BOOK REVIEWS

DANIEL F. AUSTIN, BOOK REVIEW EDITOR

Historical Geography of Crop Plants. A Selected Roster. Jonathan D. Sauer. CRC Press, 2000 Corporate Way N.W., Boca Raton, FL 33431. 1993. 309 pp. $79.95 (cloth)/$96.00 outside US. ISBN 0-8493-8901-1.

For more than four decades Jonathan D. Sauer has been a major contributor to worldwide studies on coastal phytogeography and to our knowledge of the origin, evolution and geography of economic plants. In this book he presents the profiles of the most important species in 68 genera of economic plants which are organized alphabetically by family. The geographic and botanical origins, the history and prehistory of introductions and dispersion are emphasized. Where important to the reader's understanding, synonyms for botanical names are included, as are such data as the occurrence of polyploids, pathology, and uses by indigenous people. With each entry are well selected references, providing both sources and further reading. Citations within the text are not included.

The list of plants selected for inclusion in Historical Geography of Crop Plants. A Selected Roster is based on the author's judgment of the state of knowledge for each crop plant species. Where the literature is mostly old or commonly known, Sauer chooses to omit the plant, e.g., fig, flax, and leek are among those so judged. Ornamentals are not included, drug plants such as Cannabis and Erythoxylon are not included, Coffea and Theobroma are. Everyone who has an ax to grind will find inconsistencies in what is included and what is not (where is Vigna?).

I would strongly recommend Historical Geography of Crop Plants as a principle reference for courses in economic botany, ethnobotany, foodways, nutrition, anthropology, and archaeology. I have classroom-tested this book in my archaeological botany course and find it to be an excellent source for launching students on their term papers. It is equally useful as a quick reference for checking the status of a crop plant to which one has not recently paid much attention. Botanists and those professionally or even avocationally interested in crop plants and the history of foods will enjoy and profit from a cover-to-cover reading of this exceedingly well written book. No illustrations, but Sauer provides a provocative "Discussion and Conclusions" chapter, reference section, index to genera and species, and an index to common and cultivar names.

ALAN M. ZILCH
University of Massachusetts
Amherst, MA 01003

Algae and Symbioses: Plants, Animals, Fungi, Viruses, Interactions Explored. W. Reisser (ed.). BioPress Limited, "The Orchard," Bristol BS3 2JX, Avon, England. 1992. 746 pp. £95.00 (cloth). ISBN 0-948737-15-8.

Symbioses challenge our concept of individuality, and, as more and more organisms are studied, the interdependence of all life forms becomes more apparent. This volume tells you just about everything you might want to know about symbiotic relationships between algae and others. The book is topical, well written, and thorough.

The title of the book refers to algae and symbioses. Contents cover the algae well (Chlorophyta one chapter, Phyrrophyta three, Cyanophyta three, Rhodophyta one, Chrysophyta two). The title also informs the reader that algal symbioses will be discussed in relation to plants (one chapter), animals (12 chapters), fungi/lichens (one and four), and viruses (one). The book has three main divisions: Symbiotic Interactions, Epi- and Endobiotic Interactions, and Basic Mechanisms. The first division is subdivided into the cellular level: freshwater, marine and terrestrial habits, and, the subcellular level. There are from three to nine chapters under each heading, most written by authorities in the area and containing micrographs, line drawings, tables and substantial references. Efforts are made in introductory chapters and through subsequent chapters to define terms, e.g., symbiosis "living together in physical contact of organisms of different species," a definition which excludes ecological and cell-organelle interactions; aposymbiont, the host lacking a partner, and exosymbiont, the endosymbiont/cytobiont isolated and cultured independent of the host. Chapters do expect some background knowledge of the subject and organismal families and genera are usually not explained nor common names given. Most chapters begin with an historical perspective and include up-to-date references (to 1991). While the chapters stand alone quite well, it would have been useful to have a glossary for the entire volume and a thorough index.

I enjoyed the book. The well-documented interactions and their evolutionary significance are thought provoking. Reisser has done a fine job editing for continuity and readability and has produced a valuable resource.

