BOOK REVIEWS

DANIEL F. AUSTIN, BOOK REVIEW EDITOR

The Mangoes. Their Botany, Nomenclature, Horticulture and Utilization. A. J. G. H. Kostermans and J.-M. Bompard. 1993. Academic Press Ltd., 24-28 Oval Road, London, NW1 7DX, U.K. ix + 233 pp. (hardcover). £35.00. ISBN 0-12-421920-9.

The mango (Mangifera indica L.) continues to grow in its importance throughout the world, not only as a subsistence crop throughout the tropics and warm subtropics, but also as an export crop to European, Asian and North American markets. In the past decade, vast new production areas have been developed in both the old and new world tropics destined for international trade. However, Mangifera indica is but one of many Mangifera spp. with edible fruit to be found in Tropical Asia. These Mangifera spp. offer the potential as both new fruits in their own right and also the potential for use in breeding programs for the improvement of Mangifera indica. The Mangoes is a thorough taxonomic treatment of the genus Mangifera, describing 69 species of Mangifera found throughout Tropical Asia.

The book consists of nine chapters devoted to the history, taxonomy, phytochemistry and chemotaxonomy, uses and conservation of Mangifera germplasm. The taxonomic treatment of the genus is certainly the main thrust of the book, with the other subjects treated in more general terms. There is an extensive list of references about the genus Mangifera which is of great importance to those wishing to learn more about the subject. There are also useful indices included for the scientific and vernacular names of the different Mangifera spp. which aid in finding desired information quickly. Sixty-six color plates are included which give a brief glimpse into the world of the genus Mangifera, and which leave the reader hungry for more.

This book should be fascinating to anyone working with mangos, from progressive mango producers to researchers. The Mangoes demonstrates the vast diversity present in this genus, and the potential to possibly overcome some of the most important limitations facing mango production today through directed breeding programs using these species. However, it should be recognized that this book is a taxonomic monograph, and as such provides little insight into the horticulture of the Mangifera species described. For many of the species described, little information is available because they are sparsely distributed throughout forest ecosystems and relatively unknown beyond the local level. It is not a book for practical horticulturists in search of production information. Rather, it is for those wishing to delve beyond the mango and to think of the possibilities which lie ahead.

The Mangoes is a bold work into the little-known world of the genus Mangifera. In the future there will surely be disagreement and modification of the species described, but it provides a basis from which to work for those involved with this genus. The book also provides a strong message of warning about the loss of this invaluable resource due to habitat destruction. A challenge is offered to all involved with mangos throughout the world to preserve this genetic resource before it is lost.

RICHARD J. CAMPBELL
FAIRCHILD TROPICAL GARDEN
MIAMI, FL 33156

Plant Resources in South-East Asia No. 5(1). Timber Trees: Major Commercial Timbers. I. Soerianegara and R. H. M. J. Lemmens (eds.). 1993. Pudoc Scientific Publishers, P.O. Box 4, 6700 AA, Wageningen, The Netherlands. 610 pp. (hardcover). DFL. 390.00; US$223.00. ISBN 90-220-1033-3.

There is great concern today for proper utilization and protection of natural forests, not only because of the intrinsic value of useful trees, but their most important role—preservation of the environment and providing suitable habitats for man and animals. The authors of this book stress the great economic value of timber to developing tropical countries, and the ever-increasing outward flow of timber, processed and unprocessed. In 1990, Indonesians earned $3000 million from exporting plywood. In 1991, Thailand imported $44 million worth of tropical timber. Leading importers of logs and sawn timber are Japan and East Asia, and, to a lesser extent, Europe and the USA. There is a huge market of wood for pulp which is to be revealed in another volume.

The great majority of tropical trees utilized for commercial timber belongs to the botanical family Dipterocarpaceae. It is reported that this family yields 75% of Philippine logs. In Borneo, 67% of the trees cultivated for timber belong to the genus Shorea. Burma is the prime source of teak. At present, great energy is being devoted to creating much-needed literature on forest resources not yet documented.

This admirable book provides extensive information...
on useful and potentially useful tropical forest trees of South-East Asia, including physical attributes and tree behavior, longevity, climatic factors, soils, chemical properties and different woods, and processes of drying. More and more attention is being devoted to forest management, fire, and diseases and pests. Exchange of information between countries is vital in order to save the lowland evergreen forests that are rich in species, easily reached, and too often converted into agriculture.

