

BOOK REVIEWS

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Corn & Capitalism: How a Botanical Bastard Grew to Global Dominance. Warman, Arturo. English translation by Nancy L. Westrate. 2003. University of North Carolina Press, Chapel Hill. xiii + 270 pp. US\$ 49.95 (hardcover), ISBN 0-8078-27665. US\$ 24.95 (paperback). ISBN 0-8078-5437-9.

This English version of *La historia de un bastardo: maíz y capitalismo* by Mexican anthropologist Arturo Warman, which is not a literal translation, was adapted by Nancy L. Westrate for readers in the United States. Changes have been made to accommodate linguistic, and cultural differences, as well as to update some of the material.

The first chapter puts corn into context among an array of important crop plants endemic to the Americas. The second chapter describes characteristics of the corn plant, its rich genetic diversity and wide geographic adaptability. In the third chapter, "A Bastard's Tale," the author examines the controversy of how and where corn was first domesticated, and sets the stage for the capitalism theme, which, superimposed on the scientific debate, is the ideological component running through the book. The basis for the ideology comes from belief by Europeans during the colonial period in "... an inherent inferiority of American nature and American civilization as compared to the Old World." Chapters 4-9 chronicle the rapid, post-Columbian adoption of corn as a staple food and its spread into China, Africa, and Europe. Chapter 10 includes the fascinating story about the rise of pellagra with the adoption of corn as a staple food of European peasants. As seen in chapters 11 and 12, corn gained dominance as an agricultural crop plant due to its high yield, and by the 20th century, had become the most valuable commodity crop in the United States. Hybrid seed corn, with vastly improved yields, began to be sold in the 1930's leading to the growth of the hybrid corn seed industry with its concomitant institutions, technological innovations, and industrialized agriculture.

Today the world grain trade is dominated by a handful of multinational corporations. The final three chapters underscore increasing market inequalities between rich and poor countries. In the closing chapters, Warman raises thought-provoking, alarming questions about food dependence, political coercion, and economic power in the hands of a few multinational companies. Although he originally intended to write a history of corn in Mexico, his research and in-

terests culminated in a broader global, social, and economic history with sparse attention to the Mexican roots of maize. I cannot help but wonder if the Mexican sequel he plans to write will link corn's destiny as a global commodity grain today with its equally compelling role in prehistoric economies as an exchange commodity in long distance trading networks connecting the peoples of Mexico with cultures as far away as North and South America.

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Genetic Diversity of Cultivated Tropical Plants.

Hamon, Perla, Marc Seguin, Xavier Perrier, and Jean Christophe Glaszmann, eds. 2003. Jointly published by CIRAD (Centre de cooperation internationale en recherche agronomique pour le développement), France and Science Publishers Inc. c/o Enfield Distribution Co., 234 May Street, Post Office Box 699, Enfield, NH 03748, USA. xvi + 359 pp. (hardcover). US\$ 80.00. ISBN 1-57808-264-1.

France has maintained strong research programmes in crops important to her former colonies and dependent territories. Some are centred on germplasm collections maintained in the tropics. Others, particularly those involving molecular techniques, are based in mainland France, principally at CIRAD, Montpellier. This book, an English translation of one published in French in 1999, addresses the relation between variability in those agronomic characters important in past domestication and future improvement, and variability in molecular markers. Agronomic characters are targets of human selection; molecular markers are probably selectively neutral in themselves but facilitate selection by plant breeders for genetically-linked traits of agronomic value. Of particular concern in this book is the extent to which molecular markers can be used to choose accessions to form a core collection representative of the diversity present in an entire germplasm collection, given that germplasm collections of many major crops are now so large that both maintenance and evaluation threaten to become prohibitively expensive.

Notwithstanding the title, this is not a review of

the genetic diversity of cultivated tropical plants in general, but only those that have been studied by French researchers. Furthermore, although the authors updated their chapters in 2002 for the English edition, a hasty survey detected post-1999 references in only 5 of the 14 chapters.

The book begins with three chapters on methods used to study genetic diversity. A lucid summary and critique of biochemical and molecular markers, written to be accessible to those with no hands-on knowledge, is followed by a chapter on data analysis that requires previous acquaintance with multivariate statistics, so is heavy going for the less numerate. A chapter on building core collections establishes the need to know how variability in a crop is organised, so that a strategy may be devised for sampling from a base collection in order to establish a core collection. This chapter demonstrates that non-random sampling is more efficient than random sampling in conserving rare alleles while preserving a representative sample of morphoagronomic diversity.

The remaining 11 chapters are each dedicated to a particular crop: Asian rice, banana, cacao, cassava, citrus, coconut, *Coffea canephora*, pearl millet, rubber, sorghum, and sugar cane. The emphasis on French work means that tea is omitted, also maize, oil palm, sweet potato, yams, and the aroids. Perhaps more surprisingly, no legume is covered. Each chapter follows the same basic format: an introduction to the uses and global importance of the crop, a section on botany and genetic resources, a technique-by-technique review of methods applied to study the organisation and/or structure of the genetic diversity of the crop, comments on the management of that genetic diversity, and conclusions. Many chapters read like back-to-back excerpts from published papers, without adding any new insights. However, papers on genetic resources are widely scattered, so in bringing the references for each of the crops covered together in one place, the contributors to this volume have performed a useful service to the economic botany community in general.

