

- Ritual, Myth and Symbolism in California and the Southwest (T. C. Blackburn, editor). Ballena Press, Socorro, NM.
- — — . 1981. *Kawaiisu Ethnobotany*. University of Utah Press, Salt Lake City.
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BOOK REVIEW

Histoire Illustree du Caoutchouc. J. B. Serier, A. Diez, and A. Van Dyck. Montpellier, France (Cirad-CP, BP5035, 34032 Montpellier Cedex 1); Editions Desjourneres, 1993. Pp. 96. (Price and ISBN not fOWld).

A most remarkable book has appeared: a pictorial history of rubber. It will be of interest to specialists in the production of this most important economic plant, to teachers, to students and, in fact to the general reader.

The illustrated history begins with the dinosaur age. It then proceeds to: the Aztec use of rubber and the European encounter with the product; the 18th century with the uses in Europe of this new substance; the early French interest in rubber; the Humboldt and Bonpland period, followed by the discovery by Goodyear of vulcanization; the ensuing proliferation of commercial and industrial uses; the effect of rubber on bicycle and motor car transport; the rubber boom and mistreatment of rubber tappers in Africa and South America; the several attempts to procure seed to domesticate Hevea; and many later commercial and scientific events, including such historically significant aspects as the influence on the British and Dutch plantations of Asia from the Japanese occupation in 1945, plus an innumerable series of exceedingly interesting and important aspects of the history of rubber.

As a botanist who has devoted nearly half a century in field work on rubber in the Amazon (taxonomic studies of the sources of rubber) and has published many scientific papers on Hevea rubber, I applaud the authors of this unusual way of presenting the full history of rubber-producing plants and their effect on the creation of our modern world. It is with great pleasure that I recommend this contribution with no reservations as a major step in explaining the history of rubber to a wide audience without recourse to many books, most of them unavailable in many libraries.

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The Diversity and Evolution of Plants. Lorentz C. Pearson. Boca Raton, Florida: CRC Press. 1995. Pp. viii; 646. \$59.95 (Outside United States, \$72.00 U.s.). ISBN 0-8493-2483-1.

There can be no other word to describe this book than the term "encyclopaedic." Its 640 pages, 86 tables and 182 well chosen illustrations provide a veritable mine of information and from an interdisciplinary point of view. It can, without any reservation, be recommended for its unexcelled presentation of material valuable for environmental conservation specialists even though it is basically a textbook for advanced students in its method of presentation of the technical contents. Each part contains suggested readings, student exercises, special interest essays and often other topics for student guidance. It is much more than a student guide however, and it can be used as an excellent source of easily obtainable information.

The author, Lorenz C. Pearson, is Professor of Botany and Curator of the Cryptogamic Herbarium at Ricks College, Roxbury, Idaho, and Adjunct Associate Professor in Brigham Young University, Provo, Utah, and has written several other books and more than 40 technical articles.

The Diversity and Evolution of Plants is divided into four parts: 1. Introduction. II. The Red Line. Prokaryotes, Red Seaweeds; Terrestrial Fungi (Molds and Mushrooms); Lichens and other Symbiotic Plants); III. The Brown Line. Fire Plants and *Cryptophytes*; Slime Molds; The Ubiquitous Algae (Diatoms and other *Chrysophytes*); Flagellated Fungi; Kelps and other Brown Seaweeds. IV. The Green Line. Euglenids; The Pond "Mosses" (Siphonophytes and Stoneworts); Mosses and Liverworts; Fern Allies and Origin of Vascular Plants; Ferns; Gymnosperms, and Flowering Plants.

There follow: a Glossary of 319 technical terms, 19 pages of very useful bibliographic entries, and a most exhaustive index occupying 39 pages.

The author rightly said: "Knowledge about plant diversity is important to everyone, not only to an ecologist-geneticist like me or to the tropical taxonomist, daily awed by how meagre our knowledge of diversity really is, but to every soul who eats and breathes... Human life, and indeed all life, is unthinkable without the food and oxygen which only green plants can produce." He has done a masterful job in presenting the significance of this diversity.

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- Cornell University Press, Ithaca, New York.
- VERDCOURT, B. and E. C. TRUMP. 1969. *Common Poisonous Plants of East Africa*. Collins, London.
- WATT, J. M. and M. G. BREYER-BRANDWIJK. 1962. *Medicinal and Poisonous Plants of Southern and East Africa*. E. and S. Livingstone, Edinburgh.
- WESTERLUND, DAVID. 1989. Pluralism and change: A comparative and historical approach to African disease etiologies. Pp. 177-218 in *Culture, Experience, and Pluralism: Essays on African Ideas of Illness and Healing*. A. Jacobson-Widding and David Westerlund (editors). Uppsala Studies in Cultural Anthropology 13. Almqvist and Wiksell International, Stockholm.

BOOK REVIEW

Plant Intoxicants. A Classic Text on the Use of Mind-Altering Plants. Baron Ernst von Bibra. [Translated by Hedwig Schleiffer; Forward by Martin Hasemier; technical notes by Jonathan Ott]. Rochester, Vermont: Healing Arts Press, and Irmer Traditions International. 1995. \$16.95 (paperbound). ISBN 089281-498-5.

This translation of the famous German book *Die Narkatischen Genussmittel und der Mench* has been beautifully published. It is a joy to read.

The original German volume was the first book published for an interdisciplinary, non-technical audience that could bring to the public the story of the use of narcotic and hallucinatory plants in an ethnobotanical and international point of view. But since it was published in German and was a rather rare book, its influence was rather restricted. It pre-dated by five years the English popular book by Mordecai C. Cooke *The Seven Sisters of Sleep*, which similarly considered a number of narcotics and intoxicants then employed in various parts of the world.