SUSAN CARTY
DEPARTMENT OF BIOLOGY
HEIDELBERG COLLEGE
TIFFIN, OHIO 44883

Economic Botany 48(2) pp. 222–228. 1994
© 1994, by The New York Botanical Garden, Bronx, NY 10458 U.S.A.
La'au Hawai'i: Traditional Hawaiian Uses of Plants.
Isabella Aiona Abbott. Bishop Museum Press, 1525
Bernice Street, P.O. Box 19000-A Honolulu, Ha-
\textit{waii 96817-0916}. 1992. 136 pp. \$22.95 (paper-
back). ISBN 0-930897-58-7.

As a child, she was privy to casual chat among Mary
Kawena Pukui, Laura Green and her mother on the
finer points of the Hawaiian language, invited on trips
to the forest with a family knowledgeable in many
aspects of Hawaii's natural history and sat with some
of the island's most talented crafters in her living room.
She learned to make \textit{poi} from her great-uncle who grew
the family's taro in the same patches on Maui as his
father, grandfather and great-grandfather had before
him—and accompanied her mother as she gathered
edible seaweed from nearby reefs. It is not surprising
that as students in Abbott's ethnobotany class at the
University of Hawaii, we felt we were stepping back
in time, learning Hawaiian plants and culture through
the eyes of a keen observer with a strong curiosity. One
result of her many years of inquiry is \textit{La'au Hawai'i}.

The Hawaiian word \textit{la'au} includes trees, plants, wood,
forest, medicine; \textit{La'au Hawai'i} encompasses them all—
and more.

Beginning chapters create an excellent introduction
to the first Hawaiians and their plants, Hawaiian ag-
riculture, the evolving relationships to the land and
crops, and the religious dimensions of Hawaiian ag-
riculture.

Entire chapters are devoted to staple crops such as
taro (\textit{kalo}) and sweet potato (\textit{\textasciitilde{u}ala}); plants used in
making \textit{tapa} and other clothing; buildings; household
furnishings; medicine and healing; hula and music; re-
ligious images and ceremonies; canoes and fishing tools;
warfare and chiefly regalia; and cordage. A welcome
feature is a chapter devoted to seaweed and other aquatic
plants, the field in which Abbott, the phycologist, is
internationally known.

While many scholars work to present a "correct"
viewpoint, Abbott offers a cross-section of viewpoints,
just as she heard among the old-timers who came from
various islands and communities. And she offers it in
the same conversational manner in which she shares
this information with her students.

Always the teacher, Abbott includes her own ques-
tions, notes, and references that will lead the curious
to her sources for further study. And always the scholar,
she adds "... if stories of the old ways still reside in
your family, search them out and treasure them—and
make sure they are preserved in written form."

\textbf{SHIRLEY BLACK GERUM}
\textit{WAIJEA ARBORETUM \& BOTANICAL GARDEN}
\textit{59-864 KAMEHAMEHA HIGHWAY}
\textit{HALE'IWA, HI 96712}

The Jepson Manual. Higher Plants of California. James
C. Hickman (ed.). University of California Press,
2120 Berkeley Way, Berkeley, CA 94720. 1993.
vii + 1400 pp. \$50.00 (cloth). ISBN 0-520-
08255-9.

California may now boast of having its third pub-
lished flora. Florida is still using John K. Small's \textit{Man-
ual of the Southeastern Flora} (1933), plus some re-
geonial floras. Florida has perhaps 3000 species in its
flora, with about one-third of them being alien. Cal-
ifornia claims 5862 species, and only about one-fifth is
alien. There are lots of other differences between Flor-
da and California, but this book shows the south-
estern state to be a frontier in botanical sciences.

This thick volume is worth the price even if one
avoids coastal cities in California as carefully as I do.
Although the book is thinner than Munz's \textit{A California
Flora and Supplement} (1973), the new book is illus-
trated; that makes it immensely more useful than
Munz's or other recent floras. Those of us who want
drawings as well as words gravitate to books like this.