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Plant Pigments and their manipulation. Davies, Kevin M., ed. Annual Plant Reviews, vol. 14. 2004. CRC Press and Blackwell Publishing. xv + 352 pp (hardback). 110 £. ISBN 1-4051-1737-0 and USA and Canada only: ISBN: 0-8493-2350-9.

The book provides a series of reviews about pigment chemistry and biology, and an up-to date account of pigment biosynthesis and the modification of their production using biotechnology.

The book consists of 10 chapters with 12 contributors from Australasia, Europe and the USA. The chapters cover a wide scope of pigmentation research, from the importance of structural diversity in generating the range of colours seen in plants to improving human health benefits of crops by increasing pigment levels in transgenic plants. Each chapter has an introduction, different parts, conclusions and complete references. At the end is an exhaustive analytical index.

The first introductory chapter is "An introduction to plant pigments in biology and commerce" by Kevin M. Davies (pp.1–22). Chapter 2. "Chlorophylls" by R. "Willows" (pp.23–56). Chapter 3. "Carotenoids" by A. Cuttriss and B. Pogson (pp.57–91). Chapter 4. "Flavonoids" by K. Schwinn and K. Davies (pp.92–149). Chapter 5. "Condensed tannins" by G. Tanner (pp.150–184). Chapter 6. "Betalains" by J. Zrýd and L. Christinet (pp.185–213). Chapter 7. "Important rare plant pigments" by K. Davies (pp.214–247). Chapter 8. "Plant pigments and human health" by M. Lila (pp.248–274). Chapter 9. "Plant pigments and protection against UV-B radiation" by B. Jordan (pp.275–292). Chapter 10. "Techniques of pigment identification" by Ø. Andersen and G. Francis (pp.293–341).

There are 72 illustrations comprising figures and tables. There are only two low printing profile black and white photographs.

Overall, this is a useful book that covers the subjects comprehensively and a valuable resource for students, for professionals and investigators in plant biochemistry, molecular biology, and genetics of plant pigments. We strongly recommend its reading for those specialists. However the ethnobotanical or economic botany coverage is only marginal. A broader spectrum of scope is desirable.

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Ancient Maya Commoners. Lohse, Jon C. and Fred Valdez, Jr., eds. 2004. University of Texas Press, P.O. Box 7819, Austin 787173-7819. 320 pp. (hardcover). US\$ 45.00. ISBN 0-292-70571-9.

Most of these papers were originally presented as part of a symposium organized for the 1999 American Anthropological Association meeting held in

Chicago. Others authors were invited to participate to fill in some gaps.

This book is divided in eleven chapters: Chapter 1, Examining Ancient Maya Commoners Anew, is by Jon C. Lohse and Fred Valdez Jr. (pp. 1–22). Chapter 2 covers Daily life in a Highland Maya Community: Zinacantan in Mid-Twentieth Century, by Evon Z. Vogt (pp. 23–48). Chapter 3, The Role of Pottery and Food Consumption among late Preclassic Maya Commoners at Lamanai, Belize, is by Terry G. Powis (pp. 49–72). Chapter 4, Of Salt and Water: Ancient Commoners on the Pacific Coast of Guatemala, was written by Bárbara Arroyo (pp. 73–96). In Chapter 5 Nicholas Dunning discusses Down on the Farm: Classic Maya “Home steads” as “Farmsteads” (pp. 97–116). Chapter 6, Intra-Site Settlement Signatures and Implications for Late Classic Maya Commoner Organization at Dos Hombres, Belize, is by Jon C. Lohse (pp. 117–146). Jason Yaeger and Cynthia Robin (Chapter 7) consider the Heterogeneous Hinterlands: The Social and Political Organization of Commoner Settlements near Xunantunich, Belize (pp. 147–174). Chapter 8, on The Spatial Mobility of Non-Elite Population in Classic Maya Society and Its Political Implications, is by Tareshi Inomata (pp. 175–196). Commoners in Postclassic Maya Society: Social versus Economic Class Construct (Chapter 9) was written by Marilyn A. Masson and Carlos Peraza Lope (pp. 197–224). Chapter 10, Methods for Understanding Classic Maya Commoners: Structure Function, Energetics and More, is by Nancy Gonlin (pp. 225–254). Chapter 11 is on Maya Commoners: The Stereotype and the Reality, composed by Joyce Marcus (pp. 255–284).

Finally there are the list of the contributors and the Index (this is extensive and useful). The references are numerous and they are cited in each chapter. The book is thoroughly illustrated with numerous figures of acceptable quality. This book is an excellent work with information for students and professional wishing to get deeper knowledge of the Maya world.

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Bread made from Yuca. Selected Chronicles of Indo-Antillean Cultivation and Use of Cassava 1526–2002 (with Spanish and English transla-

tions). Rubin, Jane Gregory and Ariana Donalds, Jr., eds. 2003. InterAmericas/Society of Arts and Letters of the Americas/Sociedad de Artes y Letras de las Américas, 162 East 78th Street; available from Joan Dayal, Paper Based, Hotel Normandie, 10 Nook Avenue, St. Ann’s, Port of Spain, Trinidad; e-mail jdayal@carib-link.net; tel 868 625 3197. 128 pp. (paperback). US\$ 35.00. ISBN 1-892321-03-3.

This book is published to complement an exhibition presented in the Inter-Americas Space in CCA7 (an international art center run by Caribbean Contemporary Arts in Port of Spain, Trinidad): “The New Old World.” The book is bilingual, English and Spanish.