Von Bibra's book, now in English, has long been an extremely rare item and only available in German. Dr. Schleiffer's expert translation and Jonathan Ott's technical notes make this publication a must for any English-speaking reader interested in the sociological and historical importance in the last century of the use of narcotics and stimulants. It is truly, as indicated in a description on the back cover, "... a pioneer study of psychoactive plants and their role in society." It is also, as stated on the cover of the book, "a classic text on the use of mind-altering plants." I recommend it highly to readers who will find this English translation a welcome addition to our fund of excellent books on mind-altering drugs employed in various parts of the world.

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La Guia de Incafo de las Plantas Vtiles y venenosas de la Peninsula Iberica y Baleares (Excluidas Medicinales). Diego Rivera Núñez and Concepcion Obón. Incafo., Castello 59,28001, Madrid.

This handy-sized (4" x 8") book of 1257 pages and 386 excellent color illustrations is a model for geographically localized floras. Each entry has the common name under the Latin binomial-always in Spanish and (when the plant grows in the non-Spanish speaking areas of Spain) in Catalan and Euskara. Vernacular names are often given in Portuguese, French, English, and German as well. Interesting etymological analyses of the Latin names are frequently given. A description of the plant is followed by notes on the habitat, flowering period, and uses (if any). There is an excellent bibliography of 21 pages followed by a page of clever symbols signifying uses. This is supported by a very complete page index of the uses of plants. The index is extremely detailed, occupying 80 pages.

It is not usual to find such a local economic botanical book with so much information so easily available.

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BOOK REVIEWS

Eat Not This Flesh: Food Avoidances from Prehistory to the Present. Frederick J. Simoons. (2nd edition, revised and enlarged). Madison, Wisconsin: University of Wisconsin Press. 1994. Pp. xiv; 550. \$22.95. ISBN 0-299-14254-X (paperbound).

The original edition of this work, published in 1961, became a classic—the standard work on flesh food taboos and avoidances in the Old World. Simoons provided data on religious and cultural bans against pork, beef, chicken, fish, horse, camel, and dog meat. It was praised and it was attacked, but it was not ignored. A modest essay of 241 pages, it argued the primacy of cultural and religious factors in taboos, in opposition to the view that taboos initially came about for nutritional, medical or ecological reasons.

More than 30 years have passed, and the book has more than doubled in size. It has become a far more formidable work. The scholarship is better, the argument tighter. In the years between editions, we have seen the rise and fall of what Marshall Sahlins called "practical reason"—particularly dogmatic and extreme forms of the models that ascribe taboos to narrowly physical causes. Sahlins himself, in *Culture and Practical Reason* (University of Chicago Press, 1976), sharply questioned the "practical reason" view. Now Simoons has not simply questioned it; he has destroyed it.

Simoons brings to bear on the question a lifetime of scholarship. The bibliography of this edition is 80 pages of fine print. History, geography, religious studies, anthropology, biology, medical science, and other fields are drawn on for evidence. From medieval explorers' accounts to modern parasitological literature, all bodies of documentation yield up their due. He considers a vast range of possible reasons for taboos. For the pig alone, these include explanations based on ecological insuitability, habitat change, political economy, trichinosis transmission, other health considerations, unclean feeding, anomalous classificatory status, religious rivalry, religious change, and ethnic identity maintenance. All these he subjects to a fair reading and a judicious evaluation.

The results of the survey are a pattern that fits with no ecological or medical reality. Taboos, and populations of tabooed animals, wax and wane with the ebb and flow of religion. Pigs, said by the ecological determinists to be ill-suited to the Near East, were widely raised there until the area became overwhelmingly Muslim. Similarly, neighboring peoples, in identical environments, have quite different patterns of avoidance; some African groups eat fish or chicken while their neighbors do not. The crazyquilt pattern of chicken and egg avoidance in Africa is particularly hard to fit with any ecological reality. The taboo on killing and eating cows has spread across India. It has trickled down the social order, from priests to caste Hindus and, increasingly, outcaste groups.

This is not to say that there is no eco-logic to food taboos. The cow is indeed useful in India, and certainly some part of the veneration of the cow is due to its utility, as the Arab traveler al-Biruni pointed out centuries ago (Simoons, p. 143 and elsewhere). But the cow did not suddenly become more useful in Southeast

and East Asia when Buddhism and Hinduism brought beef avoidance there. The avoidance spread quite apart from the utility.

What, then, explains these taboos? A wide range of factors. Most common is avoidance of filthy feeders: pigs, chickens, dogs. Structural concerns are important, as Mary Douglas pointed out; animals that do not fit standard and obvious categories are shunned. Humans also love to make animals the symbols of political constructs (including religious and ethnic groups), and then one political group's sacred symbol is their enemy's hated foe. Thus, the dog, unclean throughout Islam, is especially loathed by some Iranian Muslims because dogs are revered by the rival Zoroastrians. The Zoroastrians-like Westerners-avoid dogflesh for the opposite reason: dogs (and cats, and horses) are shunned as food where they are most appreciated as companions. Simoons avoids the easy traps of ascribing taboos to vague and general factors such as "meaning" or "identity."

Though this book establishes its case, it is not perfect. Its greatest weakness is an entailed corollary of its greatest strength, its comprehensive coverage. Today, the literature of social science is flooded (almost, indeed, washed away) by specialized and detailed interpretation. *Eat Not This Flesh* is in an older scholarly tradition—the tradition of the vast survey, covering a huge amount of ground, but not going into depth. Simoons simply cannot go into full detail on the place of food taboos in every society; that would require countless volumes. Thus, experts in each area will no doubt complain about the neglect of the rich texture of detail—the local variations, the historical shifts, the subtle feelings of the participants. Very well; let the experts follow Simoons, and elaborate on his points.

One important source missed by Simoons is Eugene Hunn's definitive article ("The Abominations of Leviticus Revisited," 1979) on the taboos in Leviticus and Deuteronomy. Hunn showed that the tabooed birds (and most other tabooed creatures) are those that are predatory or carrion-feeding, and thus become contaminated by blood. This is, of course, consistent with the veneration of blood and the absolute Biblical rule against contact with blood not ritually shed. Pigs, of course, are notoriously omnivorous—eating live or dead animals when they can get them. The Biblical taboos also cover some vegetarian animals, notably herbivores that "divideth not the hoof" such as donkeys, but the vast majority of taboos follow simply from the blood-contamination rule. Hunn's article—unfortunately published in an obscure collection—strengthens Simoons' case.