The greater part of this volume is a neat, descriptive, illustrated catalog of forest trees (pp. 69-473), followed by a table of “Wood Properties of Selected Species” (pp. 476-499). Next is a bibliography (pp. 500-544), Acknowledgments, and a list of organizations, Glossary (pp. 548-562); sources of illustrations (pp. 563-571); and scientific-name index (pp. 591-605). The book terminates with an explanation of the PROSEA FOUNDATION and a double-spread map of South-East Asia with a list of islands, states, regions and provinces.

JULIA F. MORTON
MORTON COLLECTANEA
UNIVERSITY OF MIAMI
MIAMI, FL 33124

Biological Pollution. The Control and Impact of Invasive Exotic Species. Bill N. McKnight (ed.). 1993. Indiana Academy of Science, Indianapolis. x + 261 pp. (hardcover). $30.00. ISBN 1-883362-00-8.

This book contains the proceedings of a meeting held at Indiana University–Purdue University in 1991. Contributors to the meeting were invited from numerous fields, and the topics discussed include many of the problem animals and plants that have invaded and devastated native ecosystems. Participants represented governmental, private and university communities, and all stressed the largely unappreciated impact that non-native organisms have on our economics and environment.

The book begins with a chapter by Warren H. Wagner entitled “Problems with Biotic Invasions: A Biologist’s Viewpoint,” and ends with “Legal Avenues for Controlling Exotics” by Faith Thompson Campbell. Between these points there are discussions of multiflora rose, dogwood anthracnose disease, fishes, spiny water flea, zebra mussel, teasel, earthworms, Asian tiger mosquitoes, fire ants, garlic mustard, purple loosestrife, Himalayan snowcock, domestic cats, game birds, the Nature Conservancy’s plan for handling invasive weeds, three aquatic plants in Florida, Amur honeysuckle, biological control, boars, burros, and the USDA APHIS program. One title reflecting the popularization of non-native problem organisms is “How Illinois Kicked the Exotic Habit.”

Page 251 lists the titles of papers presented that were not published. These papers include African bees in the Americas, invasive exotics in national parks, genetically engineered organisms, the importance of native vegetation in the landscape, introduced species and biodiversity, one on a particular herbicide, exotic species for lake management, and coping with existing and emerging problems. Several of these titles like the one “What makes a community vulnerable to the entry of alien plants” would have been better inclusions than some of those published. No comment is made on why these papers were excluded.

This book presaged the report Harmful Non-Indigenous Species in the United States (1993. Government Printing Office, OTA-F-565, Washington, DC.). These two books are among many publications that have discussed the growing problems associated with introductions of non-native organisms and the costs to native ecosystems and budgets. In spite of this voluminous literature, there are still educated constituent groups who maintain that there is no problem—at least with their preferred species. Such groups support the widespread use of the neem tree, and vetiver grass, among others. Apparently these people are unaware (or unwilling) to concede the great potential harm that their favorite organisms may cause.

After having watched the educated scientific community battle over this and other apparently (to me) straightforward situations for about a half-century, I am still baffled by some people’s narrow-minded and short-sighted approach. In any case, this book is an excellent summary of the multifaceted complexities of introduced species and the resultant biological pollution they cause. If you have any concerns with biodiversity loss, this is a book that must be read.

DANIEL F. AUSTIN
FLORIDA ATLANTIC UNIVERSITY
BOCA RATON, FL 33431

After the Trees. Living on the Transamazon Highway. Douglas Ian Stewart. 1994. University of Texas Press, P. O. Box 7819, Austin, TX 78713-7819. xv + 183 pp. US$30.00. ISBN No. 0-292-77678-0 (cloth); US$12.95. ISBN No. 0-292-77680-2 (paper).

Seldom does an undergraduate thesis get published as a full-fledged book! Douglas Ian Stewart’s summer in Brazil in 1989, while an undergraduate at Stanford University, produced this fascinating description of human colonization in the Altamira region of Amazonian Brazil. This book is a study of “ethnecology, ecological anthropology, or human ecology.” The book is a testimony to the fortitude of a young researcher and to the value of providing research opportunities to talented undergraduates.
I recommend chapter 3, “The Transamazon Today,” as reading for students wanting to undertake similar studies. Here, the reader is given an entertaining account of the people being studied, the difficulties in developing rapport with informants, and an idea of the methodology of ethnoecological studies.