In the 1500s Gonzalo Fernández de Oviedo wrote “Cassava is: food that sustains life; sweet and sour liquids that serve as honey and vinegar; a stew that is eaten and enjoyed by the Indians; firewood from the branches when there is no other; and a potent and deadly poison . . . in a certain region of the mainland, excellent wine is made from cassava bread . . .”.

The above is part of the selections editors have included from some of the first partial English translations of the earliest comprehensive European documentation on cassava cultivation and use in the Caribbean area, by Gonzalo Fernández de Oviedo y Valdés (Historia, Part I, Book VII, Chapter 2; Part II, Book XXIV, Chapter 3) (cf. Turner, 1966).

This book contains an introduction by J.G. Rubin and four chapters, ending with an afterword, by S. W. Lewis. Chapter 1 is Texts on Cassava by Fernández de Oviedo (pp. 21–38). Chapter 2, The New Old World. Archives of Phase I (The Caribbean: 1999–2002) is by M. Villanueva (pp. 39–68). Chapter 3 is about the survival of “la cultura de la yuca” in Puerto Rico, by J. Delgado (pp. 69–96). Chapter 4, *Manihot esculenta*: Historic and Economic Context is by T. O’Kane (pp. 97–112). Finally the references and directory of institutions are included as Appendices A and B (pp. 117–119).

The book is illustrated with numerous photos in colors and black and white. It is an excellent work for students, researchers, and professionals interested in the history and ethnobotany of the Yuca or Cassava.

LITERATURE CITED

Turner, D. 1966. Gonzalo Fernández de Oviedo y Valdés: an annotated bibliography. University of North Carolina—University of Delaware, Chapel Hill.

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Concise Handbook of Psychoactive Herbs. Medicinal Herbs for Treating Psychological and Neurological Problems. Spinella, Marcello. 2005. The Haworth Information Press and the Haworth Reference Press, imprints of The Haworth Press, Inc., 10 Alice Street, Binghamton, NY 13904-1580. iv + 288 pp. (softcover). US\$ 24.95. ISBN 0-7890-1858-6.

Did you know that chili peppers can act as painkillers and that nutmeg and mace consumed in large amounts are hallucinogenic? Or that hallucinogenic drugs were used in the fifties to facilitate psychotherapy? The present book teaches you all this and more. It presents an easy-reading overview of medicinal herbs used for mental health. The great accomplishment of the book is that it is written so that non-specialists in neurology can easily understand the basic principles of brain functioning and the way in which drugs and medicinal plants interfere with this process.

The first chapter provides a brief introduction into the use of plants as medicines, including *what* herbal medicines are, *how* they are used, and *why* people use(d) them. Chapter 2 deals with brain function and gives a quick tutorial about brain cells (neurons), neurotransmitters, and the different brain areas. Chapter three is a comprehensive summary into how drugs work, from the moment they are ingested to their actions on certain targets in the brain (receptors) until their elimination from the body. Chapters four to eight are dedicated to herbs used for different types of mental disorders, and discuss stimulant, cognition-enhancing, sedative, anti-anxiety, antidepressant, antipsychotic, and analgesic species. The last two chapters deal with recreational drugs, such as herbal hallucinogens and cannabis. The book concludes with a chapter on drug use, abuse and addiction, and its treatment and prevention.

I would have preferred references cited in the text instead of in the bibliography organized per chapter in the back of the book. I also would have liked it better if author names had been provided for plants. Sometimes more detailed information on the species would have been appropriate. For instance, on the nomenclature of chamomile, which in the past 20 years has been referred to by five different Latin species names, as well as a number of common names. Or, on St. John's wort. Not only one, but two recent studies failed to support the benefits of St. John's wort. The first one is the Pfizer study the au-

thor refers to, and the second one was funded by the National Institutes of Health (Davidson 2002). While both trials are rigorous studies, they were performed with more severely and long term depressed patients which may have influenced the outcome of the results. The author certainly is aware of these details since he concludes his overview of St. John's wort with the statement that the species has a significant antidepressant effect particularly for mild to moderate depression.

The presentation of each chapter has both advantages and disadvantages. The advantage clearly is that the most important facts are being told. After all, this is a "concise handbook," so you are getting what you paid for. However, the book leaves me hungry for more. So, if you are a non-specialist in the field and are looking for an easy to read book with ample background information, then this book is what you need. It provides a good starting point.

LITERATURE CITED

Davidson, J. R. T. 2002. Hypericum depression trial study group. Effect of *Hypericum perforatum* (St. John's wort) in major depressive disorder. *Journal of the American Medical Association* 287:1807-1814.

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The Healing Power of Chinese Herbs and Medicinal Recipes. Hou, Joseph P. and Jim, Youyu. 2005. Food Products Press/Haworth Press, Inc., 10 Alice Street, Binghamton, NY 13904-1580. xxix + 812 pp. (paperback). US\$ 59.95. ISBN 0-7890-2202-8.

An interest in Traditional Chinese Medicine (TCM) in the United States has been accompanied in recent years by a number of books aimed at explaining TCM to westerners. Among these, there have been some very notable works on East Asian medicinal plants. Examples include Foster and Yu Chongxi (1992), Tierra and Tierra (1998) and Bensky et al. (2004). We can now add this contribution.