Ethnobiologists should read this book, and keep it at their fingertips for reference. It is a corrective for the idea (perhaps more often felt, at gut level, than stated) that people use plants and animals solely according to "practical reason." People are creatures of practical reason, to be sure, but they are also creatures of emotion, and of symbolic communication.

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Earth's Insights: A Multicultural Survey of Ecological Ethics from the Mediterranean Basin to the Australian Outback. J. Baird Callicott. Foreword by Tom Hayden. Berkeley: University of California Press, 1994. Pp. xxiv, 285. \$35.00. ISBN 0-520-08559-0 (hardcover).

There is currently an active controversy in environmentalist circles over the degree to which traditional peoples valued conservation and environmental protection. A wide spectrum of views exists, ranging from one extreme (the Noble Savage in harmony with nature) to the other (the impulsive savage destroying wantonly). To this controversy, Baird Callicott's book is a valuable addition. It should-but, alas, probably will not-deal a final deathblow to the extreme positions, and bring debate back to a sensible middle ground.

Callicott, who is Professor of Philosophy and Natural Resources at the University of Wisconsin-Stevens Point, provides a quick survey of environmental ethics around the world. He is among the rare scholars who can write a brief overview that is not superficial. By choosing references and points of emphasis with extreme care, and by knowing his ground very well indeed, he avoids much of the shallowness that inevitably creeps into a book that goes round the world in 285 pages. One wishes, of course, for more detail on everything, and some areas are not well covered due to sheer lack of available material. Africa is one of these; Callicott reports a lack of known environmental ethics; I suspect the ethnographic literature, not the Africans, to be the source of this deficiency.

The book covers philosophy, not practice. Some of the areas in question (China, for instance) have bleak records in their treatment of the environment, yet have produced great writings on environmental ethics. Indeed, sometimes the wreckage prompted the great writings. People do learn-often, alas, too late.

On areas well known to me, Callicott does a good job. North America is excellently covered; no one will ever be able to maintain seriously, again, that Native Americans had no conservation ethic. China (my main research area) is somewhat less well done. Callicott worked with Roger Ames, a leading authority on Chinese philosophy, and thus has the classic book-learning right. The problem is

that no one in the world really lives by classics alone. Chinese environmental values grow from farmers' and gatherers' daily experiences with the land and water, just as ordinary social ethics grow from daily experiences with people. The philosophers who write the books, in turn, get their environmental ethics from a thoughtful consideration of and dialogue with such folk knowledge. One can literally see this happening in some of the Han Dynasty texts (apparently unknown to Callicott) in which court debates on such matters are recorded.

One result of focus on books is that Callicott somewhat misunderstands and overvalues the role of Taoism. This is important, because he finds Taoism perhaps the most environmentalist of all traditional philosophies. He gives its mystical and quietistic side an important place. In fact, Taoist practice has been less concerned with mystical withdrawal and nature contemplation than the West has been led to believe, and much of "Taoist" love of nature is simply Chinese folk values asserting themselves.

Here and elsewhere, however, we must remember that the religious and philosophical classics really are important. They are what we read and what inspires us in developing new ethics. Recognizing that no tradition has solved all the problems—there never were those all-harmonious Noble Savages—Callicott advocates learning all we can from everyone, and creating new and more profound environmental ethics on the basis of our reasoned reflection on others' experiences. Sympathetic with Deep Ecology and other radical new trends, he wishes to inform them through study of all that the human species has learned, and thought, in its long and not-too-successful attempt to deal with Planet Earth.

I fear that, as I wax old and cynical, I am far less sanguine than Callicott about the prospects of his agenda. Not only are most humans still all too prone to view the environment as nothing but a source of food and fibre, but also the radical ecologists are often too dogmatic and hidebound to open their minds to the ways of other peoples. Callicott's faith in both traditional peoples and modern environmentalists seems a bit naive to an aging veteran.

For the above reasons, ethnobiologists will find this book most useful as a "finder" for further reading, and as a general introduction to the philosophical aspects of ethnobiology. They will wish to check carefully with the primary sources before using this book as an authoritative voice on any particular area.

However, I found Callicott's book inspiring. It revived what hopes I have. In any case, everyone concerned with the environment should read this book.

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Progress in Old World Palaeoethnobotany: A Retrospective View on the Occasion of 20 Years of the International Work Group for Palaeoethnobotany. van Zeist, Willem, Wasylkova, Krystyna, and Karl-Ernst Behre, Eds., with the assistance of G. Entjes-Nieborg. Rotterdam, Netherlands and Brookfield, Vermont: A.A. Balkema, 1991. \$60.00 (hardcover). Pp. ix; 350. ISBN 9061918812.

The International Work Group for Palaeoethnobotany (IWGP) was founded at Kacina Castle, near Prague in October, 1968, with the aim of promoting collaboration between European researchers involved in the study of plant remains from archaeological sites. The Group, which has considerably expanded in recent years, has organized nine meetings in different East and West European countries resulting in some invaluable collected volumes (e.g. van Zeist and Casparie 1983; Renfrew 1991). This book celebrates the Group's 20th anniversary and aims to review the developments in the field since its foundation. Its geographical scope covers Europe and the Middle East (the research area of the Group), and it summarizes results based mainly on plant macrofossils other than wood and charcoal.