The format of the book is usable—with some prepa-
ration. I am one of those people who sits down and
tries to read my favorite family. After a couple aborted
attempts to decipher the codes, I broke down and read
the instruction manual to this book. It all makes sense
now. In spite of this and a few other shortcomings, this
book is an example of what should be available for
each of the states.

The line drawings are crisp and accurate; the text is
mostly written by specialists in the families. There are
supposedly almost 200 contributors. The book has one
of the best short glossaries I have seen in years—illu-
strated. There are sections devoted to commonness and
rarity, horticultural information, geographic subdivi-
sions of California, the state's geological history and
changing landscapes, and changing climate and flora.
All of this (58 pp. with several illustrations) preceded
the actual flora. There is a key to plant families; tax-
onomic treatments; and three appendices: Floristic
Summary, Classification of California Plant Families,
and Name Changes from Recent References; and an
index.

There are points with which virtually everyone will
agree, and other where they will disagree. I find the
use of the name \textit{Ipomoea mutabilis} Lindley for the
ubiquitous \textit{I. indica} (J. Burmann) Merrill incompre-
sensible. Even more unbelievable is that none of the
five \textit{Ipomoea} species accepted as members of the flora
are in the index. That omission is the rule—none of
the accepted species or infrageneric taxa are in the
index. Sure this saved a few pages, but really . . .

All in all this is a monumental document that is likely
to be used by everyone for decades. Even if you do not
add this book to your personal library, examine it at
length elsewhere. It is well worth reading.

\textbf{DANIEL F. AUSTIN}
\textit{DEPARTMENT OF BIOLOGICAL SCIENCES}
\textit{FLORIDA ATLANTIC UNIVERSITY}
\textit{BOCA RATON, FL 33431}
Forest Dynamics: An Ecological Model. Daniel B. Botkin. Oxford University Press, Oxford. 1993. xiii + 309 pp. $49.95 (cloth). ISBN 0-19-506555-7.

In 1970, Daniel Botkin and his colleagues developed JABOWA as a pioneering computer model to simulate temperate forest dynamics. Since then, JABOWA has been modified by many researchers to create several “descendant” versions, and applied to various temperate forest communities. In 1989, Botkin made JABOWA available to the public as a commercial software that runs on personal computers. Forest Dynamics is a long-awaited book that describes the details of this widely used computer model. The book is more than just a detailed explanation of the assumptions and equations in JABOWA (Chapters 2-4), but also includes discussion of the general philosophy and principles of ecological modeling (Chapter 1). Chapters 5 and 6 discuss how to test the validity of the model and describes errors associated with JABOWA. The book concludes with a review of how the model can be applied to various ecological, conservation, and management problems (Chapters 7, 8). A hasty reader may want to read Chapter 9 first, which is a summary of the whole book. It is an informative book, backed by the author’s wealth of experience and knowledge in temperate forest ecology. His philosophy of science, found throughout the book, is insightful. For example, Botkin notes “If we are unaware of our assumptions, we may be led to assume contrary to our knowledge, or to accept two mutually contradictory assumptions,” and “some of the most important insights in ecology have come from analysis of what are generally referred to as applied problems.”

The book is written for a wide array of ecologists and forest managers with diverse backgrounds. Forest Dynamics can serve as an introductory text book for those interested in learning how to model for the first time, while experienced ecological modelers may find it a convenient reference for the assumptions and the equations used in JABOWA. This book will help those interested in applying JABOWA to field problems to understand its utility as well as its inherent constraints. Perhaps, its most important use is as a resource for instructors interested in using JABOWA as an effective tool for teaching mechanisms regulating tree growth in the forest. The book describes each assumption in the model step-by-step. Thus, even an absolute beginner in modeling or someone without formal education in forest ecology can understand and use the model. At the same time, it is not necessary for every reader to digest every step in a model of this complexity, and readers may want to skip to the subject of their interests.