This work is intended to acquaint readers with "the benefits of incorporating traditional Chinese medicine into modern therapies." The book contains three parts, with 24 chapters. After a short introduction, *The Myth and Truth About Chinese Medicine* (part 1), provides a broad overview of TCM principles, including discussions of Tao, Yin and Yang Theory, Five Elements Doctrine, Qi, Diagnosis Methods, and Treatment Methods (including acupuncture). *Practi-*

calities of Chinese Herbal Remedies (part 2) includes discussions of benefits, processing, chemistry and properties, dosage, and preparations of East Asian medicinal plants used in TCM.

For the economic botanist, *The Healing Powers of Medicinal Herbs, Past and Present* (part 3) is likely to be of most interest. Here, the botany, occurrence, preparation, and use of the East Asian botanical materia medica is reviewed. The section is grouped by function so that plants (along with some fungi) are reviewed according to primary activity such as tonifying, diaphoretic, expectorant, and so on. The section ends with recipes and formulations. Of particular note is the inclusion of information that is likely to be new to many in the western world because it has remained un-translated. Much of this information is drawn from various academic and clinical literature, while other data is from references and manuals.

Overall this book does an fine job of presenting and reviewing plant-centered TCM philosophy, principles, and material medica. It is at times perhaps too sweeping, however, with not enough attention paid to any one subject. For example, the review of basic plant chemistry in part two is only about 2½ pages in length (out of 812 pages) and contains little that is new, useful or particularly insightful. Unfortunately, the work also does suffer from low quality illustrations and pictures throughout, and would have been greatly improved by more devotion to this aspect of its production. The value of this book to the economic botanist lies in the information it contains on the ethnobotanical and economic importance of east Asian plants. For this purpose, it certainly serves as a useful reference.

LITERATURE CITED

- Bensky, D., Clavey, S., Stoger, E., Gamble, A., and Neski, L.L.** 2004. *Chinese Herbal Medicine: Materia Medica*, Third Edition. Eastland Press, Seattle, WA.
- Foster, S. and Chongxi, Y.** 1992. *Herbal Emissaries: Bringing Chinese Herbs to the West*. Healing Arts Press, Rochester, VT.
- Tierra, M. and Tierra, L.** 1998. *Chinese Traditional Herbal Medicine Volume II: Materia Medica and Herbal Resource*. Lotus Press. Twin Lakes, WI.
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Botanical Garden Press, P. O. Box 299, St. Louis, MO 63166-0299. xii + 581 pp. (hardcover). US\$ 125.00. ISBN 1-930723-41-5.

The *Flora of China (FOC)* series is an updated, English-language revision of the *Flora Reipublicae Popularis Sinicae (FRPS)*. The completed series will treat ca. 30,000 species of native, naturalized, and exotic vascular plants found in China and will be described in 24 volumes (including a 25th supplementary volume containing a cumulative index for all the volumes).

All volumes of *FOC* include indices of 1) Chinese character names, 2) Hanyu Pinyin transliteration, 3) scientific names, and 4) an index to families in the *FOC* and *FRPS* volumes. A large map of China delimiting its provinces and adjacent countries is provided as endpapers. *FOC* organizes the sequence of families by a modified Englerian system.

FOC Vol. 14 treats the families Apiaceae (100 genera, 614 species), Cornaceae (1 genus, 25 species), Aucubaceae (1 genus, 10 species), Helwingiaceae (1 genus, 4 species), Mastixiaceae (2 genera, 4 species), Toricelliaceae (1 genus, 2 species), Diapensiaceae (3 genera, 6 species), Clethraceae (1 genus, 7 species), and Ericaceae (22 genera, 826 species); of the 1498 species included, 60% (11 genera and 895 species) are endemic to China.

This volume is notable by its coverage of the economically important family Apiaceae, and of China's largest genus, *Rhododendron* (571 species). Considering the update of such a rich flora, it is a surprise that this volume includes only 7 nomenclatural novelties in the genera *Agapetes*, *Cornus*, and *Rhododendron*.

In past reviews of the *FOC* series, I criticized the cost of these volumes as being prohibitive to many users. Thus I am happy to know that this and other volumes in the *FOC* series previously published are available on-line through www.eFloras.org. The eFloras website provides access to a number of international floras. In the *FOC* section, you can brows the series by volume, family or genera via html pages, or view and download PDF files of the family sections. The html family pages begin with a key to the genera that are linked to the genera html pages, to the species pages, and if the accompanying *FOC* illustration volume has been published, a link to the corresponding illustration page is provided. There are also links to related botanical databases. By accessing *FOC Vol. 14* via the internet versus the printed text, you only miss the color frontispiece of *Rhododendron leptocladon*. Additional on-line information about the Flora of China project is found at their homepage: <http://flora.huh.harvard.edu/china/>. Internet access to the *FOC* series is a great service to the international botanical community, particularly those individuals and institutions that cannot afford the price-tag of the printed text.

Flora of China Illustrations. Vol. 5, Ulmaceae through Basellaceae. Wu, Zheng-yi, Peter H. Raven, and Deyuan Hong, eds. 2004. Science Press, 16 Donghuangchenggen North Street, Beijing 100717, China and Missouri Botanical Garden Press, P. O. Box 299, St. Louis, MO 63166-0299. xii + 377 pp. (hardcover). US\$ 125.00. ISBN 1-930723-40-7.