The book is divided into two parts. The first part is thematic, covering mostly methodological issues, and the second consists of separate regional surveys of archaeobotanical research. The thematic part deals with the basic analytical steps in archaeobotanical work such as identification (u. Korber-Grohne), sampling (M.K. Jones) and numerical analysis (G.E.M. Jones), with the taphonomic factors affecting the preservation and representation of plant remains (U. Willerding), and with issues of interpretation such as environmental reconstruction (K-E. Behre and S. Jacomet) and procurement, management and trade and exchange of plant resources (w. van Zeist). Regional surveys cover the Middle East (N.F. Miller), Southeast Europe (H. Kroll), Central Europe south of the Danube (H. Kuster), Germany north of the Danube (K-E Knorz), East-Central Europe (K. Wasylikowa, M. Carciumaru, E. Hajnalova, B.P. Hartany, G. A. Pashkevich and Z. Y. Yanushevich), South and Southeast Europe (M. Hopf), Western and Continental Europe (C.c. Bakels), the British Isles (O.R.A. Greig) and the Nordic countries (H.A. Jensen). Four chapters are in German (but with long summaries in English) and the rest in English. There are five pages with good-quality black and white photographs, and many drawings and graphs. The absence of an index is a drawback, but, in general, the volume was produced with great editorial care.

The thematic part as a whole provides a very useful collection of papers which will be of interest to archaeobotanists irrespective of their geographical specialization. As with the rest of the book, the diverse epistemological backgrounds of the authors has resulted in an extreme heterogeneity in the approach adopted. In general, methodological aspects (mainly the analytical procedures) received a more thorough coverage, whereas discussion on the interpretative models involving human relations has been kept to a minimum. The book would have been greatly benefited if, for example, preceding the discussion on the field's methodological procedures, the preface had been expanded to become a separate chapter dealing with the nature of the discipline today (given the recent debates in archaeology) and its research agenda.

The part with the regional surveys provides a summary of a huge quantity of material from such a wide geographical area. It is based on an enormous and diverse body of literature written in many languages, many of them inaccessible to the majority of western researchers. Some areas received more detailed coverage than others as a result of the variable volume of the archaeobotanical work undertaken. For example, the chapter dealing with the work on Germany north of Danube summarizes over 400 publications from more than 300 countries whereas the chap-

ter dealing with the Nordic countries (Sweden, Norway, Finland and Denmark) present data from 84 sites altogether. Most of the chapters begin with a short historical overview of the work undertaken to date. In nearly all of them (with the exception of the chapter on the Near East) the data are presented in chronological order (employing rather broad divisions) followed by a subdivision into plant categories. Material is very conveniently summarized in tables and distribution maps. The chapter on the Near East is an exception in explicitly focusing on specific archaeological problems, rather than listing finds and discussing some of their implications. It devotes most of its part on the origins of agriculture (an issue far from being resolved according to Miller) but it also discusses other issues such as fuelburning as an agent in the formation of archaeobotanical record, and the assessment of the human impact on the land. This last attempt to situate archaeobotanical finds within a general archaeological context and within a framework of archaeological research questions is sadly missing from the majority of regional contributions.

In conclusion this book, produced by a group of leading world authorities in the field, will be of interest to archaeologists in general and archaeobotanists in particular, ethnobotanists, agriculturalists and plant ecologists; it is highly recommended as it can serve as a very good reference guide, an invaluable source of often inaccessible information, for both methodological issues and regional studies. Moreover, it can be viewed as a mirror of the state of the discipline today, revealing both its advances and its weaknesses: the expansion and intensification of the archaeobotanical research both geographically and chronologically and the methodological developments especially in recovery, sampling, taphonomy and ecological interpretations, and its serious difficulties in fully integrating itself within the archaeological framework, in developing theoretically informed models of human-plant relationships, and in understanding that "people don't eat species, they eat meals" (Sherratt 1991:221).

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Phytolith Systematics. Emerging Issues. George Rapp, Jr. and Susan Mulholland (Eds.) New York: Plenum Press (233 Spring St. New York, NY 10013), 1992. \$49.50 (hardcover). Pp. xxiv; 350. ISBN 0-306-44208-6.

This volume is the first in the Advances in Archaeological and Museum Science series sponsored by the Society for Archaeological Sciences. The purpose of this series, which has been launched as biennial, is to provide summaries of advances in closely defined topics in archaeometry, archaeological science, environmental archaeology, preservation technology and museum conservation.

Phytoliths are defined as microscopic mineral deposits in plants, that form in and between plant cells. The reviewed book adopts the restrictive approach for the phytolith concept: Calcium and opal phytoliths from vascular plants are reviewed while cysts from one celled organisms (diatoms, and other algae) are not considered. The latter materials seem also pertinent for the archaeological science and palaeoenvironmental studies, and, presumably, are worthy of another issue in this series. Not only calcium oxalate but also calcium phosphate, calcium carbonate and opaline silica may be deposited in determined parts of the plant. These crystalline or amorphous mineral deposits may become botanical microfossils, and can provide relevant archaeobotanical and palaeoenvironmental information.

The contributors are outstanding archaeologists, anthropologists, palaeoresearchers and promising students in these fields. The fourteen chapters cover a wide range of subjects in the field of phytolith systematics, which vary from general systematics, to specialized regional studies or taxonomic monographs. The first group of chapters is based on papers presented at The Third Phytolith Research Workshop, which was held on January 23-24, 1988 in Columbia, Missouri. An interesting annotated bibliography of Phytolith Systematics, by S. Mulholland, E. Lawlor and I. Rowner, is provided in the last chapter (pp. 277-322). General and Plant Name Indexes (pp. 323-346) are given which made this book easy to consult. Figures are abundant (over a hundred). Scanning electron micrographs, optical micrographs and line drawings are used for illustrating the phytolith morphology, with unequal efficacy because some of the optical micrographs are scarcely recognisable. Two introductory chapters (by Mulholland and Rapp, pp. 1-14, and Powers, pp. 15-36, respectively), throw light upon the lesser known history of phytolith analysis and systematics.