The most significant contribution of the book is a clear exposition on how different soil types of this part of the Amazon are utilized. The best soils are employed for cacao, beans, and corn, whereas the less fertile ones grow pepper, manioc, and pasture. Moreover, Stewart shows that plots of 100 hectare units are more efficiently managed than larger plots. As the plots grow larger, more and more becomes dedicated to pasture even if it possesses rich soils that could be dedicated to more lucrative crops. Stewart claims that “With the same amount of land, small farmers feed and employ more people while generating higher returns per hectare.”

The author suggests that one solution to Amazonian deforestation would be to divide up large land holdings and redistribute the land in 100 hectare plots to landless peasants who would farm the land more wisely. Stewart does not advocate restricting land ownership to 100 hectares of deforested land. He does, however, advise that a tax be applied to any deforested parcel larger than 100 hectares being sold, and that this tax should be progressive—i.e., the greater the amount of deforested land being sold, the higher the tax.

Stewart is sensitive to environmental issues, making arguments for protecting biodiversity (p. 146), and for limiting human population in the Amazon (p. 139). However, some of his observations reveal his experience with tropical botany. He makes the mistake that anthropologists often make, that forest cover of any kind preserves most biodiversity. For example, his view of “the forest” (p. 33) shows an open canopy typical of an area highly modified by humans. That “forest” possesses only a fraction of the original biodiversity that would have been present a mere 25 years ago before the area was settled by Transamazonian colonists!

Other minor misunderstandings that should be corrected are 1) the claim that manioc is an annual (p. 74) native to the Amazon (p. 166)—it is a perennial possibly native to the planalto of Brazil; 2) that tropical forests will recolonize roads in the short span of a year (p. 123)—reforestation of disturbed sites takes many years, and the roads usually wash out long before vegetation impedes their use; 3) and that the seeds of Bixa orellana are used to make a bright red dye (p. 166)—actually not the seeds, but the pulp surrounding them is the source of the dye. Finally, the claim (p. 150) that “... the British secreted rubber tree seedlings from native stands in Brazil...” should have been worded differently. As pointed out by Richard Evans Schultes (Botanical Journal of the Linnean Society 94:79–95), there were no Brazilian laws against the exportation of germplasm from Brazil when Henry Wickham sent rubber seeds to Kew Gardens in 1876.

This book should be read by all interested in Amazonian biology and people. It contains many lessons for those who propose to “develop” Amazonia for sustainable economic gain. However, as Robinson (Conservation Biology 7:20–28) has emphasized, “Sustainable use is very appropriate in certain circumstances, but it is not appropriate in all. It will almost always lower biological diversity, whether one considers individual species or entire biological communities, and if sustainable use is our only goal, our world will be the poorer for it.”

Scott A. Mori
Institute of Systematic Botany
The New York Botanical Garden

Drought Follows The Plow. Michael H. Glantz. 1994. Cambridge University Press, 110 Midland Avenue, Port Chester, NY 10573. xviii + 197 pp. $39.95 (hardcover), $19.95 (paperback). ISBN 0-521-44252-4 (hardback). ISBN 0-521-47721-2 (paperback).

Despite poor reviews in the journals of early explorers, the Great Plains region of North America had begun to attract scores of settlers by the 1860’s—all of whom were intent on farming the ‘Great American Desert’. As Glantz explains in his contribution to this collection of brief papers, this change of heart was largely due to a prolonged period of rainfall which for some years facilitated the introduction of farming methodologies from more humid regions. During this golden age of Great Plains agriculture, a notion evolved suggesting that it was in fact the increase in human activity which had produced the favourable change in climate—the popular notion that ‘rain follows the plow’. However, as the authors here repeatedly point out, a considerable volume of evidence has now been collected across the globe which suggests that it is not rain, but drought which follows in the footsteps of those who introduce unsustainable technologies, or unsustainable land-use strategies to the marginal areas of the world.

During his introduction, Glantz draws a distinction between droughts which are climatic in nature, and those which are largely human-induced. He argues that many of the appalling famine situations witnessed since the 1970’s have stemmed more from improper land-use policies and other socioeconomic factors, than from climatic drought itself. Compiled by contributors working in fields ranging from geography to engineering and from political science to climatology, the book aims to explore some of the causes of ‘societal drought’, in the expectation that systematic studies of drought history and its effects on society, might provide some
clues on how to respond to avoid, or ameliorate drought and famine situations in the future.

