunteer, or other workers in the tropics, this would be a very welcome gift.

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BALL IDENTIFICATION GUIDE TO GREENHOUSE PESTS AND BENEFICIALS. Stanton Gill and John Sanderson. 1998. Ball Publishing, 335 North River Street, Batavia, IL 60510. 244 p. 480 color photographs. \$66.95, hardcover. ISBN 1-883052-17-3.

Ball Identification Guide to Greenhouse Pests and Beneficials is written and published to assist in the identification of arthropod pests and beneficial insects on crops grown in greenhouses throughout the United States. The authors emphasize in their introduction the importance of correctly categorizing pests for selecting appropriate control measures in an integrated pest management (IPM) program. Since it often becomes necessary to ship samples of pests and plant materials to a diagnostic lab for identification, suitable methods for proper sampling and shipment are also briefly described in the introductory part of this book.

Following the introduction, the book is divided into three sections. The first section defines initiating an IPM approach and how to maintain and run an IPM program for controlling pests in a greenhouse environment. Since an integral part of an IPM program is scouting and monitoring pests, using yellow and blue sticky cards is covered in some detail. Color photographs showing the appearance of insect pests most commonly trapped on sticky cards complement this presentation. The differences and difficulties in identifying insects on sticky cards compared to live insects in motion are also discussed. Biological control measures including predators, parasites and pathogens are covered briefly in the first section of the book as well as the limited use of pesticides in an IPM program.

The second and largest section of the book contains descriptions of common greenhouse pests with a chapter dedicated to each major pest group. This section includes chapters on aphids, caterpillars, fungus gnats (shore flies, humpbacked flies and moth flies), leafminers, mites, scale insects and mealybugs, thrips (beetles, weevils), whiteflies, and other greenhouse pests (mollusks, symphylans, millipedes, springtail, sowbugs and pillbugs, centipedes, scorpions, whip scorpion, and occasional insect pests). The outline for each chapter starts with the characteristics and biology of the pest followed by descriptions of plant damage symptoms. Pest monitoring and species identification are then covered and each chapter concludes with a description of currently available biological control measures.

The third and last part of the book describes in one chapter how to diagnose causes of plant injury in specific crops. General plant symptoms such as leaf stippling, leaf and flower distortion, leaf chewing or skeletonizing, leaf spots and blotches, yellowing, wilted foliage, honeydew, leaf drop, flower shatter, and petal drop are characterized and the most common pests causing that type of damage. The third part ends with a series of photographs showing pest damage to a variety of greenhouse grown plants. The photographs are arranged in alphabetical order of the plant genus name. A concluding series of color pictures show the most common pests found on plants grown in water under greenhouse conditions.

This book is informative, well written, and easy to comprehend. For the most part, the photographs are of high quality and carefully selected to support the information presented in the text. The pictures appear in close proximity to the corresponding text. This arrangement is convenient with minimal searching through pages to find the illustrations referred to. The captions are descriptive allowing the use of photographs for quick reference without necessarily locating the information in the text. Unfortunately a couple of the picture captions are printed incorrectly in the book. The number of one picture is out of sequence and does not correspond to the number referred to in the text. Errors can easily appear when >450 pictures are used in a book. A small

piece of paper providing the correct captions is included in the front of the book. However, it must be a streak of bad luck when the picture number is still not correct in the enclosed revisions.

No prior knowledge of entomology is required to understand and use the information presented in this identification guide. Specific technical terms are briefly explained as they first appear in the text. A short, educational and easy to use glossary is included clarifying the most commonly used terminology of entomology. The index is comprehensive including scientific and common names of both the pests and plant species covered. For the use of this book as a reference, the index allows for quick and efficient guidance to the appropriate sections. Readers with experience in IPM and the identification of common pests and beneficials should also find this book informative.

This guide to greenhouse pests and beneficials is a must for everybody involved in the production of greenhouse crops. All major pests currently of concern to the greenhouse industry are covered with suggestions for monitoring, preventive and biological control measures. Although the book is written for the United States, the information can also be expected to be relevant to readers in other countries.

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Books in Brief

by *Donald N. Maynard*

THE ILLUSTRATED ENCYCLOPEDIA OF CAMELLIAS. Sterling Macoboy with Roger Mann. 1998. Timber Press, 133 S.W. Second Ave., Suite 450, Portland, OR 97204-3527. 304 p. 1096 color photos, 19 color paintings, line drawings. \$39.95 + \$6.50 S & H. hardcover. ISBN 0-88192-421-0

The Illustrated Encyclopedia of Camellias is the definitive guide to

these beautiful and varied flowering plants. More than 1000 of the world's most popular camellias are illustrated in color.

Hardy and resistant to disease, thriving in shady situations and in containers, camellias reward the gardener with blooms of stunning color and profusion at a time of year when the rest of the garden offers little. Camellias were cultivated in China and Japan for centuries before their discovery by Western gardeners. The fascinating story of the camellia is told in the chapter introductions and in the seven feature spreads. Many of the renowned oriental varieties from which the modern varieties derive are described in the book, as are the beautiful formal japonicas that were so prized by the 19th century European aristocrats.

CAMELLIAS. THE COMPLETE GUIDE TO THEIR CULTIVATION AND USE. Jennifer Trehane. 1998. Timber Press, 133 S.W. Second Ave., Suite 450, Portland, OR 97204-3527. 176 p. 109 color photos, line drawings. \$34.95 hardcover + S & H. ISBN 0-88192-462-8.

This is a complete, up-to-date guide to all aspects of successful propagation and culture of camellias for anyone interested in the genus. The origin of camellias in China and the history of their introduction into Europe, Australia, and the United States is fully documented, with precise but accessible botanic information offered to aid in understanding and identifying the species. The central core of the book details all aspects of cultivation, drawing on the author's many years of experience managing the family nursery. Included is full information on camellia hardiness in varying climatic zones and guidance on growing camellias under glass. An up-to-date A-to-Z encyclopedic listing of camellia varieties, a discussion of pests and diseases, plus companion plantings ideas and helpful resource listings, complete the book.

Apple definition: An apple is a round fruit with smooth green, yellow, or red skin and firm white flesh. | Meaning, pronunciation, translations and examples. An apple is a round fruit with smooth green, yellow, or red skin and firm white flesh. I want an apple. ...2kg cooking apples. ...his ongoing search for the finest varieties of apple. ...a large garden with apple trees in it. 2. See also Adam's apple, Big Apple, crab apple. 3. See the apple of your eye. COBUILD Advanced English Dictionary. Copyright © HarperCollins Publishers. Previous (Appearance and Reality). Next (Apple Inc.) The apple is a genus (*Malus*) of about 30–35 species of small deciduous trees or shrubs in the flowering plant family Rosaceae. The term also refers to the fruit of these trees, and in particular the fruit of the species *Malus domestica*, the domesticated orchard or table apple. This is one of the most widely cultivated tree fruits. The other species are generally known as "wild apples," "crab apples," "crabapples," or "crabs," this name being derived Apple Footer. 1. Trade In: Trade-in values vary. iPhone 11 and iPhone 11 Pro promotional pricing is after trade-in of iPhone 8 Plus and iPhone X in good condition. iPhone SE promotional pricing is after trade-in of iPhone 8 in good condition. Additional trade-in values require purchase of a new iPhone, subject to availability and limits. Must be at least 18. Apple or its trade-in partners reserve the right to refuse or limit any Trade In transaction for any reason.