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BOOK REVIEW

Environmental Values in American Culture. Willett Kempton, James S. Boster and Jennifer A. Hartley. Cambridge, Massachusetts and London, England: The MIT Press, 1995. $39.95(hardcover}. Pp. xiii; 320. ISBN 0-262-11191-8.

This carefully executed, clearly presented and reasoned study by three anthropologists explores an important domain: shared cultural understandings, or cultural models, related to global warming and other environmental changes in the United States. Attention to the conceptual underpinning of popular American thinking about the environment is critical "as·the cultural framework shapes the issues people see as important and affects the way they act upon those issues" (p. 1). Surprisingly, given the participation of members of groups that might be ex-

pected to hold divergent views about the environment, the researchers discover that environmental beliefs are broadly shared in American culture. This is true even for those whose livelihoods had been negatively impacted by environmental legislation. Yet, in spite of the overall consensus, when drawn upon existing cultural models, like pollution for example, to make sense of a new, and quite different problems, like global warming, this cognitive strategy has the potential of leading to ineffective policy and actions.

In nine chapters, the authors present the study's rationale and distinctive features of its design; review the survey evidence for increasing environmental concerns in the United States; relate the cultural models for nature, weather and the atmosphere and show how these cultural models contrast with scientific and specialist models; examine fundamental environmental values and their links to other core American values; explore the relationship of cultural models to policy reasoning; present case studies of influential specialists highlighting how individuals shape and remember information to be consistent with their interests; analyze patterns of agreement and disagreement; and address the implications of their findings. The four appendices contain: details on data collection and analysis; background information on informant demographics; the full protocols for the two interview formats used; and case studies of several citizens (which complement those of specialists in the main text).

This book builds upon the previous insightful and meticulous empirical studies of the first two authors and contributes to the anthropological literature in at least four areas: 1) representing the cultural models and values which underlie American environmentalism, a domain hitherto receiving relatively little information from anthropologists; 2) presenting a careful exploration of the extent of intracultural variation by interviewing and comparing groups of people likely to differ, as well as a sample drawn from the general public; 3) understanding cognitive processes and their relation to individual and cultural knowledge; and 4) providing a valuable and detailed methodological exposition of the characteristics and strengths of the research design and analysis.

Decisions made in regard to sample selection may raise questions about the generalizability of the study's findings, given that the choice process contributed to the preponderance of white and middle class participants. However, by juxtaposing findings from more broadly based surveys on environmental issues, the authors provide additional support for their findings while pointing to the underlying differences between their methods and survey methodology.

As the authors address policy issues and articulate the policy implications of their research, this book is relevant to a much broader audience than many anthropological texts. And while the authors adopt a methodologically sophisticated design and approach, both the procedures and anthropological concepts are clearly explained, making the book accessible to anthropologists and non-anthropologists alike.

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BOOK REVIEWS

Economic Botany Data Collection Standard. Frances E.M. Cook. Kew: Royal Botanic Gardens, 1995. £15.00 (paper). Pp. 146. ISBN 0-947643-71-0.

Ethnobotanicalliterature, especially older publications, is rife with vague, uninformative statements like "This plant is used for fever," with no additional information given. Any newcomer to the field must be taught to gather more detailed and precise data. This book, published by the Royal Botanic Gardens, represents a call for standardizing information on the uses of plants, animals, fungi, and other organisms for a wide variety of purposes. Included are extensive tables listing the possible organisms, parts of organisms, materials, products, disease, poisons, etc. An example is included showing how one would report the uses of a particular organism using the standardized format suggested.

I applaud the call for more detailed information in the ethnobiologicalliterature, and the discussion of what types of information are useful. However, the system suggested seems geared toward facilitation of entry of information into a computerized database for purposes of mass-screening. This is a laudable goal as far as it goes, but it is too rigid to allow recording of all pertinent information. The most interesting stories in the literature are instances which do not correspond to any standardized categories. Uses can cut across categories, or represent an anomalous use peculiar to one particular situation. The format in this book contains no information on processing techniques, nor on organisms used in combination with other species, nor on specific ecological factors affecting physiological effects (such as soil type influencing a plant's chemical makeup).

The book's value appears to be in bridging the gap between fieldworkers and those performing mass-screenings. Fieldworkers need to know what types of information would be useful to their laboratory colleagues, and make efforts to ensure that their field data include this information. Screeners can then standardize the data, keeping mind that some of the information will inevitably be lost in the process.

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BOOK REVIEWS

Chilies to Chocolate, Food the Americas Gave the World. Nelson Foster and Linda S. Cordell (editors). Tucson: The University of Arizona Press, 1992. Pp. v; 191. $13.95 (paper), $24.95 (cloth). ISBN 0-8165-1324-4.