This book is also a summary of Botkin’s impressive research accomplishments as a leading forest ecologist and computer modeling expert during the past 20 years. The book, however, is probably not sufficient as a general text book of forest dynamics. It is more or less limited to description of the JABOWA model, Botkin’s philosophy behind its development, and his own works using JABOWA model. As a result, it fails to evaluate JABOWA in light of recent theoretical developments in forest dynamics. During the past two decades, we have learned a great deal about tree-fall gap dynamics, seed dispersal, and seedling recruitment in forest communities. Researchers who consider that these processes are of fundamental importance may criticize JABOWA for its two unrealistic assumptions; first, complete spatial homogeneity within each 100 m² plot, and second, an unlimited supply of seeds for any species regardless of the number of existing adult trees in the neighborhood. In light of this criticism, several research groups have been developing new forest dynamics models based on different sets of assumptions. For example, a research group at Princeton University has developed a spatial model that incorporates more precise estimates of seedling recruitment probabilities, microsite light availability, and sapling growth responses. Another group at the University of Minnesota has developed a stochastic “frame” based model that incorporates large scale disturbances at stand level. It would be useful if the book at least compared JABOWA to these new generations of models. Nevertheless, learning JABOWA modeling using the book and the companion software is useful to many ecologists, as long as the readers are aware of the broader world of ecological modeling beyond JABOWA. Computer models are now used everywhere and as such, this clear and detailed description is of general utility. JABOWA software is user friendly and easy to use. Botkin’s book is a great resource for anyone interested in learning JABOWA and is a good introduction to ecological simulation models.

Kaoru Kitajima
Department of Ecology, Evolution, and Behavior
University of Minnesota
St. Paul, MN 55108

Bioactive Natural Products. Detection, Isolation, and Structural Determination. Steven M. Colgate and Russell J. Molyneux (eds.). CRC Press, Boca Raton. 1993. 528 pp. $125.00 (cloth)/$150.00 outside US. ISBN 0-8493-4372-0.

Bioactive Natural Products is a compilation of discussions covering a wide range of topics associated with the multidisciplinary field of natural products. The book is targeted at researchers in academics and industry as well as students. The underlying theme of many of the contributed chapters is the philosophy and rationale behind the search for new bioactive natural products from terrestrial plants and fungi. Interestingly, microbial sources are not emphasized and marine organisms are not mentioned. Both of these are potent suppliers of novel secondary metabolites.

One clear intent of this book is to demonstrate the
multi-disciplinary nature of the field of natural products. This nature is evident in the background of the contributors; the authors are internationally recognized in their specialities and represent academic departments from chemistry and pharmacology to schools of veterinary studies and medicine.

The editors have organized *Bioactive Natural Products* into two sections. The first seven chapters describe modern techniques used in the detection, isolation and structural characterization of natural products. Following an introductory chapter by the editors, chapters two and three discuss methods of detection and isolation. Chapters four through seven are descriptions of some of the standard techniques of structure determination; Nuclear Magnetic Resonance Spectroscopy, Mass Spectroscopy, X-Ray Chrystallography and Circular Dichroism. Each of these chapters contains a discussion of the theory of the technique, methods of obtaining the basic information as well as numerous examples of natural product characterization.

In the second section, specific case studies are presented which, to an extent, reflect the interests of the various authors, but still provide the reader with a feeling for the true multidisciplinary nature of the field. Included in this section are discussions of the acquisition of natural products, screening for biomedical and agrochemical applications, ethnobotanical studies and chemical ecology.

*Bioactive Natural Products* will be a valuable reference for researchers in any field related to the area of natural products. The book will be particularly useful for students as each chapter is well referenced and each contributor has provided sufficient introductory material for a relative novice to appreciate the chapter's contents.

Russell G. Kerr  
Department of Chemistry  
Florida Atlantic University  
Boca Raton, FL 33431-0991

**Flora of Somalia. Volume 1. Pteridophyta; Gymnospermae; Angiospermae (Annonaceae-Fabaceae).** Mats Thulin, (ed.). Richmond: Royal Botanic Gardens, Kew. 1993. vii + 495 pp., illustrated. Price not given.

The mention of Somalia conjures up military convoys moving amidst people emaciated by starvation, famine and war. Under normal conditions, Somalis would utilize many of the 3000 plants in their flora for food. Indeed, one of the points of this book is that the people of this part of the world have for most of their history depended upon local plants. Thulin notes: "In Somalia, with its largely nomadic population, man's dependence on a large number of plant species for various aspects of his life is very obvious. Practically every single herb, shrub or tree in the country is used in one way or another, for grazing, food, medicine, gums, fibres, etc."