Following the introduction, the book is divided into two parts: the first, Drought, desertification and food production discusses some of the problems of expanding the agricultural frontier into lands which are increasingly marginal for farming, specifically citing the plight of the Great Plains Farmers. This is followed by Part 2: Case studies and conclusions, where the nine contributors each state their case for a particular geographical region. Much of the emphasis is focused on Africa, with six of the case studies discussing the historical and more recent political and economic factors which are believed to have contributed to the recent famines throughout the continent. The remaining case studies consider similar themes in the Brazilian Nordeste, Australia and the Soviet Union, while the final chapter—again authored by Glantz—asks "Is the stork outrunning the plow?" He concludes that yes, it probably is, and states that individual societies must confront the underlying causes of population movements into increasingly fragile habitats, if we are to improve the quality of many human lives.

Since many of the cases presented here have been discussed in much greater detail elsewhere, and as there are few direct references to the roles foreseen for traditional management practices, it is unlikely that these brief presentations will hold much interest for specialists in any of these areas. In addition, it is surprising that in a text whose chapters are organised by geographical region, the index also is rather unhelpfully arranged in this manner. However, for readers with a more casual interest in current ideas in development studies, the book is reasonably approachable, and avoids much of the jargon of more specialist texts.

CATH COTTON
ROEHAMPTON INSTITUTE, LONDON
LONDON, SW15 3SN, UK

Maples of the World. D. M. van Gelderen, P. C. de Jong, and H. J. Oterdoom. 1994. Timber Press, Inc., The Haseltine Building, 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-3527. 458 pp. (hardcover). $59.95. ISBN 0-88192-000-2.

We have come to expect lavishly illustrated, strongly bound, fairly priced books on horticultural topics from Timber Press, and this work is no exception. The authors bring to the subject vast experience, scholarship, and an obvious love of the plants themselves. We have here (paraphrased): Maples in nature and in the garden, propagation, diseases and pests (where somebody created the spurious singular thrip), structure, paleobotany and evolution, taxonomy and reproductive biology, maple species, hybrids, cultivars, and appendices with such matter as hardiness zones for Europe and the USA (but not Canada, nor any other part of the world). The bibliography alone is 69 pages long—but it attains some of this length by virtue of including all the places of publication of names, which are not cited in the text. Serial titles are sometimes abbreviated, sometimes not, in no detectable pattern.

There are 14 nomenclatural innovations, according to a list on pp. 69–70, but the pages where these occur are not given. The compilers of Index Kewensis will have to search them out, one by one. I received my copy from my favorite bookseller on 25 May 1994, which may help to narrow down the exact date of publication.

The taxonomic synopsis on p. 99 says the genus Acer may be divided into 16 sections, eight of which are further subdivided into 19 series; there are 124 species recognized. The only key to all this diversity is the key to sections and series on pp. 83–85. Because some of the sections contain 12 to 20 species, this book is emphatically not a useful identification manual. If one can determine a name elsewhere, then checking against the detailed descriptions and illustrations (of most of the species) will be helpful.

Many will be attracted to this book for its magnificent color photographs. Each picture has a parenthetical number at the end of its legend; one discovers on page 350, Appendix 7, that the number refers to one of 50 locations where the photographs were taken. The Acer-ophile can begin planning his vacation itinerary. And do not overlook Appendix 3, pp. 340–341, "Selected sources of maples," which gives full addresses in Europe, Australia, New Zealand, and USA for nurseries where one can find "...more than the average range of maples."

NEIL A. HARRIMAN
BIOLOGY DEPARTMENT
UNIVERSITY OF WISCONSIN–OSHKOSH
OSHKOSH, WI 54901

Guide to Flowering Plant Families. Wendy B. Zomlefer. 1994. The University of North Carolina Press, P.O. Box 2288, Chapel Hill, NC 27525, xiv + 430 pp. (hardcover, $55; ISBN 0-8078-2160-8; paperback, $27.50; ISBN 0-8078-4470-5).

It is difficult to heap more praise on this widely praised work. One can but echo the observations of Schmid, Taxon 44(1):122–123. 1995: "This superbly executed, large-format, surprisingly inexpensive work is graced by 158 plates of Wendy Zomlefer's beautiful pen-and-ink drawings of 312 plant species."

She treats 130 families, chosen from among 437 families (in Thorne's view) or 387 families (in Cronquist's view). They were chosen on the basis of floristic dominance, phylogenetic interest, and economic importance. These, the author assures us, are the families usually covered in introductory or graduate-level plant taxonomy courses.
Camptotheca acuminata Descalsne. Xi Shu. A Promising Anti-tumor and Anti-viral Tree for the 21st Century. Shiyou Li and Kent T. Adair. 1994. The Tucker Center, College of Forestry, Stephen F. Austin State University, Nacogdoches, TX 75962. xviii + 249 pp. (hardcover). $45.00. ISBN 0-938361-11-2.