The essays found in this book originated from a public symposium held in 1988 at the California Academy of Sciences. This volume covers the general themes of crop domestication, diffusion, and diversity. This is similar to many books published around the quincentennial anniversary of Columbus' journey to the Americas. Specifically, the chapters apply these themes to tomatoes, potatoes, amaranth, vanilla, beans, chili peppers, maize, cacao, quinoa, and some lesser known Andean tubers. The contributors to this volume are as varied as the plants discussed. Disciplines include botany, history, anthropology, natural history, diplomacy, art and writing. Therefore, the perspectives and the quality of the chapters varies as well. For instance, the well known maize researcher, Walton C. Galinat, does an excellent job of describing the domestication and diffusion history of com. The chapters on amaranth and little known roots of the Andes, though, are a bit esoteric.

Other shortcomings of the book include the complete absence of maps, photographs, and citations in the body. This book appears to be written for the general audience, so photographs of crops that are often unknown to the general public would be useful. The lack of maps is also disturbing given the geographic nature of many of the chapters. It is extremely frustrating not to find citations in the body of the chapters. There is a "further reading" section at the end of the book, but this does not make up for the lack of detailed citations in the body itself. The absence of these useful tools gives the reader the impression that the publishers or the editors sought a low-cost, low-labor text.

Although this book does not break any new ground in the discussion of New World plant domestication or diffusion, it is useful because it synthesizes a great deal of historical geographical material on several important plants in a single volume. Another strong point is that it discusses in detail the botanical history of some important plants in a single volume. Another strong point is that it discusses in detail the botanical history of some important, although lessor studied, domesticates, such as vanilla. Because of this, it would be a useful volume to include in the library of anyone interested in ethnobotany and cultural ecology. However, because of the lack of maps, citations, and photographs, and the esoteric approach some of the authors employ, it would not be my first when seeking a text on New World domesticates or on the historical geography of crop plants. Instead, works such as those by Sauer(1993), Viola and Margolis(1991), and Heiser(1985;1990) give, overall, more thoughtful and thorough treatments of the subject.

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Agricultural Origins and Development in the Midcontinent. W. Green (editor). Iowa City: Office of the State Archaeologist, the University of Iowa, Report 19, 1994. $15.00 (softcover). Pp. vi; 188. ISBN 0-87414-090-0

In the study of the origins of agriculture in the Western hemisphere, the question of whether plant domestication and animal husbandry were initiated and developed independently in eastern North America prior to the introduction of corn (maize) some one thousand plus years ago, has been the subject of considerable discussions. This volume makes a valuable contribution to elucidating this question, as well as providing a good synthesis of our current knowledge of the changing relationships between native peoples and plants in the Midcontinent areas of the Ozarks (northwestern Arkansas and southwestern Missouri), Illinois, Wisconsin, and Kentucky.

Most of the eight papers in this volume were originally presented at the plenary session of the 34th annual Midwest Archaeological Conference, held at the University of Iowa in October, 1989. A quick look at the reference sections to the papers, however, indicates that most have been updated prior to publication. Consequently, the 1994 publication date can be taken as an approximate indication of the currency of the information in the volume.

The paper by Richard Yarnell, "Investigations Relevant to the Native Development of Plant Husbandry in Eastern North America: A Brief and Reasonably True Account," provides an excellent review of the development of paleobotanical knowledge, divided into the periods 1910 to 1940, 1940 to 1960, 1960 to 1980, and 1980 to 1990. He describes a growing consensus since the mid 1980s, reinforced by other papers in the volume, that plant domestication and husbandry developed independently in eastern North America well before the introduction of corn.

David Asch's paper, "Aboriginal Specialty Plant Cultivation in Eastern North America: Illinois Prehistory and Post Contact Perspective," notes that the oldest remains of *Cucurbita* spp. from eastern North America in a cultural context are of pepo gourd, dated ca. 5000 B.C. in west-central Illinois. Kristin Gremillion's pa-

per, "Evidence of Plant Domestication from Kentucky Caves and Rockshelters," notes that the Cloudsplitter and Newt Kash shelters in Kentucky have provided the earliest securely data thin-testa chenopod *(Chenopodium berlandieri)* in eastern North America at ca. 1500 B.C. Rock shelters in Kentucky have also yielded evidence of domesticated sumpweed *(Iva annua)* ca. 900 B.C., and sunflower *(Helianthus annuus)* ca. 1000 B.C. Gayle Fritz's paper, "In Color and In Time: Prehistoric Ozark Agriculture," reports that reexamination of materials collected in the 1930s from rock shelters in the Ozarks along with radiocarbon dating has established a 2500 year span of prehistoric Ozark agriculture, with domesticated sumpweed, sunflower, chenopod, and squash seeds stored as early as 1200 B.C.