Flora of China Illustrations. Vol. 5 is the accompaniment for the *Flora of China Vol. 5, Ulmaceae through Basellaceae* published in 2003. In 352 figures, *FOC Illustrations Vol. 5* includes approximately 70% many of the species covered in text *FOC Vol. 5* (898 of the 1293 in the text volume). Families represented include Ulmaceae, Rhoipteleaceae, Moraceae, Cannabaceae, Urticaceae, Podostemonaceae, Proteaceae, Olacaceae, Opiliaceae, Santalaceae, Lorantheaceae, Viscaceae, Aristolochiaceae, Rafflesiaceae, Balanophoraceae, Polygonaceae, Chenopodiaceae, Amaranthaceae, Nyctaginaceae, Phytolaccaceae, Molluginaceae, Aizoaceae, Portulacaceae, and Basellaceae.

Each taxon includes the Latin, Chinese, and Pinyin names, and cross references to pages in both the *Flora of China* and *Flora Reipublicae Popularis Sinicae*.

The illustrations are excellent, particularly for the taxa of Urticaceae, Aristolochiaceae, Chenopodiaceae, and some parasitic representatives of Balanophoraceae. The Chenopodiaceae section also includes photographs of the utricle of 31 species of the genus *Corispermum*. With the representation of many economically and ethnobotanically important plants *FOC Illustrations Vol. 5* is a well invested complement to the text *FOC Vol. 5*; both fine additions to the library of many readers of Economic Botany.

Good news for those that do not have access to the printed volume is that the illustrations are available on-line. Harvard University maintains the web site to the illustrations found in the *FOC Illustrations* series (<http://flora.huh.harvard.edu/china/mss/illindex.htm>). This web site enables you to browse for images via the Missouri Botanical Garden's TROPICOS database records (<http://mobot.mobot.org/W3T/Search/vast.html>) or the TROPICOS Image Index (<http://mobot.mobot.org/Pick/Search/image/imagefr.html>).

Flora of China Illustrations. Vol. 9, Pittosporaceae through Connaraceae. Wu, Zheng-yi, Peter H. Raven, and Deyuan Hong, eds. 2004. Science Press, 16 Donghuangchenggen North Street, Beijing 100717, China and Missouri Botanical Garden Press, P. O. Box 299, St. Louis, MO 63166-0299. xii + 496 pp. (hardcover). \$ 100.00. ISBN 1-930723-14-8.

Flora of China Illustrations. Vol. 9 includes the families Pittosporaceae, Hamamelidaceae, Eucommiaceae, Platanaceae, Rosaceae, and Connaraceae. It accompanies the *Flora of China. Vol. 9, Pittosporaceae through Connaraceae* published in 2003. The *Illustrations* cover approximately half of the species (506) treated in the text of *FOC Vol. 9*. These are represented in 187 figures, most depicting more than one species of a genus. The arrangement of figures in the *FOC Illustrations* series follows the sequence of taxa represented in the corresponding text volumes. Taxa in the series are presented with identifying anatomical features (flowers, fruits, leaves, etc.). This volume should be of particular value to those interested in cultivated ornamentals and fruit trees from the Rosaceae family, representing the majority of taxa illustrated (458 species).

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Crop Fertility and Volunteerism. Gressel, Jonathan, ed. 2005. CRC Press, Taylor & Francis Group, 6000 Broken Sound Parkway, Suite 300, Boca Raton, FL 33487-2742. xviii + 422 pp. (hardcover). US\$ 169.95. ISBN 0-8493-2895-0.

In light of ongoing discussions about the emergence of "superweeds" and their impact on agricultural productivity and ecosystem sustainability, examination of existing knowledge on agricultural domestication, transgenic technology, and plant fertility is timely. This book is a collection based on Gressel's assemblage of researchers in plant-related fields for a fertility and volunteerism workshop. These researchers address whether the cultivation of transgenic crops aggravates the evolution of fertility.

Gressel introduces feral as "domesticated evolving to be untamed or undomesticated" (p.2). Other authors focus on plant fertility in a wide range of crops such as rice to urban ornamentals. The chapters take a unique form of containing pre-workshop, peer-reviewed information together with transcribed or integrated information from workshop discussions. This format lends itself to a balanced discussion that addresses concerns of optimists and cynics of transgenic technology and the agricultural, economic, and ecological impacts of fertility.

The book confirms the validity of concerns about transgenic crops and fertility based on prevalent agronomic practices which may promote dedomestication, as well as the potential introduction of novel traits into particular species that may result in transgenic plants serving as volunteer weeds, i.e., "off-

spring of crop seed that shattered (prematurely dropped their seeds) prior to harvest in previous seasons" (p. 3). Persistence of such volunteers provides genetic material for back mutations to progenitor states or recombination into crop species that may lead to recalcitrant feral plants.

The authors cover details of crop domestication, history and detection of feral plants, hybridization and gene flow in the exacerbation of ferality, impacts of transgenes on ferality, and risk assessment and regulation. Ferality is discussed as a more contentious matter for partially domesticated crops such as rice and sunflower, which exist in environments with weedy relatives in close proximity that are capable of gene introgression. The potential ferality of rice, listed as the second most important food crop in area planted and yield (p. 17), is considered in detail.

Seed shattering is a central contributor to the potentiation of feral weeds. Thus, considerable attention centers on the reduction of ferality through regulation of shattering. Additional discussion focuses on the prevention of gene flow, including the use of "transgenic mitigation technology," which should diminish the spread of transgenes into the ecosystem.

Due emphasis is given to the recognition that the problem of crop ferality and volunteerism is not unique to transgenic crops. Rather these crops have received a great deal of attention based on readily quantifiable gene flow.