Several approaches to phytolith systematics are presented by Pearsall and Dinan (all phytoliths) (pp. 37-64); Mulholland and Rapp (grass silica-bodies) (pp. 65-90); Ollendorf (sedge phytoliths) (pp. 91-112); Kaplan, Smith and Sneddon (cereal grain phytoliths) (pp. 149-174); Scott Cummings (Assorted Food Plants phytoliths) (pp. 175-192); Bozarth (selected dicotyledon phytoliths of the Great Plains) (pp. 193-214); and Jones and Bryant (Texas cacti phytoliths) (pp. 215-238). Arlene Miller's chapter on silica skeletons from Near Eastern archaeological sites (pp. 129-148) explores a promising field which merits further research.

Silica deposition in roots and rhizomes is discussed by Sangster and Hodson (pp. 239-252) making evident the lack of a thorough systematic survey of this field, which is still in its infancy.

Twiss (pp. 113-128) presents phytolith analysis as a potential alternative for

paleoenvironmental research in conditions where pollen analysis is neither practicable nor suitable. Twiss discusses the shapes of individual phytoliths from grasses, by underlining their potentialities as indicators of the C3 and G photosynthetic pathways. Using ratios of pooid, panicoid and chloridoid phytoliths is proposed as a tool to reconstruct the Cenozoic environment of a site or region.

The archaeological substance of the matter is scarcely represented in the book, which is, according with the title, mainly focused on systematics and based in fresh materials. Archaeological possibilities of phytolith analysis are underlined by most of the authors, but a few examples are fully developed through the whole work.

Rovner and Russ, in their chapter on Darwin and Design in Phytolith Systematics (pp. 253-276), propose the use of computer-assisted feature measurements and statistical analysis for obtaining the assurance of consistency and replication of phytolith analysis. They conclude this is the ideal basis upon which to develop effective, consistent and reproducible phytolith classification. Without this assurance of consistency and replication, results of phytolith analysis will remain suspect, and phytolith analysis itself will be unable to gain the same validity as palynological analysis.

This book brings together much dispersed information on phytolith systematics and phytolith analysis. The text is easily readable for a nonspecialist public and could be an useful introductory reading for palaeoresearchers, archaeologists, and plant taxonomists, both professionals and students.

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Ethnobotany of the California Indians. Volume 1. A Bibliography and Index. Beatrice M. Beck. Volume 2. Aboriginal Uses of California's Indigeneous Plants. Sandra S. Strike. Illustrated by Emily D. Roeder. Champaign, Illinois: Koeltz Scientific Books USA/Germany, 1994. \$80.00 (two volume paperback set). Volume 1. Pp. iv; 165. ISBN 1-878762-50-8 (USA), 3-87429-353-X (Germany). Volume 2. Pp. ii; 210. ISBN 1-878762-51-6 (USA), 3-87429-354-8 (Germany).

California has a rich aboriginal past. When the first Europeans arrived in the sixteenth century there were 135 linguistically-distinct groups in an area blessed with a diversity of floristic and ecological zones. A compilation from the ethnobotanical literature is certainly welcome.

Volume 1 is a bibliography of over 2500 journal articles, monographs, dissertations, films videos, audio recordings, catalogues, unpublished reports and articles from the popular press. While much of the material is specific to California, the general material is annotated to indicate mentions of Californian plant species

or native groups, or to indicate accounts of aboriginal activities relevant to California Indians such as fire-making, basketry, acorn-leaching and stick-throwing (a game of strategy). The bibliography is indexed by the key words of both titles and annotations. There are, however, annoying errors in the index. A random check revealed that *Larrea tridentata*, the creosote bush, is listed in the index as appearing on page 18 but instead appears on page 19. Similarly, *Proboscidea*, appears on pages 6 and 22, each being one page past those listed in the index. Systemic errors like these erode the reader's confidence and diminish the usefulness of the work. This reviewer wonders whether bibliographic works are better (and more economically) supplied in digital format on a computer diskette. Using simple search tools found in computer word processing programs a digital bibliography would permit researchers to compile references in different ways; for example, all the citations of one author can easily be assembled regardless of the author's rank.

Volume 2 is a compendium of ethnobotanical notes arranged alphabetically by genus on plants indigenous to California. For each plant, notes are categorized as 'food,' 'medicine,' 'basketry,' 'dye,' and 'other.' Plant parts used, method of preparation, and aboriginal group utilizing each plant, are described. Frequently, plants are identified only to the genus level, a minor annoyance. Few aboriginal names appear in an otherwise useful index of mostly English and Spanish folkloric names.

No details are given on how this work was compiled. None of the notes in the main section is supported by specific citations, although a bibliography of 174 references is provided. The author acknowledges three native informants and several workshops given by various specialists but there is no way of determining which of the notes are the author's own observations and which are derived from the references cited.

Comparing the two volumes, it appears that the research methods of the two authors differed somewhat. Volume 1 lists only five references to *Artemisia* spp., a surprisingly low number given the importance of *Artemisia* species in American Indian medicine. Volume 2, however, gives 141 lines of notes on various *Artemisia* spp. including sagebrushes, mugwort and wormwood. The two volumes are more in agreement on other plants. For example, the creosote bush, *Larrea tridentata*, has 18 references in Volume 1 and 38 lines of notes in Volume 2. Similarly, for the unicorn plant, *Proboscidea* spp., there are nine references in Volume 1 and only eleven lines of notes in Volume 2.

Complaints aside, the two volumes of Ethnobotany of the California Indians will be useful reference books for specialists interested in native American ethnobotany. Archaeologists, medical anthropologists and ethnopharmacologists will find much material to explore here.

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Forestry and Food Security. Rome, Italy: Food and Agriculture Organization of the United Nations. (FAA Forestry Paper Number 90), 1989. Pp. vii; 130. \$12.00 (paperbound). ISBN 92-5-1028478.

This publication has been prepared by FAA in view of the widely recognized fact that, as the introduction states: "Food security is a fundamental problem facing the world today. Despite substantial increases in food production in many countries, over 800 million people still suffer from malnutrition."

This problem is thoroughly analyzed in the 130 pages. Following the Foreword, the contents are arranged in five chapters: I) Overview, with eight sections; II) Environmental Links between Forestry and Food Security, with 25 sections; III) Forestry and Food Production, with 19 sections; IV) The Socio-economic Aspects of Forestry and Food Security, with 22 sections; and V) Opportunities for Action, with 16 sections.