James Gallagher and Constance Arzigian, in a paper titled"A New Perspective on Late Prehistoric Agricultural Intensification in the Upper Mississippi Valley," challenge the dominant view of midwestern Archaeologists that agricultural component of the late prehistoric Oneota culture was nonintensive. They argue that the commonly accepted definition of intensification, which emphasizes surplus economic production and related social structures, is culturally biased, and suggest that the strategy of diversification, in which cultivated crops represent one of multiple food source, was used by the Oneota as an effective means for reducing the risk of food shortages.

The paper by Neal Lopinot, "A New Crop of Data on the Cahokian Polity," provides an interesting example of the subtle cultural bias in archaeological interpretations of prehistory. The Cahokia site, located in the American Bottom of southwestern Illinois, is often pointed to as a prime example of the degree of "civilization" attained by Native North Americans. Relatively recent archaeological work has shown that the "florescence" of the Cahokia polity (Early Stirling subphase) lasted only about 50 years (A.D. 1050 to 1100), and followed by "decline" during the Late Stirling subphase (A.D. 1100 to 1150). With stone-age technology, the weakness of non-sustainable intensive agricultural systems apparently exerts itself very quickly. The Cahokian culture reduced the diversity of diet by clearing oak-hickory forest to make way for polycropping of maize and four starch seeds: maygrass *(Phalaris caroliniana),* little barley *(Hordeum pusillum),* chenopod *(Chenopodium berlandieri),* and Erect knotweed *(Polypodium erectum).* Archeobotanical evidence for the following Moorehead phase indicates a return to normalcy with increased incidence of nut shell and starchy seed, in addition to greater diversity and evenness among crop residues.

Jane Buikstra, Jerome Rose, and George Milner, in a paper titled"A Carbon Isotopic Perspective on Dietary Variation in Later Prehistoric Western Illinois," indirectly shed further light on the Cahokian "florescence." Although this paper focuses on the use of carbon isotope data to evaluate the importance of maize in the diet during the period A.D. 1000 to 1400, I was most struck by the incidental data that were provided on the Early Stirling subphase burials at the Cahokia Mound 72. The classification of burials from which the bone carbon isotope measurements were taken include: (1) high status; (2) mixed sex sacrifices; (3) charnel house (late adolescent and young adult females sacrifices); (4) female sacrifices; (2) mixed sex sacrifices; (6) headless (and handless) male sacrifices. That the Cahokian florescence was characterized by oppressive social structures is under-

scored by dental and carbon isotope data suggesting a different region of origin and poorer health status of female sacrifices. My own reading of the archaeological and archaeobotanical evidence presented by Lopinot and Buikstra *et ale* is that the Cahokian florescence was a short lived, pathological culture, and that its decline represented a sensible return to a more environmentally and socially sustainable way of life along the lines described by Gallagher and Arzigian for the Oneota.

I would recommend this book for anyone who is interested in the origins of North American agricultures, or in the prehistory of the midcontinent.

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Traditional Ecological Knowledge. Concepts and Cases. Julian T. Inglis (Editor). Ottawa, Ontario: International Program on Traditional Ecological Knowledge, International Centre, 1993. $19.95 Can. (softcover). Pp. vi; 142. ISBN 0-88936-683-7.

No doubt long ago we were all well-versed in traditional ecological knowledge (TEK). Yet over the years, with each 'rational' leap we took in the name of Western Science, our ability to 'intuit,' or to access deeply held knowledge, steadily withered and lay forgotten along the way. For the many of us who need our memories refreshed on TEK, editor Julian T. Inglis has put together a valuable volume for this end. *Traditional Ecological Knowledge. Concepts and Cases* is a remarkable collection of 13 papers, 12 of which were presented at the Common Property Conference, University of Manitoba, Winnipeg, Manitoba, in September 1991. Also held in conjunction with the Conference was the International Workshop on Indigenous Knowledge and Community Based Resource Management. The paper presented in Chapter 2 is the Workshop's Keynote Address, by Chief Robert Wavey.

In the introductory chapter, Fikret Berkes establishes a solid framework for the content of the text. He arrives at a working definition of TEK and concisely outlines the ways in which it differs from Western Science, Berkes emphasizes TEK's practical significance for science, resource management, environmental assessment, protected areas, conservation education and development planning. As well, he advises a show of appreciation for the cultures that hold this knowledge and suggests that TEK be considered as complementary to Western Science, not as a replacement for it.