Camptothecins are a group of chemicals that have been found to have anti-tumor and anti-viral activity. The only significant source of these chemicals is the Xi Shu tree, a monotypic genus of the Nyssaceae native to China. Xi Shu A Promising Anti-tumor and Anti-viral Tree for the 21st Century is a review of all the information obtained over the last forty years on camptothecins, its analogs, and the Xi Shu tree from which camptothecins are extracted.

The book is divided into fourteen chapters which briefly outline different aspects of the chemical and the tree. Drs. Shiyou Li and Kent Adair have summarized an immense amount of information about the Xi Shu tree and camptothecins, ranging from the mechanism by which the compound inhibits DNA topoisomerase I to proper pest control in Xi Shu plantations. Additional topics covered in the book are: a comparison between camptothecins and taxol, another anti-tumoral botanical compound, anti-viral possibilities, Xi Shu habitat, Xi Shu plantation and harvest information, and areas needing further research. Subjects on which little is known, such as the ethnobotanical aspects of Xi Shu, are also included in the book. A review of the effects of different analogs of camptothecins on different types of cancer is given along with information on the type, extent, and problems involved in research on this still new drug. The bibliography includes over 1300 publications about Xi Shu and camptothecins.

Drs. Li and Adair cover this range of information in a well organized, easy to read format using many tables, graphs, and photographs. This book is a good introduction to this promising new anti-cancer and anti-tumoral drug. The authors’s enthusiasm for the promise of Xi Shu does not overshadow their presentation and discussion of the problems involved in obtaining sufficient amounts of camptothecins, the toxicity of camptothecins, and the need for more research. The authors included a good balance of information from many aspects of Xi Shu and camptothecins. They have managed to include information that will interest people from many different scientific disciplines and the non-scientific community.

On the whole I found this to be an interesting book. Much of the information it lacks is due to a lack of research in critical areas. Xi Shu is arranged in small sections, reads quickly, and is not dull. The large bibliography makes it an excellent source for further information on all areas about the Xi Shu tree and camptothecins. Because the bibliography takes up the majority of the book, the text, although useful and interesting in its own right, is an introduction for the bibliography. This book is great for anyone interested...
in a quick overview and the history and basic knowledge about Xi Shu yet will be useful to anyone interested in pursuing research on the tree.

Margie Mayfield
Biology/Antropology
Reed College
Portland, OR 97202

Applied Ecology. Edward I. Newman. 1993. Blackwell Scientific Publications, Inc., 238 Main Street, Cambridge, MA 02142. viii + 328 pp. (paperback). $32.95. ISBN 0-632-03657-5.

Newman's background serves him well as the author of this book. During his formative years he lived in both the Keene Valley of the Adirondacks and the farming region of Comberton in eastern England. In the former he came to appreciate wilderness and its preservation; in the latter he lived among people whose principal objective was producing as much food as possible.

Applied Ecology is written primarily for undergraduate biology majors. Titles of the relatively few chapters indicate its scope: Introduction; Energy, Carbon Balance and Climate Change; Farming: The Ecology of Food Production; Fish from the Oceans; Forests: Timber Production; Invaders and Pests; Pollution; and Conservation and Management of Wild Species.

Those accustomed to the slick, chock-full-of-color environmental science texts published in the U.S. will find this to be a plain book. Except for the attractive cover, there are no photographs. The numerous graphs are simple but instructive. There is an adequate glossary and an extensive bibliography with almost 40 entries with a good balance between North America and European publications. Learning aids include questions at the beginning of each chapter, and several boxed topic summaries integrated into each chapter.

This is a scholarly well-written book that should serve well as a text for courses in which the main objective is learning "how ecology can contribute to the solution of a wide range of practical problems."

Thomas E. Hemmerly
Middle Tennessee State University
Murfreesboro, TN 37132

Hard to Swallow. A Brief History of Food. R. W. Lacey. 1994. University of Cambridge Press, The Pitt Building, Trumpington Street, Cambridge CB2 1RP, U.K. xi + 340 pp. (hardcover). $22.95. ISBN 0-521-44001-7.