There follow Background Documents presented at the Expert Consultation on Forestry and Food Production/Security, Trivandrum and Bangalore, India; and the Documents Presented number 19, by 15 experts. The Bibliography is extraordinarily inclusive with a total of 215 items.

It seems certain that such a thoroughly complete coverage of the relationship between forestry and food security has never before been published. This, in addition to the high quality and practical approaches, make this FAA Forestry Paper a unique analysis of the problems considered and what can be done to utilize our knowledge of forestry in many ways to increase food security.

I applaud the sincerity that pervades the book, a recognition that there are no easy solutions. The words introducing the fifth chapter, Opportunities for Action: "There are no simple prescriptions to follow on how to integrate food security objectives into forestry activities. Experience is still limited and there are few examples of forestry initiatives...designed with food security as a specific target. Nonetheless, there are many opportunities for action..."

This modest publication should be made easily available to academic, commercial and governmental agencies of the many individuals who are working actively on methods to feed the world's growing population and of individuals who are looking for novel approaches to increase food supplies.

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Forest, Trees and Food. R. Clarke. Rome: Food and Agriculture Organization (Companies FAA Forestry Paper Number 90), 1989. (No price given). ISBN not given.

This brief paperbacked booklet, written in language for the non-technical audience that it wants to meet, is a masterpiece in bringing to the general public an appreciation of the importance of food supplies, possible new food plants in the

future, the value of forests and their products and numerous other practical aspects of food and their sources.

The words of Edouard Saouma, Director-General of the U.S. Food and Agriculture Organization, in the foreword, resound with encouraging optimism: "The ways in which the rural poor in developing countries benefit from forests and farm trees have rarely been spelt out in detail. Yet research shows that those without access to forests and to trees growing on common land... I commend this publication for drawing attention to an underdeveloped natural resource which can make a bigger contribution to the fight against malnutrition."

The booklet is divided into four major parts: I. *Food and Nutrition-Food* from the forest, foods from cultivated trees, food for livestock, nutrition and health. II. *Income-Income* from the forest, Income from tree cultivation. III. *Agriculture-Soil erosion, Improving soil quality, Improving water supplies, Trees and Climate.* IV. *Strategies for Improvement-Adapting* forestry policy and legislation, Adapting forestry institutions, Research, Designing projects to meet local needs, Conclusion. There follows a section of sources with 25 citations.

This publication is highly recommended, especially for high school and preparatory classes in sociological courses designed to improve nutrition and health of the general populations of both developed and developing nations.

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Stressed Ecosystems and Sustainable Agriculture. S.M. Virmani, J.e. Katyal, H. Eswaran, and I.p. Abrol (editors). Lebanon, New Hampshire: Science Publishers, 1995. Pp. xi; 441. \$80.00 (hardcover). ISBN 1886106142.

One of the most inclusive, comprehensive and practical contributions to environmental conservation and its relation to agriculture has appeared. It has been needed for a long time, especially since unfortunately too often even experts in environmental conservation fail to realize how much of the world's environment is human-created-agricultural environments.

The foreword has a statement of a rarely recognized aspect of real conservation efforts: "...there are many indigenous systems, particularly in India, when sustainable agriculture is traditionally and historically practiced. We have much to learn from this indigenous knowledge." This theme runs throughout the book.

The volume is introduced by a 15-page chapter entitled I. Synthesis, introducing the readers in brief discussions of the technical chapters that follow. This Synthesis is followed by six chapters of 34 invited papers: 1) Issues, Challenges and Role of Institutions; 2) Sustainability and Resource Utilization; 3) Resource Base and Stresses; 4) Resource Management; 5) Technology for Mitigating Stresses; and 6) Supporting Papers. There is an Appendix comprising a list of 130 contributions and participants from five countries with a heavy representation by authors from India. The nine-page Subject Index is especially useful in locating unusual minor

topics.

This most valuable volume resulted from a meeting of eminent scientists meeting in 1993 in Hyderabad, India "to devise alternate systems of land management that would restore degraded land back to productivity, optimize natural resource uses and stabilize dry land production."

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Eating on the Wild Side. Nina L. Etkin (editor). Tucson: University of Arizona Press, 1994. Pp. viii; 305. \$37.50 (clothbound). ISBN 0-8165-1369-4.

In the plethora of books on "eating native," it is heartening to see published one that is truly interdisciplinary in scope and scientific in its outlook and organization: *Eating on the Wild Side*. The long subtitle of the book gives the potential reader a better idea of the breadth of the contents: "The Pharmacologic, Ecologic and Social Implications of Using Non-Cultigens."

While the list of contributors is made up mainly of outstanding anthropologists, it also includes experts in medicine, surgery, gastroenterology, environmental conservation and botany; consequently there are many and often varied outlooks amongst the contributors. But, since the topic is interdisciplinary, the selection of contributors is well chosen.

There is little that one reviewer can handle in such an interdisciplinary contribution. Even though it reviews primarily the nutritional aspects of wild foods, the book contains much of an insight into the nutrition of aboriginal peoples from the point of view of health, and many tangential methods of living and feeding.

The first chapter defines the expectations of the reader into "The Cull of the Wild", divided into several sections: Definition: Are Weeds Politically Incorrect? with a well-chosen bibliography of 89 references. The succeeding collections follow with five sections, each fully provided with a specialized bibliography: Selection; Physiologic Implications of Wild Plant Consumption; Wild Plants in Prehistory; Plants and non-human Primates; Epilogue.

Any person-especially economicbotany or ethnobotany specialists-will appreciate the interdisciplinary and geographically widespread aspect of the numerous contributions to the book. The reader will likewise thank the editor for the extensive chapter-by-chapter complete bibliography annotations, the list of the 20 contributors to the volume with their official university connections and the excellent botanical and topic indices.