In the second article, Chief Robert Wavey of the Fox Lake First Nation, northern Manitoba, identifies TEK as an important cornerstone of Aboriginal self-government. He notes that the government planners and resource developers often overlook the distinction between two types of TEK: that which is instinctively adaptive and acquired over a relatively short period of time; and that body of TEK, which is accumulated over many generations and for specific lands. As a result, unfortunate cultural and ecological consequences for the Aboriginal people often ensue.

In Chapter 3, Kenneth Ruddle gives a noteworthy account of the structural and processual characteristics involved in the transmission of TEK. The paper also contains a good comparison of the traditional education system of the inhabitants of Guara Island in the Orinco Delta of Venezuela with that of the residents of Pukapuka Island in Polynesia.

In the fourth paper, Robert E Johannes outlines the four essential frames of reference for the gathering and organizing TEK information in a usable manner for environmental impact assessment. Johannes refers to these as taxonomic, spatial, temporal and social. The article also contains some insightful comments regarding the attitudes of researchers to TEK, as well as on TEK proprietary issues.

In Chapter 5, Nancy Doubleday discusses Western legal and scientific frameworks and the current attempts to accommodate the TEK framework to the mainstream by way of common property and co-management approaches. She states that even where accommodation does occur, it does not happen easily. Doubleday introduces the consideration of TEK as an element of a worldview rather than instrumental knowledge and argues that natural law offers common ground for the inclusion of TEK.

Andre Lalonde (Chapter 6) presents four superior case studies from Africa which illustrate the utilization of TEK in sustainable development-related issues. Likewise in. Chapter 7, Miriam McDonald and Brian Fleming discuss how the development and management of a northern Canadian Inuit community-based eiderdown industry successfully incorporated TEK into the decision-making and management processes.

The eighth paper, by Carl Hrenchuk, directly outlines the divergent viewpoints which exist between the state and northern Manitoba Native communities regarding the use of northern land, resources and property. Hrenchuk emphasizes the need to connect differing sets of ecological knowledge and to recognize and reconcile the fundamental conflict between common and communal tenure. He also includes five superb maps, which cover the South Indian Lakes location, and Cree hunting and trapping travel routes, as well as their prime areas significant to wildlife harvest, commercial fishing sites and community toponyms.

Terry Tobias (Chapter 9) writes of the disparities which occur between Native wildlife harvesting data gathered by government-sponsored development consultants and that accumulated by members of the Métis community of Pinehouse in northern Saskatchewan. He successfully presents a strong argument for the need to include indigenous knowledge in planning processes to avoid misinformation concerning the northern Native economy.

In Chapter 10, Douglas Nakashima demonstrates that the TEK of the Inuit will often outstrip conventional science when it comes to knowledge about many Arctic wildlife species. Using a case study from three Inuit communities in southeastern Hudson Bay, Nakashima gives a thought-provoking account of the totality of Inuit knowledge regarding Hudson Bay Eiders. He compares this with the fragmented data obtained by biologists and wildlife management decision-makers.

Peter Usher (Chapter 11) describes the achievements and problems of one of the earliest indigenous/state co-management Boards in North America. The primary concern of the Board surrounds the management of the Beverly and

Kaminuriak caribou herds, which range between the Northwest Territories, Manitoba, and Saskatchewan. Although the Board members have developed a good working relationship, Usher points out that the TEK of Aboriginal hunters has still not been adequately utilized.

The article by Lloyd Binder and Bruce Hanbidge (Chapter 12) provides another look at co-management and TEK, this time in conjunction with the Inuvialuit land claims settlement in the Western Arctic Region of the Northwest Territories. Five resource co-management bodies exist to implement the wildlife provisions of the Inuvialuit Final Agreement (IFA). The authors present an excellent outline of the functions of a co-management system, discuss the activities of several IFA co-management bodies, and assess their effectiveness and that of the IFA as a total system.

In the final chapter (Chapter 13), Einar Eythorsson explores reasons why the integration of TEK and formal scientific knowledge is often difficult to achieve in management of common property resources. Eythorsson examines the conflict existing between small scale Sami fjord-fishermen, who employ a wide range of TEK, and the Norwegian state fisheries managers, who allow Danish seiners to exploit local and migrating stocks of cod. In conclusion, the author gives us a valuable list of the differing characteristics of local TEK and scientific knowledge.

Julian Inglis has done an admirable job of editing and integrating an assortment of papers which, when put together, give a fairly balanced view of the many practical aspects of TEK. Nevertheless, I feel that the coverage of one of the most important components of TEK has been for the most part overlooked. In our writings, we must begin to acknowledge and discuss the spiritual foundation and truths which form the essence of TEK. If we continue to omit these in the hopes that TEK will be more readily accepted by the scientific community, our gain will be short-lived. In the long run, however, we will lose. By neglecting the 'core' which makes TEK what it is, we merely expand the scientific paradigm, not create major 'shifts' in it.

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