The *Flora of Somalia* is a sterling example of a modern flora. It is a collaborative effort involving 16 botanists from many countries although the majority of the 72 families treated in this volume are authored or co-authored by Mats Thulin. In this first volume 1092 species are treated.

I appreciate the utility of the book. Descriptions are brief; keys appear workable. Each taxon has notes on ecology and distribution, taxonomic notes, distributions in neighboring countries, and common names. Most genera are illustrated with line drawings. The 24 colored pictures in the center of the book are beautifully reproduced.

This volume, clear and utilitarian in its approach, will be the definitive flora of the horn of Africa. I eagerly anticipate the next volume.

Lynton J. Musselman  
Old Dominion University  
Norfolk, VA 23529-0266

**Medicinal Plants of India.** S. K. Jain and R. A. DeFillips. Reference Publications, Inc., Algonac, Michigan. 1991. $94.95. 2 volumes. 849 pp. ISBN 0-917256-39-5.

Few cultures can match India's long and diverse use of plant-derived medicines. The subcontinent's rich medical history melds Vedic, Unani and Siddha traditions with Western practices. Despite modern influences, 75% of the Indian population still consults traditional physicians (fide E. S. Ayensu, in the Foreword). India supplies modern medicine from its native flora (e.g., *Podophyllum* and *Rauwolfia*) and from introduced species (e.g., *Cinchona* and *Psychotria*). This, the fifth of Reference Publications' medicinal plants of the world series, describes 1844 of the country's therapeut ic plants. Arranged alphabetically by family, each account provides the scientific binomial, vernacular names (including Hindi, Sanskrit, English, and regional dialects), and brief descriptions of the plant's use. The text includes 248 full-page illustrations. Particularly useful are the 200 pages of medicinal, common names, and species indices.

This book will interest anyone concerned with medicinal plants—not just those working on the Indian subcontinent. Many species treated in the text are pantropical weeds, or widely-cultivated trees, and several of India's native species are known for their non-medicinal uses elsewhere. For example, Indian traditionalists treat leprosy with the Amazonian cashew (*Anacardium occidentale* L.), and relieve toothaches with their native mango (*Mangifera indica* L.).

The text draws from a wealth of publications on India's medicinal plants. As such, treatments vary in detail and quality. Concerning Barleria cristata L., the
reader learns that the root is used for anemia, but nothing of the preparation or dosage. In contrast, a 32 word paragraph describes the treatment of palate ulcers with Clerodendrum infortunatum L. The quality and utility of the illustrations also varies, ranging from poor (Centella asiatica (L.) Urban) to good (Callicarpa tomentosa (L.) Murr.). The drawings apparently were taken from other publications.

Taxonomic ambiguity also detracts from the book's utility. A list of synonyms appears in the introduction, but the species index excludes these names. There are numerous other taxonomic and index problems.

The format of the book follows that of Reference Publication's texts on West Africa and the West Indies; this perpetuates several serious omissions. Data on the habit and origin are lacking. The novice reader would not know that Crescentia cujete L. is an introduced tree species or that Podophyllum hexandrum Royle is a native Indian herb. The format also omits non-medicinal uses. The authors cite the treatment of snakebites with Crocus sativus L., but do not mention that the plant is the source of saffron. An even greater, and potentially dangerous, omission is in the description of Conium maculatum L. The text refers to its reputed aphrodisiac qualities, but does not inform the reader that this is the poison hemlock that killed Socrates!

Despite these problems, this is a useful text. My copy already has served as a valuable reference several times and all researchers interested in medicinal plants and tropical floras will appreciate this text. Let us hope that future publications in the medicinal plant series will add information on habit, origin, and non-medicinal uses.