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Murder, Magic and Medicine. John Mann. Oxford, United Kingdom: Oxford University Press, 1992. Pp. 232. \$14.95 (paperbound), \$29.95 (hardcover). ISBN 0198558546 (paperbound), 019855561x (hardcover).

The literature has been surfeited in the last quarter century with books on psychoactive, medicinal or otherwise bioactive books--some excellent, many leaving much to be desired. John Mann, in this relatively small book, has treated medicine, the use of hallucinogens and other psychoactive plants in a novel way--a breath of new reading in the plethora of material that the past few decades have offered the interested audience--some of them outstanding, some mediocre.

Mann has presented much new material on toxic, narcotic and medicinal plants and very frequently in a novel interpretation. I do not hesitate to recommend his book without reserve for good reading, accurately presented technical material and, especially, its historical treatment of many of the bioactive plants, particularly those which, in past times, held great importance especially in magic. The reader will enjoy throughout the volume its philosophical tone.

The book is organized in very logical and usable ways. It has an Introduction; followed by three sections: Murder, Magic, Medicine; a Bibliography, an Index of Scientific Names and a Subject Index. The Bibliography, one might expect, could have been expanded somewhat but the items listed do provide a wide range of pertinent topics for those who want to read further. For the non-technical audience, there is a useful Index of 71 Scientific Names which will be helpful.

I am certain that *Murder, Magic and Medicine* will be widely accepted and appreciated, and I congratulate John for writing it and Oxford Press for so attractively publishing this new contribution.

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Ethnobotany: A Methods Manual. Gary J. Martin. London: Chapman & Hall, 1995. \$29.95 (softcover). Pp. 268. ISBN 0412 48370 X.

Techniques and Methods of Ethnobotany. David R. Given and Warwick Harris. London, The Commonwealth Secretariat, 1994. £9.50 (softcover). Pp. 148. ISBN 085092 405 7. (Available from Commonwealth Secretariat Publications, Marlborough House, London, SW1Y 5HX, United Kingdom).

Ethnobotany's profile has risen dramatically as the global community has acknowledged the imperative need for environmental conservation. With this recognition comes high expectations and as a discipline ethnobotany has been seriously challenged to provide approaches appropriate for the crucial tasks of simultaneously addressing both human needs and conserving plant biodiversity. Until recently books on ethnobotany have been more concerned with defining what this diverse field encompasses rather than refining the methods that it uses. At the

same time as ethnobotany has struggled to find its identity it has been held back by the lack of scientific legitimacy conferred by a valid methodology.

The recent appearance of two methods manuals on ethnobotany is therefore both timely and welcome. However this event and the books themselves should be assessed within the current context. Both books very consciously place ethnobotany within the conservation agenda and in doing so tend to define ethnobotany specifically along the lines from which the global recognition is coming. In examining the books we should be wary that the field not be narrowly defined at the exclusion of the breadth that has enriched it as it has developed over the past one hundred years. As well the books should be evaluated for the degree to which they use the current spotlight on ethnobotany to strengthen the push for more rigorous methodologies in ethnobotany.

These two books differ greatly in the degree to which they are successful in accomplishing these two objectives. *Ethnobotany: A Methods Manual* by Gary J. Martin is a landmark book in ethnobiology. It is faithful to the multidisciplinary nature of ethnobotany and Martin is extraordinarily skillful at integrating both the biological and anthropological traditions of the field. As well as having a sense of history he is very conversant with activities that are at the forefront of ethnobotanical research and in this regard is particularly attentive to including in the book examples of innovative methodologies. In addition to being a practical introduction to ethnobotany for those seeking to undertake conservation-oriented projects, the volume is of a high scholarly standard. It is essential reading for anyone embarking on graduate studies in ethnobiology.

The same cannot be said for *Techniques and Methods of Ethnobotany* by David R. Given and Warwick Harris. While this book contains a good deal of useful information for someone being introduced to ethnobotany, it is difficult to figure who is its target audience. Certain aspects of the book such as the glossary are rather elementary and appear directed at persons without higher education. On the other hand detailed advice is given for western scientists working in foreign countries.

The book is focused on methods that are exclusively biological in orientation. Moreover, few methods are described in sufficient detail for an uninitiated person to carry them out. Symptomatic of the deficiencies of the book is the statement in the section on plant collection techniques that "a number of widely available books deal with the details of collection techniques and the brief notes below supplement these references." However, no references to more detailed works are cited in the text and the section of Bibliography and Further Reading contains no titles that obviously encompass collection techniques. Further indication of the unscholarly nature of this book are numerous grammatical and typographical faults.

Without knowing better I conclude that the latter volume was written not for researchers but for policy makers. The current attention on ethnobotany and much of the current funding for research in this area comes from government agencies and international bodies whose primary agendas are economic, conservation, social and/or political, not scientific. These are legitimate organizations to provide direction for addressing global environmental problems and they are the institutions which have made the appearance of these two books possible. However, the two books illustrate poignantly the importance for policy making and funding to be coupled with the best of science and of academic scholarship, the former by

demonstrating what happens when the link is made, and the latter when it is not.

Neither of these books is a definitive statement on ethnobotanical methods; indeed they are welcome in the first instance for drawing attention to the issue. Ethnobotany will continue to thrive as it maintains its broad integrative perspective. The attention coming from the conservation focus provides an opportunity for rising as well as established ethnobotanists to incorporate the best scientific methodologies from all of the sub-disciplines of the field. This will greatly enrich the field and I hope that in a few years the authors of these volumes will be recognized as true pioneers toward this end.

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Amazonian Indians From Prehistory to the Present: Anthropological Perspectives. Anna Roosevelt (Editor). Tucson: The University of Arizona Press, 1994. Pp. xviii; 420. \$60.00 (hardcover). ISBN 0-8165-1436-4.

"Amazonia is one of the world's foremost ethnographic laboratories," so asserts Stephen Beckerman, a contributor to this edited volume. Most ethnologists and ethnobiologists would agree. Pioneering researchers, from Holmberg and Steward who worked 50 years ago, to recent investigators, such as Vickers and Balee, have contributed to our knowledge of cultural ecology based on their Amazonian studies. Despite its fragility, much remains to be discovered in this living laboratory.