The authors largely support invocation of the "precautionary principle." This applies to gene flow from transgenic crops into nature and crop ferality in general. Thus, although the likelihood of crops becoming feral varies widely based on the degree of domestication, the chance of feral weeds arising is a measurable risk for many crops and thus bears careful monitoring. Summarily, this compilation addresses crop ferality in a broad-ranging, yet thorough manner. It is a useful general resource for an area of research that has been scantily documented for crop plants.

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DNA Fingerprinting in Plants. Principles, Methods, and Applications, Second edition. Weising, Kurt, Hilde Nybom, Kirsten Wolff, and Günter Kahl. 2005. CRC Press of the Taylor & Francis Group, 6000 Broken Sound Parkway NW, Boca Raton, FL 33478-2742. xx + 444 pp. (paperback). US\$ 99.95. ISBN 0-8493-1488-7.

Fifteen years ago the main source of information regarding DNA protocols was a book written by FBI experts! Few in that era could predict the progress of

DNA fingerprinting. Today, many readers will find this book interesting.

Chapter 1 treats mini- and micro-satellites. It also includes a brief and useful introduction to mutations entitled "Repetitive DNA: An important source of variation in eukaryotic genomes." In Chapter 2 advantages and disadvantages of all major DNA profiling techniques, along with many known variants of them, are discussed. Chapter 3 refers to laboratory equipment and would be better placed as an appendix, rather than as a separate chapter.

Chapter 4 covers plant DNA isolation, RAPDs, and microsatellites. It is analytically written and contains much valuable information. This will help the novice and the experienced researcher find solutions to various problems.

In Chapter 5 various ways of scoring bands are suggested. This is combined with a wealth of knowledge on how to statistically analyze molecular data to determine biological significance. Chapter 6 discusses the application of molecular markers in forensics, in patenting plant varieties, in genetic studies (e.g., identifying plausible sources of genetic variation), in evolutionary studies (e.g., monitoring gene flow), in plant taxonomy and systematics, and in phytogeography.

Chapter 7 deals with ordering the molecular markers in a row to create genetic maps. It also refers to comparative genomics (the use of synteny in mapping) and to molecular breeding (marker assisted selection). Use of genetic maps to the cloning of genes of interest is discussed at the end of this chapter. In Chapter 8 readers that have not been involved in applying molecular marker technologies for DNA fingerprinting will find valuable advice for selecting the optimal technology for their needs. Chapter 9 comprises presentations of future prospects of DNA fingerprinting. At the end is a brief report on RNA fingerprinting.

There are four appendices in the book. The first, probably the most useful, serves as a supplement for chapter 4. It involves perhaps all published plant DNA isolation protocols, a brief description of them, and notes on their uses (e.g., the plant they were used on). The second appendix lists some commercial companies, and the third lists computer software for *in silico* analysis. The last is a selection of web pages of possible interest to the reader.

The literature is extensive, but the index is not useful enough; some terms (e.g., bilateral marker) and are not included. A glossary is missing; the authors might want to include one in future editions.

In short, the book contains a plethora of information on plant DNA fingerprinting. The data are sometimes difficult to retrieve because of the book's structure.

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The Fungal Community. Its Organization and Role in the Ecosystem, Third Edition. Dighton, John, James F. White, and Peter Oudemans, eds. 2005. CRC Press, Taylor & Francis Group, 6000 Broken Sound Pkwy # 300, Boca Raton, FL 33487. xx + 936 pp. (hardcover). US\$ 139.95. ISBN 0-8247-2355-4.

Dighton, White, and Oudemans' *The Fungal Community* is a broad and lengthy examination of methods and trends in fungal ecology. Within nearly 1000 pages of text, 82 contributors present 44 chapters on a varied assortment of topics ranging in scale from molecular to global. The book largely omits treatment of ecophysiology and biogeography, focusing instead on community structure and function.

Despite the varied interests and backgrounds of the book's many contributors, *The Fungal Community* remains a cohesive volume. The editors organize chapters into four sections, loosely arranged around community structure, function, human impact on fungal communities, and a concluding chapter on fungal conservation. While not all chapters fit neatly within these divisions (Tuininga's chapter on interspecific interaction terminology comes to mind), this does little to detract from the book's utility and focus. Thorough taxonomic and subject indices further aid the reader in navigating through multiple authors' treatments of subjects of interest. Well provisioned bibliographies are another useful addition.

The only negative criticisms I think worthy of pointing out is that the book presents uneven quality of black and white figures among chapters. Furthermore, the color figures—clumped together in the center of the book—are redundantly reproduced within the chapter; in several cases they are meaningless without color.

As a collection of reviews, this book would appeal to individuals interested in increasing their breadth of knowledge on a diversity of fungal communities and recent advances in mycological research. Readers of *Economic Botany* may find the Human Impacts section particularly interesting, as issues relating to fungal community responses to global climate change, pollution, and agricultural systems are well treated here. In general, this book would be a handy reference for researchers interested in fungal ecology and the latest methods mycologists are using to describe their dynamic processes.

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The Sustainable Forestry Handbook Second Edition. Higman, Sophie, James Mayers, Stephen

Bass, Neil Judd, and Ruth Nussbaum, eds. 2005. Earthscan Publishing Company. Distributed in the United States by Stylus Publishing, LLC, 22883 Quicksilver Drive, Sterling, VA 20166-2012. xviii + 332 pp. (hardcover). US\$ 75.00. ISBN 1-84407-118-9.