BRADLEY C. BENNETT
DEPARTMENT OF BIOLOGICAL SCIENCES
FLORIDA INTERNATIONAL UNIVERSITY
MIAMI, FL 33199

Wetlands in Danger: A World Conservation Atlas. Patrick Dugan (ed.). Oxford University Press, 200 Madison Avenue, New York, NY 10016. 1993. 187 pp. + 5 pp. index. $35.00 (cloth). ISBN 0-19-520942-7.

The unremitting destruction and degradation of the world's wetlands have left us with perhaps half the area that once existed. Short-sighted attempts at economic gains and a lamentable lack of appreciation for the intrinsic values of these ecosystems have made it all too easy to justify their conversion to agricultural, urban, and industrial uses. Continuation of such policies threatens not only the loss of critical habitats for countless wetland species, but also the welfare of millions of people dependent on wetlands for their very survival.

This lavishly illustrated book documents the loss of wetlands in each of the world's regions, while attempting to instill an understanding of how these systems work and why their preservation is of such paramount importance. The first few chapters are of a general nature, dealing with such topics as wetland diversity, the functioning of wetlands, and, briefly, with the adaptations of characteristic plants and animals. A major portion of the book consists of an atlas of the world's wetlands, with each of 19 map sections devoted to a major geographic area. The centerpiece of each of these sections is a regional map, color-coded to show the location and extent of remaining wetland systems, including estuaries and coastal wetlands as well as inland lakes, rivers, marshes, and swamps. Accompanying text provides a historical overview of the loss of wetlands in each region, as well as a description and status report of surviving systems and current management programs. Each of these sections focuses on specific wetland systems that are of special value, either to the regional economics or in terms of their biodiversity. The section dealing with the United States gives particular attention to the Chesapeake Bay, the Mississippi Delta, the Florida Everglades, and California's Central Valley, where less than 1% of the wetlands existing in the 1850's remain today. The final chapter looks to the future, stressing the need for both multidisciplinary and international approaches to wetland conservation.

One of the most appealing aspects of this book is the high quality of the maps and the many crisp, clear color photographs which grace every page. The maps, based on a series of regional directories prepared by the World Conservation Union, represent the most comprehensive and accurate assessment of the world's wetlands currently available.

Given the global scope of this book, the treatment of each region is necessarily brief and superficial. And, understandably, some factual errors and ambiguities have crept into the text. Nevertheless, this is a well-written, beautifully illustrated comprehensive overview of the status of the world's wetlands. This book should be a useful reference and a visually appealing addition to the library of anyone interested in wetland conservation.

G. ALEX MARSH
DEPARTMENT OF BIOLOGICAL SCIENCES
FLORIDA ATLANTIC UNIVERSITY
BOCA RATON, FL 33431

Field Guide to Coastal Wetland Plants of the Southeastern United States. R. W. Tiner. The University of Massachusetts Press, Box 429, Amherst, Massachusetts 01004. 1993. 336 pp. (paperback), $50.00 (cloth); $17.95 (paperback). ISBN 0-87023-832-7 (paperback).

Less than one-half of the 220 million acres of wetlands that existed in the lower forty-eight states during George Washington's time exists today. The greatest
losses among coastal wetlands have occurred along the Gulf shores of Texas, Louisiana, and Florida. Historical uses of coastal wetlands include fishing, hunting, and grazing by livestock. Other values now recognized are (1) flood and storm damage protection by temporarily storing floodwaters and buffering dry land from storm wave action; (2) water quality treatment by removing sediments and nutrients from floodwaters; (3) shoreline stabilization by slowing current velocity and minimizing erosion; (4) nursery areas for many fish and bird species; (5) environmental education; and (6) aesthetics. Despite the documented benefits of coastal wetlands, impacts to these areas by agriculture, residential and commercial developments continue.

The author directs his discussion to coastal and wetland plants of the southeastern United States. The book provides a brief summary of the functions and benefits of the coastal wetlands and is arranged into four major sections: (1) Coastal Wetland Ecology: A General Overview, (2) Identification of Coastal and Aquatic Plants, (3) Wetland Plant Description and Illustrations, and (4) Distribution of Coastal Wetlands in the Southeast.