Written by an expert on food microbiology (M.D., Cambridge; Ph.D., Bristol), this is a book for laymen. A consumer advocate, Lacey treats practically all aspects of food: origin of crops, food production, storage, and the dangers of food poisoning and additives.

More specifically, he takes sides on several issues. Receiving his approval are: organic farming, and greater consumption of grains, potatoes, and seasonal vegetables. He objects, often vehemently, to: genetic engineering (safety not guaranteed), milk production enhancement by Bovine Somatotropin (at least, BST milk should be labeled), and intensive rearing of mammals, birds, and fish. Also raising his dander are sweetened cereals, hydrogenated oils, white flour, and food irradiation.

The chapter "Food Poisoning" gives special attention to botulism and outbreaks of infections caused by salmonella and E. coli. In "Additives," he waves a red flag at chemicals in our diet, making the point that few have been tested for their effects on humans.

Perhaps his greatest criticism of the food habits in the U.S. and U.K. is our consumption of meat. Although not quite advocating that we all become vegetarians, he does present some horror stories about the livestock and meat-packing industries.

Remarkably, in a two-page section on alcohol, he seems less concerned about consumption of booze. He considers Americans, especially, to be over concerned with dietary and blood cholesterol. In a section on medicinal herbs, he acknowledges a renewed interest in that subject, but considers them to be of only marginal interest and efficacy.

Hard to Swallow is an interesting but hardly a scientific book. Lacey gives little documentation for his somewhat alarmist stance. The "Further Reading" sections contains only an even dozen (not even a "baker's dozen") entries, all apparently books of the same general type as this one.

Thomas E. Hemmerly
Middle Tennessee State University
Murfreesboro, TN 37132

The Embryology, Reproductive Morphology, and Systematics of Lecythidaceae. Memoirs of the New York Botanical Garden, Volume 71. Chia-Hua Tsou. March 1994. Memoirs, Scientific Publications Department, The New York Botanical Garden, Bronx, NY 10458. 110 pp. (paperback). $15.50. ISBN 0-89327-384-8.

This family is of economic importance in both neotropical and paleotropical parts of the world. For example, in the New World we have Bertholletia, Brazil nuts, and in the Old World Petersianthus, an important timber tree.

The thrust of the work, the author's Ph.D. dissertation, is an attempt to define a monophyletic Lecythidaceae. She offers detailed observations on anther and pollen formation, ovule differentiation, megaga-
metophyte formation, palynology, and mature ovule structure. She synthesizes an extensive literature on wood anatomy, flower structure (with many original observations), fruits, and seeds. The term "embryology" is taken to mean developmental events prior to fertilization, an obvious contradiction in terms. "Androecial and gynoecial ontogeny" might be more accurate; nonetheless, her sense of the term is sanctioned by at least a century of continuous use and is certainly pithier than the jaw-breaking alternative.

The weight of the evidence as marshaled here favors segregation of Old World Foetidia into its own family, Foetidiaceae (Niedenzu) Airy Shaw; neotropical Asteranthos possibly into its own family, Asteranthaceae Knuth; Napoleonaeaceae P. Beauv.; and Cratheranthus of tropical Africa into Napoleonaeaceae P. Beauv.; and Cratheranthus of tropical Africa into some unspecified family of its own, but not Napoleonaeaceae. These are not new dispositions of these genera, which comprise the subfamilies Foetidioideae and Napoleonioideae of the family as commonly construed—Miss Tsou's contribution is that she provides firm data and analysis to confirm the taxonomic intuition of others.

Economic botanists may find little of interest in this monograph; but they will be spurred to go back to its parent work, France and Mori, 1979, Flora Neotropica, Monograph No. 21, Lecythidaceae—Part 1, especially pages 107–113, rich in details on uses of (and risks of overindulgence in) lecythidaceous seeds.

NEIL A. HARRIMAN
BIOLOGY DEPARTMENT
UNIVERSITY OF WISCONSIN–OSHKOSH
OSHKOSH, WI 54901

Diversity and Evolutionary Biology of Tropical Flowers. Peter K. Endress. 1994. Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211. xiv + 511 pp. (hardcover). $84.95. ISBN 0-521-42088-1.

Anyone interested in the reproduction or recognition of tropical flowering plants—whether their interests center on human usage or not—should be aware of this book. The remarkable, even incredible, solutions to the problems of genetic recombination and offspring production are discussed here and then followed by selected tropical examples.