This is a guide to the implementation of the sustainable forest management initiatives of the International Tropical Timber Organization (ITTO), and the Forest Stewardship Council. With 332 pages of condensed information, this book encapsulates many years of practice and thought by forest managers, policy makers, and researchers on the best applications of sustainable forestry management. The handbook is designed for forest managers to apply the major guidelines of the ITTO, and the Forest Stewardship Council, but it would be a mistake to say the book is strictly a guide exclusively for forest managers. The book is useful for social and biological researchers who would like to determine their roles in the sustainable forest management process. I would also recommend this book for upper level university students of international forestry who wish to grasp the complexities of sustainable forest management to date.

The book provides detailed guidelines, checklists, and flow-charts on how to conduct sustainable forestry management. The book is presented by major themes including: international forestry standards, environmental management, social issues (including ethical and legal aspects of forest governance), and concludes with a final section on forest certification. At the ground level, there is practical consideration given to several management concerns, such as: how to implement environmental and social impact assessments, silvicultural practices, road building and harvesting, and negotiating the forest certification procedures.

Sometimes, researchers fail to understand the stresses and bottlenecks at the managerial level by, for example, focusing their research only on low-income stakeholders. Forest managers have a challenging task of balancing multiple stakeholder concerns, but at least they no longer have to worry about vague guidelines on how to achieve sustainability. This handbook presents the basics of sustainable forestry and forest certification in very "concrete" terms as laid down by the ITTO and the Forest Stewardship Council. The handbook can be used as a constant reference when a certain situation arises. It could be especially useful in developing countries where up-to-date information can be hard to get. The book does not contain methodologies for social, biodiversity, or non-timber forest product sampling; rather, it provides a road-map for decision-making. The appendices are loaded with information. In appendix 1, there is a good summary of the Forest Stewardship Council principles and criteria and the

ITTO guidelines for the establishment and sustainable management of planted tropical forests. Another appendix provides technical examples for the management of high conservation value forests. There are also lists of approved chemicals, CITES plants, international conventions, and international organizations involved in sustainable forestry. The index is adequate.

The area and cover of the world's forests have shrunk to dismal levels. If there is any silver lining, it is that our knowledge base has increased. This book is timely and represents the future of international forestry.

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Women and Cannabis. Medicine, Science, and Sociology. Russo, Ethan, Melanie Dreher, and Mary Lynn Mathre. 2003. The Haworth Press, Inc., 10 Alice Street, Binghamton, NY 13904-1580. 187 pp. (paperback). US\$ 24.95. ISBN 0-7890-2101-3.

The authors identify this book as important because "medical research has been remiss in addressing women's issues on a historical basis" and "many gender-specific conditions . . . are popularly treated with cannabis." Aside from these statements in the introduction the purpose and target audience of this book are not clear. The book contains a series of papers covering a wide range of topics from biochemical mechanisms of endogenous cannabinoid action, to "personal accounts" and case studies of cannabis use, to an ethnography of crack and cannabis use in Jamaica. There is little connection between the papers aside from the fact that they are in some way related to *Cannabis sativa* L. and there are many topics not covered. An Index is included but it is of limited use. Both focus and synthesis are lacking.

The papers themselves are diverse in approach and quality, as well as content. The chapters "Consequences of Marijuana Use During Pregnancy: A Review of the Human Literature" and "Cannabis in Multiple Sclerosis: Women's Health Concerns" are two of the strongest. They present objective, scientifically sound reviews of the literature on their respective topics and explore the subtleties of the mechanisms involved. The ethnography of crack and cannabis use in Jamaica is also interesting and objective.

The chapter on Hyperemesis Gravidarum is an example of one of the many weak papers included in this book. It presents a potential clinical use of

cannabis for the treatment of this disease. Little more than anecdotal evidence is provided and the discussion is politicized and highly sensational. Despite some academic content, the approach taken in this chapter is journalistic, not academic, and it is hard to believe that the interpretation of the academic material presented is objective.

While it is interesting to read papers of contrasting content and approach side by side, this book lacks cohesion. The academic rigor of this book is questionable in part due to its lack of consistency. Both within and between papers a number of the authors shift between hemsps seeds, the whole plant (taxa often unspecified), specific phytochemicals, and endogenous cannabinoids. There is limited knowledge on the topics covered, but the medicinal and nutritional properties of hemp seeds are very different from those of isolated cannabinoids and this is not made explicit by many of the authors. This book's usefulness is limited by its lack of focus and consistency.

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Wild Edible Fungi: A global overview of their use and importance to people. Non-wood Forest Products 17. Boa, Eric. 2004. Food and Agriculture Organization of the United Nations, Viale della Terme di Caracalla, 00100, Rome, Italy; <http://www.fao.org/icalog/>. xii + 148 pp. (paperback). US\$ 24.00 + shipping. ISBN 92-5-105157-7.

This contribution to the knowledge of Non-wood Forest Products focuses on wild edible fungi (WEF) from a world perspective. In an attempt to look at the forest for something other than the trees, the author has compiled an impressive amount of data on the use of wild fungi (usually mushrooms) as food, as a source of income, and as an item of health benefit, both to humans and to the forest in which the fungi grow. Although wild fungi have been consumed by some cultures for thousands of years, consumption and benefits of wild fungi have only reached the general public and scientific consciousness of the developed world in the last 50 years or so.