The coastal wetland ecology section provides a brief easy-to-understand description of coastal wetland hydrology and important influencing environmental factors (i.e., wind, rainfall, etc.). In addition, the author discusses a variety of adaptive mechanisms that allow halophytic plants to cope with the harsh coastal environment. Seven major coastal wetland types (e.g., mangrove swamps, salt marshes, tidal fresh marshes, etc.) are described including commonly found associated plant species.

In "Identification of Coastal and Wetland and Aquatic Plants," illustrations are provided of typical leaf and floral arrangements for wetland plants. These illustrations, along with the book’s glossary, allow even a non-technical individual to use the key. This key (including five subsidiary keys) identifies more than 250 coastal and wetland plants, representing over ninety plant families, according to hydrological habitat and vegetative morphology. A separate illustrated key is provided to assist in identifying flowering herbaceous species.

These keys refer to “Wetland Plants Descriptions and Illustrations” where more specific plant identification information is provided. These data include plant description, flowering period, habitat, range, and a listing of species that exhibit similar morphology.

Also included for each species is its wetland indicator status that represents the plant’s frequency of occurrence in southeastern wetlands according to National List of Plant Species that Occur in Wetlands: Southeast (Region 2), published by the U.S. Fish and Wildlife Service. This wetland indicator status along with other information (i.e., presence, abundance, and distribution of all plants) is useful in ecosystem assessment.

The illustrations show the more than 250 described species with such items as leaf shape, branching patterns, habit, flowering structures and fruiting bodies. In addition, over 200 other plant species are cataloged as similar species with distinguishing characteristics given. Illustrations are provided for some of the listed similar species for comparison.

Overall, the information provided in this section is accurate. However, occasional questionable species range designations exist. The author compensates for this minor flaw by providing a sizable listing of additional botanical taxonomic manuals and other useful references.

The book’s final section entitled “Distribution of Coastal Wetlands in the Southeast” briefly describes the general distribution of coastal wetlands in nine southeast coastal states and lists some sites, mostly national parks, to observe these areas (illustrations are provided).

This book is designed primarily for the non-technical person interested in learning the basic concepts of coastal ecology, and learning to recognize common tidal and non-tidal coastal wetland plants. The text would also be useful for representatives for federal, state, and local environmental agencies, environmental consultants, and students in botany or environmental sciences. Several of my environmental professional colleagues were given the opportunity to review the book and, without exception, indicated that it would be a good addition to their professional libraries.

Finally, if we are to provide the remaining coastal wetlands or any of our other sensitive natural ecosystems the protection they deserve, we must provide the average person with the tools to build an understanding of and an appreciation for the diversity of our natural systems. Tiner has provided such a tool.

RAYMOND E. MILLER JR.
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
WEST PALM BEACH, FL 33406

The Abandoned Narcotic: Kava and Cultural Instability in Melanesia. R. Brunton. Cambridge University Press, 110 Midland Ave., Port Chester, NY 10573. 1989. 219 pp. $44.95 (cloth). ISBN 0-521-37375-1.

Kava: The Pacific Drug. Vincent Lebot, Mark Merlin and Lamont Lindstrom. Yale University Press, New Haven. 1992. 247 + vii pp. $45.00 (cloth). ISBN 0-30005213-8.

Many Pacific Islanders drink kava (the root of Piper methysticum, chewed, pounded or grated and infused in cold water) to promote sociability, relaxation, communication with deities, and even somnolence. In scholarship at least, kava is anything but a soporific.

In The Abandoned Narcotic Ron Brunton, a social anthropologist, reintroduces a hypothesis of diffusionist anthropologist W. H. R. Rivers who argued (ca. 1914) that the geographical distribution of kava drink-
ing in the Pacific suggests that it was at one time more widespread, and that it had been abandoned by some Pacific peoples. His chapter two describes the distribution of kava drinking throughout the Pacific, largely reviewing published literature. Chapters three and four adduce available archeological, botanical, linguistic, and ethnological evidence for pre-contact kava use, diffusion, and—sometimes—abandonment. Brunton proposes a single origin of kava use among Proto-Oceanic speakers in the Bismark Archipelago and then considers the "likely" direct and indirect transmission routes for its diffusion.