To many, the Amazon Basin appears as an invariable landscape draped in green, yet it is far from homogenous. Montane forests bathed by clouds form its western boundary. Open-canopied forests and islands of xerophytic savanna vegetation occur in the East. Fish forage on fruits in the flooded forests of the Amazon and its tributaries. The rainy season may be continuous or it may be interrupted by a distinct dry period. This varied landscape supports an abundant biota and an equally impressive cultural diversity.

Amazonian Indians examines this cultural diversity in 17 chapters by many prominent Amazonian anthropologists, including researchers from Venezuela and Brazil. In chapter I, Anna Roosevelt, who also edited the book, argues that Amazonian floodplain societies were more complex than previously thought. These cultures attained a degree of specialization more similar to highland and Meso-American cultures than to extant, acephalous horticultural bands. Roosevelt begins with a description of the Amazonian physical environment and then examines pre-historic cultures from early foragers to horticulturalists and finally to the chiefdom societies.

A major thesis of Amazonian Indians is that surviving cultures differ significantly from pre-contact ones. Darrell Posey, in his usual candid and refreshing manner, states the theme clearly when he writes, "Modern indigenous societies

probably bear little resemblance to their pre-contact antecedents." (p. 271) Examples supporting this thesis occur throughout the text. Today, manioc and plantains are the dominant starches in the region but Roosevelt claims their importance is a post-contact phenomenon. Plantains, introduced from the Old World, replaced other staples but even manioc may be more widely cultivated than during the pre-contact period. Neil Whitehead develops this idea further in the second chapter, noting that the use of seed and tuber crops, other than manioc, was far more common than modern ethnographic data suggests. In chapter 8, Beckerman echoes the same sentiments, claiming that Amazonians have switched from animal to vegetable and back to animals as prime protein sources, during the past 2,000 years. These arguments refute the purely adaptational view of Amazonian societies. As Roosevelt notes, "the present-day Indians' cultural and ecological patterns cannot be explained as simply adaptations to the environment. Their changing interactions with other societies must also be taken into account." (p. 9)

Adelia De Oliveira (chapter 5) describes deculturation and destabilization in the Brazilian Amazon, noting the following changes for Amazonian peoples: 1) loss of territories, 2) destabilization and deculturation, 3) demographic decline, 4) substitution of tribal rule by secular rule, and 5) biological maintenance assumed by colonists. The latter is particular interest to ethnobiologists. Do colonists recognize crop genetic diversity developed by indigenous people and are they effective at maintaining this biological richness?

In chapter 6, Warren Hern argues against the universality of one of De Oliveira's principles. He writes, "at least some Amazonian populations are experiencing high fertility and rapid population growth, whereas others have become extinct or nearly so." (p. 131) This is certainly true in Ecuador. Populations of several indigenous cultures hover around 1,000 while the Shuar and lowland Quichua speakers have a combined population of nearly 100,000

Dama Dufour (chapter 7) discusses diet and nutrition of several indigenous groups and notes that non-domesticated food plants are not well-studied. Her observations suggests the need for further collaboration between ethnobiologists and medical anthropologists. Native South Americans societies recognize hundreds of non-domesticated food plants but the caloric and nutritional contribution of these wild plants is virtually unknown.

Just as the flora and fauna varies throughout the Amazon basin, so do the cultures. Philippe Oescola (chapter 9) and Pita Kelekna (chapter 10) argue that the Achuar of Ecuador, in contrast to the floodplain societies, have experienced little cultural change in the past 500 years. This contrasts strongly to the closely-related, parapatric Shuar. Kelekna asserts that Achuar warfare and dispersed settlement are pre-contact in origin. Descola also warns of the disruptiveness of market economies which have changed the Shuar and now threaten the Achuar.

In chapter 12, Posey examines pre- and post-contact Kayapó resource utilization. He notes that following European colonization, the Kayapó depended more on semi-domesticates. These species, found in war gardens, forest fields, trail-side gardens and *apâte* escaped notice of most investigators, as they represented novel forms of resource management. William Balée and Denny Moore (chapter 16), shift the focus when they discuss Tupf-Guarani taxonomy. They show that the reten-

tion of a plant name is affected more by the name's type and cultural practices associated with the plant than by the plant's cultural importance. All those who have read Berlin's (1992) seminal treatise on ethnobiological classification should examine this chapter. It is an important contribution to the literature on folk taxonomy.

Amazonian Indians contains some minor errors or misleading statements. The Ecuadorian Amazon is not "blanketed with soils developed from nutrient-rich volcanic ash" as claimed by Roosevelt (p. 2). Soils are richer than in most parts of Amazonia. Hidrandepts (volcanic soils) occur along the Andes but acidic dystropepts occur in the west. Figure 1.1, which lists lowland groups in South America, is incomplete. The Awá, Choco and Embera from western Colombia are not shown nor are the Shuar and Kofán from Amazonian Ecuador. The preferred self-designation term is provided for some cultures (e.g., Runa and Waorani) but not for others (Cayapa who call themselves Chachi and Colorado who call themselves Tsatchila). Hem states that the *Jivaro* use sacha mague as an abortifacient but does not cite the source of this data. Sacha mague is a Quichua name for *Grias peruviana*. The Jivaroan name is apai (Bennett in press). Some information is contradictory. Did humans first enter the Amazon 10,000 (p. 124), 11,000 (p. 3), 12,000 (p. 1) or 14,000 years ago (p. 97)? Is the current indigenous population of Brazil 160,000 (p. 102) or 200,000 (p. 114)?

Although its title may imply otherwise. Amazonian Indians is not a handbook of Amazonian indigenous people but it is an important treatise that clearly shows existing cultures do not necessarily represent their pre-contact predecessors. All anthropologists and ethnobiologists with interest in the Amazon will enjoy this book.

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