Boa gives the reader some background information on history and traditional use of wild fungi, their general biology and ecology, and management practices with regard to collection, harvesting, and sustainable production. Additionally, chapters are de-

voted to the importance of WEF as sources of food, income, and as trade items. Finally, there is a discussion of the real potential of WEF. This latter is not limited to possible commercial developments, but rather points out that WEF are a valuable source of nutrition, often with health benefits on the side; they are valuable sources of income at local and national levels where they are particularly important for rural populations of developing countries; and many target edible species are obligately associated with forest trees and help maintain growth and health of those forests.

This publication is loaded with charts and tables documenting which mushrooms are sought and offered for sale (2,327 species) where these mushrooms are harvested (over 80 countries), who consumes them, the economic value at local and global scales, and nutritional and medicinal impact. Considerable original source literature is cited as well as a growing list of electronic database documentation. *Wild Edible Fungi* is an invaluable compilation of data on the subject and should be consulted by governmental ministry officials involved in agriculture and economic development. To overlook such a valuable global resource would be a real shame.

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Manual de Plantas de Costa Rica, volumen I. Introducción. Hammel, B.E., M.H. Grayum, C. Herrera, y N. Zamora, eds. Monographs in Systematic Botany no. 97. Missouri Botanical Garden Press, P.O. Box 299, Louis, MO 63166-0299; at mbgpress.org. xiv + 299 pp (hardcover). \$40.00. ISBN 1-930723-24-5.

Neil Harriman reviewed volumes two and three of this flora in *Economic Botany* 58(4). Since then, the first volume has been published and three more are scheduled to appear. For those of us who have been fascinated with the flora of this Central American country for longer than we care to admit, these are most welcome contributions. We look forward to the next issues as the work will be a valuable resource for researchers in Mesoamerica.

This book opens with the sad note of death of "Don Alexander F. Skutch, 20 mayo 1904-12 mayo 2004." For those who are familiar with Skutch's beginning in botany and then shifting to ornithology, this seems a most apt dedication.

This introductory volume contains major headings including history, the physical environment, vegetation, novelties, plan of the manual, literature cited, and an appendix with names used in this book. The

history includes photographs of several people who have been active in studying the flora of this country, some of them being Anders Oersted (1816–1872), Otto Kuntze (1843–1907), William B. Hemsley (1843–1924), Henri F. Pittier (1857–1950), Louis O. Williams (1902–1991), William C. Burger, Gerrit Davidse, and of course, Peter H. Raven. There are many more illustrated and even more discussed in the text. There is a detailed discussion of the vegetation and vegetation types where the novelties (i.e., endemics and other unusual species) are found. Although I thought it was endemic to Panama when I described it, there are now collections of *Ipomoea eremnobrocha* from Costa Rica (photo p. 231).

Although Harriman did not mention her, Silvia Troyo, serving as the artist for the Manual project, created the line drawings of species in the other volumes. All the photographs, from a variety of individuals, are black and white except for the color plates, between pp. 130–131.

These volumes compliment Bill Burger's ongoing *Flora costaricensis* and both are outstanding contributions to knowledge of the country's plants. Would that we had similar books on all the countries of the Americas!

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The Sweet Potato in Oceania: a reappraisal. Ballard, Chris, Paula Brown, R. Michael Bourke, and Tracy Harwood, eds. 2005. Ethnology Monograph 19/Oceania Monograph 56. University of Sydney, Sydney, 116 Darlington Road, NSW 2006, Australia and Department of Anthropology, University of Pittsburgh, Pittsburgh, PA 15260 USA. viii + 227 pp. (paperback). US\$ 43.65. ISBN 0-945428-13-8.

This book is intended to update Yen's (1974) study. As Ballard astutely points out in his introduction, we never will have the entire story. Still this book makes considerable strides in refining (but not rejecting) Yen's views and hypotheses.

As a Festschrift for Yen, the book succeeds with contributions regarding archaeology, linguistics, mythologies, and sociological changes associated with the cultigen. Several points should be noted. There was pre-Columbian ocean travel through much of southern Asia and the Pacific. Pre-1493 Asians went at least once to South America and returned, bringing the American *I. batatas* with its name *kumara* back into Polynesia. Moreover, the Asian coconut was probably left in northwestern South America from the trip(s). Earlier, Eubanks (1999) gave an

excellent account of similar travel and trade between Mexico and Peru. Authors in this reappraisal missed Eubank's piece of the puzzle, and the critical symposium held at CIP (1988), but give us many others.

One contribution is naïve—it expected to find fossil sweet potato pollen and distinguish it from native *Ipomoea*. It will also surprise many who have acetylated *I. batatas* pollen that it does not survive the process.

From the time I read the table of contents, until I finished with Doug Yen's summary chapter, I could not help thinking this was like the story of the blind men and the elephant. That story was recorded by American poet John Godfrey Saxe in the 1800s but was based on an ancient East Indian parable. The 18 chapters contribute important accounts, but they are too highly focused. They discuss only the people and have left out the plants! This is a good book. It would

have been a great book if it included pertinent biology.

REFERENCES CITED

- CIP.** 1988. Exploration, Maintenance, and Utilization of Sweet Potato Genetic Resources. First Sweet Potato Planning Conference 1987, International Potato Center, Lima, Peru.
- Eubanks, M. W.** 1999. Corn in Clay. Maize Paleoethnobotany in Pre-Columbian Art, University Press of Florida, Gainesville, FL.
- Yen, D. E.** 1974. The Sweet Potato and Oceania. Bishop Museum Press, Honolulu.

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