One of the things initially bothering me about the title of the book was the implicit suggestion that "tropical" flowers are inherently different from "temperate." That misunderstanding is handled in the first chapter where the author points out that his intent is to focus attention toward the comparatively unstudied tropics where there are phenomena that are unique. Moreover, he points out that, because of the astounding rate of biodiversity loss in tropics, "... better knowledge of the biology of flowers in the widest sense is urgent." He follows this statement with, to some of us, the self-evident rational: "The understanding of flowers is a central theme for the phylogenetic reconstruction of the angiosperms at all levels. Better knowledge of phylogenetic history and of interactions between animals and plants is vital for evaluation of conservation actions."

The book contains ten chapters based on the author's 25 years of personal research on the topic. The chapters are the introduction to tropical flowers, floral organization, floral construction, floral adaptation to different pollinators, special differentiations associated with pollinator attraction, special differentiations associated with the breeding system, the process of anthesis, floral diversity and evolution of selected systematic groups in the tropics, salient aspects of flower evolution, and prospects for future research. The text is followed with 53 pages of references selected from world-wide publications and published in small print.

The book is illustrated with abundant line drawings, scanning electron photomicrographs and other black and white photographs. These illustrations are superbly printed and illustrative of the material under examination. Figure 2.8, for example, shows a photomicrograph of the valvate anthers of Cinnamomum camphora. My students in plant taxonomy have the greatest difficulty "seeing" this dehiscence type in the live specimens I provide. Maybe this will help; it should.

I tested the book by looking up every topic I could think of on floral biology. No omissions were found. Admittedly, there was all too little attention paid to the role of autogamy; only the most mundane references were made to the flowers of Convolvulaceae, but the family was there. No book can contain everything.

This book is a delight in spite of the minor flaws that I have found. Diversity and Evolutionary Biology of Tropical Flowers replaces the 20–30 year old books that were my mainstays. Readers of this journal should at least read this book if they cannot buy a personal copy.

DANIEL F. AUSTIN
FLORIDA ATLANTIC UNIVERSITY
BOCA RATON, FL 33431

Fijian Medicinal Plants. R. J. Cambie and J. Ash. 1994. CSIRO, Australia. [Distributed in the USA by International Specialized Book Services, Inc. 5804 NE Hassalo St., Portland, OR 97213-3644] viii + 365 pp. (stiff paperback). $95.00. ISBN 0-643-05404-9.

This book brings together a variety of published and unpublished materials on medicinal uses for plants as practiced in twentieth century Fiji, a Melanesian island
nation in the southwestern Pacific. The results are admirable though somewhat uneven.

An introduction comprises six sections that provide essential background on Fijian medicinal plants and the scope and focus of the book. Text entries are organized taxonomically under the major headings Ferns and Fern Allies and Flowering Plants, then alphabetically by family, genus, and species. The text is followed by a lavish section of color plates. The book concludes with a glossary, an index of scientific names, and an index of Fijian and local names. About 450 species (out of ca. 2300 in the Fijian flora) are covered in this book.

Overall, I like the layout and design, though I suspect the stiff paperbound covers are not going to hold up under frequent use, especially in humid tropical climates. The graphic designs and broad margins give the text an uncluttered look. Citation of references after every species pads the text unnecessarily as the same 15 or so references are cited repeatedly. One comprehensive list of references, alphabetically ordered rather than listed in the order they appear in the text, would be more efficient of space and easier to use. Such an arrangement might also bring down the price of the book since it would reduce the number of expensive pages of glossy paper required.

The text is remarkably parallel in format although uneven in content. Taking the Convolvulaceae as a test case, I scrutinized each species entry carefully. A number of problems caught my eye, chief among them being the nomenclature. The fifth volume of A. C. Smith’s Flora vitiensis nova apparently was not available to the authors and so they followed the 1972 revised edition of Plants of the Fijian Islands by J. W. Parham for a number of higher dicot families. Regrettably this usage injects four outdated names for just nine convolvulaceous taxa. The species descriptions had some minor anomalies such as “fine almost equal segments” rather than five almost equal segments for the palmate leaves of Ipomoea cairica, and “fine-pointed” rather than five-pointed corollas for Ipomoea tuba. Minor stuff, to be sure, but if these errors crept undetected into the Botanical Notes has the same happened for the Medicinal Uses and Chemistry sections?

