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Histories of Maize: Multidisciplinary Approaches to the Prehistory, Linguistics, Biogeography, Domestication, and Evolution of Maize. JOHN STALLER, ROBERT TYKOT, BRUCE BENZ (editors), 2006. Academic Press, Burlington, Massachusetts. xxv+678 pp. \$149.00 (cloth). ISBN 13: 978-0-12-369364-8.

Reviewed by John P. Hart, New York State Museum, Albany.

With 48 chapters written by 80 contributors and geographically covering most of the Western Hemisphere, this book is the most comprehensive resource on the (pre-) histories of maize (*Zea mays* ssp. *mays*) currently available. The book's various chapters trace maize from its origination in Mexico through its dispersals north and south to the limits of pre-contact agriculture. Based in part on a series of four symposia held at the 2004 Society for American Archaeology meetings in Montreal, which I helped to organize, the book is also remarkable in that it was available for purchase at the 2006 Society for American Archaeology annual meeting in San Juan. The three editors and the chapter authors are to be commended for producing such an important, timely and valuable volume in a short two years; not much longer than it currently takes at least one prominent archaeological journal to publish articles.

The book is organized into five sections: Genetic, Morphological, and Microbotanical Evidence (9 chapters), Stable Isotope Analysis and Human Diet (13 chapters), The Spread of Maize in Central and South America (10 chapters), North America and Northern Mexico (8 chapters), and The Language of Maize (7 chapters). Also included are a brief introduction by Staller and a concluding chapter by Benz and Staller. Of the five major sections, Stable Isotope Analysis and Human Diets, with an introductory chapter by Tykot (10) and a concluding chapter by Henry P. Schwarcz (22), is the most comprehensive and could very well have been published

as a book in and of itself. Tykot's chapter is a useful introduction to the methods, techniques, and theory of stable isotope analysis. Schwarcz provides insightful interpretations drawing attention to intra- and inter-regional trends in the substantive chapters. Those chapters provide detailed summaries of stable isotope analysis research from various regions of the Americas providing new data and interpretations related to maize consumption and production. The Language of Maize section, if treated in the same manner with introductory and concluding chapters, could also have been published on its own. It is an excellent introduction to how and when language can be used to help trace the histories of maize and other crops.

The first section is less focused; most of the chapters could very easily have been placed in the geographical sections. Highlights are Brown's chapter (1) on New and Old World approaches to crop dispersals, Iltis's (3) on the origin of polystachy in maize, and Jaenicke-Després and Smith's (6) on ancient DNA. The two geographical sections cover wide ranges of topics and periods of time related to the histories of maize. Although each is a very valuable contribution, to some extent the chapters in these sections will be most useful to regional specialists. One problem with the chapters in these sections is the reliance in many on culture-historic taxa as units of analysis, data presentation, and summary. I have frequently heard from colleagues when I have railed against the continued use of such taxa that the constructs facilitate communication. However, in a volume that seeks to present useful information on an entire hemisphere, the use of culture-historic taxa is burdensome and tedious to the reader not familiar with a particular region. With the common use of direct AMS dating of crop remains and the ability to produce easily read maps showing site distributions, such reliance on culture-historic taxa, especially in the absence of any theoretical justifications for doing so, is unnecessary, as well as a bit anachronistic.

Like any topical edited volume, *Histories of Maize*, is a snapshot of the state of the discipline. It provides the current reader as well as future readers an idea where the discipline

is/was heading at the time of its publication. As an example, there are frequent citations to and summaries of Matsuoka et al.'s (2002) classic article describing the results of multilocus microsatellite genotyping of maize. This gives the impression it is firmly settled that the evolution of maize from teosinte (*Zea mays* ssp. *parviglumis*) occurred in the Balsas River drainage of central Mexico 7000 to 9000 years ago. One also gets the sense that there is a consensus following Iltis (2000) and Smalley and Blake (2003) that teosinte was initially exploited for stalk sugar. It was only after the teosinte glume architecture 1 mutation (Dorweiler et al. 1993) that the seed became edible, setting off the evolutionary path that resulted in *Zea mays* ssp. *mays*. These relatively recent publications have had profound impacts on maize-origins research and, thus, many of the chapters in this volume. It will be interesting to see how these important lines of research progress over the next decade.

Other important developments highlighted in this volume include the now frequent use of microbotanical remains (e.g., phytoliths, starch) in research on the dispersals of maize and the evolution of landraces. Pollen has been a mainstay of maize research, particularly in Central America, as illustrated in chapters by Blake (4), Dull (26), and Horn (27). Analysis of other microbotanical remains is a relatively recent development. Phytolith research especially has gained new adherents as illustrated in chapters by Laden (9), Chávez and Thompson (30), and Lusteck (37). Evident in many of the volume's chapters is a continued reliance on macrobotanical remains alone to construct maize histories. Newsom's initial efforts to integrate macro- and micro-botanical remains (chapter 23), for example, sets the tone for the kind of integrative work that is needed to build more comprehensive histories for the crop in the coming years. Mt. Pleasant's chapter (38) on the science of maize-bean-squash polycropping in northeastern North America points to largely unexploited potential collaborative relationships between archaeologists and ethnoagronomists in the exploration of prehistoric agronomic practices.

It was not uncommon in the twentieth century for archaeologists to lay great importance on the adoption of maize in a given region, often attributing that adoption to major changes in subsistence, settlement, and socio-political traits. That this is no longer the case is clear from many of the chapters in this book. Rather, it is now very evident that the adoption of maize in many regions of the Americas had very little immediate impact on the adopters. Raymond and DeBoer (chapter 25) provide an important review of maize use by ethnographically recorded mobile groups in northeastern South America. Rather than a staple crop, maize was a seasonal resource, planted among other resources with, in some cases, total labor expenditures on the crop of as little as four weeks. This is similar to Chilton's (chapter 39) conceptualization of mobile farmers in New England and consistent with Vierra and Ford's (chapter 35) suggestion that maize was initially integrated into mobile foraging economies in the northern Rio Grande region of New Mexico and planted near other resources such as piñon. Are we converging on a new model of maize dispersal and adoption that has testable implications (Hart 1999)? How does this mesh with Myers' (chapter 36) discussion of the relatively late adoption of hominy technology in eastern North America in light of King's (1987) experiments that demonstrate hominy is the most likely form of maize kernel preserved in the archaeological record? Do these hint at reasons why microbotanical evidence, particularly phytoliths, frequently appear in the archaeological record well before macrobotanical remains and $\delta^{13}\text{C}$ signatures of maize consumption in human bone collagen?

As with any valuable collection of papers, *Histories of Maize* made me stop and think about what I was reading and allowed me to draw connections that might otherwise have not arisen. The sheer breadth of the volume's content and the well considered interpretations of the chapter authors make it mandatory reading for any researcher seriously interested in the histories of the extraordinary crop called maize.

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