To consider kava abandonment Brunton examines "mercurial" (p. 93) ritual change in parts of Melanesia. In chapter five he describes transformations of the kava ritual in post-contact Tanna, Vanuatu over the past two centuries, documenting significant changes in kava ritual itself, and describing kava abandonment by those who have joined post-contact new religions. Generalizing, he argues that in Melanesian societies institutions of leadership and social coordination are weak, individual autonomy is emphasized, divisiveness and distrust lead to problems in social coordination. Shared ritual practices and forms of divinity are one form of social coordination but "when adversity strikes" they may fail. For a variety of reasons members of society come to doubt the efficacy of their cultural beliefs and may fail. For a variety of reasons members of society come to doubt the efficacy of their cultural beliefs and practices, prestige may be gained by successfully introducing a new system, and thus people turn readily to a new "cultural package" (p. 166). In the case of kava use, once abandoned for sociological reasons, botanical extinction might easily follow.

In contrast, collaborators Vincent Lebot, Mark Merlin and Lamont Lindstrom, combining botanical and anthropological expertise, disagree with Brunton on a number of points, notably placing the origins of kava domestication in Vanuatu and insisting on a more diverse history of Pacific kava use: they dispute a single theory of abandonment, and focus instead on innovative adoptions and adaptations.

The scope of Kava: The Pacific Drug is comprehensive. The book is clearly written, with excellent illustrations and photographs throughout. Chapter two describes morphology and distribution, addresses problems of taxonomy and nomenclature, and assesses theories of the origins of domestication. Using recent morphological and genetic (isozyme) research, the authors argue that while cultivated kava (Piper methysticum) derives from the wild progenitor (Piper wichmannii), a fertile Piper indigenous to New Guinea, the Solomon Islands and Vanuatu, the two taxa of Piper are wild and cultivated forms of the same species. Zymotype distribution analysis is used to pinpoint northern Vanuatu as the probable origin point of domestication through cloning, some three thousand years ago.

Chapter three considers kava's chemistry, reviewing a literature to which Lebot in particular has contributed. The chapter discusses kavalactones and their psychoactive effects and analyzes the physiological (but not neurological) activity of those ingredients. Chapter four on ethnobotany describes cultivation, classification, preparation and medicinal use, providing a range of significant illustrative cases. Chapter five on the cultural significance and social use of kava reviews broad Pacific similarities in mythological symbolism of kava, kava as a valuable exchanged in rituals, and kava use as religious experience invoking communion with deities. Over-generalization is avoided through a series of illustrative cases (humorously called "kavettes" rather than "vignettes"). Ranging from egalitarian to hierarchical communities, from informal to highly ritual settings, from traditional locales to urban kava bars, they illuminate local particularities and social change as well as shared Pacific themes. Chapter six on the economics of kava as a cash crop provides information on the role of kava in the economies of Vanuatu, Fiji and Tonga. Describing internal markets and export possibilities, the chapter also addresses some of the complexities of commodifying an item with distinctive traditional social meanings and functions. A final chapter "Kava: A World Drug?" touches on the commercial and cultural potentials of kava beyond the bounds of the Pacific, ranging from its adoption by Australian Aborigines to interest from Western pharmaceutical companies.

I highly recommend Kava: The Pacific Drug. While those interested in Pacific history will also find The Abandoned Narcotic of interest, the book is narrower in scope, and it is less convincing as it seeks a single, general theory of kava abandonment. In my view, the characterization of Melanesian social organization as inherently "weak" or "unstable" assumes social stasis and stability to be either the norm, or the desired condition, of all societies. But as Brunton is himself aware, in most societies world-wide, change is usually the norm, rather than the anomalous or dysfunctional exception. In contrast, Lebot, Merlin and Lindstrom hypothesize a more flexible and variable Pacific past, as well as documenting a complex, heterogeneous and dynamic Pacific present, in which they conclude "The story of kava is far from ended" (p. 211).

MARTHA KAPLAN
DEPARTMENT OF ANTHROPOLOGY
VASSAR COLLEGE
POUGHKEEPSIE, NY 12601