The color illustrations are an outstanding feature of this book and will surely make it desirable to many people. A combination of 92 photographs of live plants and 24 exquisite color reproductions of plates prepared by Walter Hood Fitch for Berthold Seemann’s Flora Vitiensis (1865–1873) follow the text. The inclusion of the Fitch plates is a stroke of genius and the publisher deserves wider appreciation. I doubt that more than a handful of people worldwide have ever seen these truly masterful works.

This book has much to recommend it though everyone will doubtless find minor quibbles with it. The permanent record the publication provides for previously unpublished lecture notes, manuscript materials, and observations by traditional healers makes a valuable contribution to our knowledge of Fijian herbal medical practices.

G. W. STAPLES
DEPARTMENT OF NATURAL SCIENCES
B. P. BISHOP MUSEUM
HONOLULU, HAWAII

Food Phytochemicals for Cancer Prevention I. Fruits and Vegetables. Mou-Tuan Huang, Toshihiko Osawa, Chi-Tang Ho, and Robert T. Rosen (eds.). 1994. American Chemical Society, P.O. Box 57136, Washington, DC 20037–0136. xii + 427 pp. (hardcover). $99.95. ISBN 0-8412-2768-3.

Based on a symposium sponsored by the Division of Agriculture and Food Chemistry of the American Chemical Society, this volume concerns the isolation, purification, and identification of phytochemicals from fruits and vegetables. Emphasis is placed on the biological, biochemical, pharmacological, and molecular inhibition of tumor development using bacteria, experimental animal models, and humans.

Exceptionally well-written and well-edited, this book is divided into seven sections: Perspectives (four chapters), Sulfur-Containing Phytochemicals in Garlic (six chapters), Other Sulfur-Containing Phytochemicals (four chapters), Limonoids and Phthalides (four chapters), Phytochemicals from Fruits and Vegetables (seven chapters), Phytochemicals in Soybeans (six chapters), and Micronutrients (three chapters).

“Cancer, a disease which today remains difficult to cure, is preventable.” With this simple, declarative sentence the editors open an overview of cancer chemoprevention by naturally occurring phytochemicals. This chapter cites data indicating that the frequent and high intake of fresh vegetables and fruits is associated with lower cancer incidence, and that high plasma levels of ascorbic acid, α-tocopherol, β-carotene, vitamin A, and certain phytochemicals are inversely related to cancer incidence.

Smith and Yang speculate that the close relationship between food phytochemicals and xenobiotic metabolizing enzymes may have evolved as a result of “plant–animal warfare.” Plants synthesized chemicals for self-protection; animals in turn developed xenobiotic metabolizing enzymes such as cytochrome P450 for the detoxification of these chemicals. These authors point out that cruciferous vegetables, such as cabbage, broccoli, cauliflower, and Brussels sprouts contain indole-3-carbinol (13C) in the form of 2-indolemethyl glucosinolate. When a vegetable that contains this chemical is chewed or cut, the compound is hydrolyzed by the enzyme, myrosinase, to form 13C. Research with 13C on animals has suggested that doses of 6–7 mg...
13C/day may be effective in the chemoprevention of breast cancer.

Reddy and Rao report that consumption of garlic and cruciferous vegetables, both rich in organosulfur compounds, is associated with a reduced risk of colon cancer in humans. Ong, Brockman and Whong show that chlorophyllin, an aqueous soluble chemical derived from chlorophyll, inhibits mutagenic activity on: diesel emission particulates, airborne particles, coal dust, cigarette smoke, tobacco snuff, chewing tobacco, fried beef, red grape juice, red wine, and black pepper.

Okubo and collaborators studied three groups of soybean isoflavones or soyasaponins. The chemical structure of the soyasaponins is similar to glycyrrhizin, a major licorice saponin, which is a known antitumor promoter. These authors reported antiviral activity of these chemicals against the HIV and Epstein-Barr viruses.

Finally, M. Messina and V. Messina point out that nutritionists in the developed world have slowly moved away from concern over deficiency disease and focused on the affluent diet and chronic disease. Until recently, with the exception of fiber, only the nutrients in foods were considered to be important. Foods, because of their unique chemical constituents, may warrant being singled out for their health benefits.

To put it another way, in the words of Jane E. Brody, a nutritionist and columnist for the New York Times, the label on orange juice may someday read: “Fortified with plant-derived limonoids, monoterpenes, carotenoids and phenolic glycosides to help prevent cancer.”

HERBERT H. STEWART
DEPARTMENT OF BIOLOGICAL SCIENCES
FLORIDA ATLANTIC UNIVERSITY
BOCA RATON, FL 33431