

Indus Ethnobiology

New Perspectives from the Field

Edited by
Steven A. Weber
and William R. Belcher



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Scholars of the Indus long history and complex political, religious, socioecological data from both Indus civilization is more extensively studied in the region now than opportunities for ethnobiological scholars studying the plan never gathered together to volume. Their work either. The case studies presented approaches and analytic techniques plant and animal studies a tion. Taking the remains

Preface

Ethnobiology, as a discipline, examines the relationship between living organisms and human culture, whether prehistoric, historic, or contemporary. While this avenue of research can provide crucial clues to our understanding of past societies like the Indus civilization, the term ethnobiology, and the research it involves, are not always understood, appreciated, or applied appropriately. This is because ethnobiology involves scholars from a variety of disciplines and theoretical schools, whose own areas of expertise are seen as contributing in different ways to the understanding of past cultures.

While archaeologists may use archaeobotanical and archaeofaunal data to understand issues dealing with ecology, environment, and subsistence, ethnobiological studies rarely play a prominent role in archaeological explanation. Data derived from once living organisms are all too often seen as secondary to the material record or settlement systems. Yet it should be remembered that plants and animals are indispensable to human existence, and that understanding the dynamic relationship that exists between these organisms and human societies—as important as it is for contemporary environmental and social research—is just as important for the interpretation of prehistory. It was with these principles in mind that we decided to compile a book that would demonstrate how one past civilization, in one region of the world, could be better understood through a series of ethnobiological case studies.

Scholars of the Indus civilization of South Asia have to contend with its long history and complex layering of foreign and indigenous influences in political, religious, socioeconomic, and linguistic domains. With more archaeological data from both India and Pakistan becoming available, the Indus civilization is more extensively studied, and better understood, than ever. Archaeology in the region now takes an interdisciplinary approach, meaning that the opportunities for ethnobiological research have dramatically increased. Yet scholars studying the plants and animals associated with this civilization have never gathered together to discuss their work or to publish it within a single volume. Their work either stands alone, or is subsumed within a specific project. The case studies presented here not only illustrate a variety of theoretical approaches and analytic techniques, but also comprise all the major directions that plant and animal studies are presently taking in the study of the Indus civilization. Taking the remains of plants and animals recovered from archaeological

excavations and their ethnographic contexts as starting points, the chapters in this book delve into environment, vegetation history, habitat exploitation, pastoralism, agriculture, and subsistence systems. They offer fresh insights into the sociocultural adaptations of the Indus people, as well as urbanism, and ecological and cultural change. Incorporating biological, anthropological, and archaeological theory, these interdisciplinary studies exemplify what ethnobiology is, and ought to be: a powerful source of ideas on the interrelationship between living organisms and human culture.

This book is intended as both a reader on ethnobiological research in prehistory, and a source book on the Indus civilization. It represents the first comprehensive treatment of key ethnobiological issues, such as subsistence, ecology, and environmental change, in the Indus civilization. Each chapter, written by a prominent scholar working in the region, deals with different forms of data, and engages issues to do with their collection, analysis, and interpretation. Each case study is based on original data and has specific implications for our understanding of this civilization.

We are extremely fortunate to have had Heather Lehman as our production editor. She has devoted hours of careful attention to each chapter, and her energy and commitment have been much appreciated. Clare Wilkinson-Weber gave her support and made many suggestions for the compilation of this volume. Without her, the book would never have moved beyond the discussion stage. Special thanks are owed to J. Mark Kenoyer, who has made innumerable contributions to the research of us both, and whose enthusiasm for ethnobiological research has helped make this book possible. We also acknowledge and thank the Harappa Archaeological Research Project team. The Harappa project has been a rich source of data for many of the chapters, and it is there that we first conceived of a volume such as this. Finally, working as we all do in South Asia, we are indebted to all the government and research institutions, and the many individuals in both India and Pakistan who make our research possible.

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Ethnobiology is relatively man—animal relationship add greatly to our underst Meadow 1979, 1989a, 19 1989; Fuller and Madell 1991a, 1991b; Vishnue-M ranged from the simple re tion to a more systematic mains. With a greater unces leading to the arc theoretically sophisticated

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Introduction

Subsistence Strategies of the Indus Civilization

Ethnobiology is relatively new to South Asia. Studies of the human—plant and human—animal relationships of the Indus civilization are now, however, beginning to add greatly to our understanding of the people of ancient Northwest South Asia (see Meadow 1979, 1989a, 1996; Meadow and Patel 1994; Shinde 1993; Thomas 1983, 1989; Fuller and Madella 2002; Costantini 1981, 1984; Leschnik 1973; Reddy 1991a, 1991b; Vishnue-Mitre 1982, 1985; Weber 1993; Fuller 2002). Studies have ranged from the simple recording of a species accidentally recovered during excavation to a more systematic method of collection and analysis of plant and animal remains. With a greater understanding and interest in the natural and cultural processes leading to the archaeobotanical and zooarchaeological records, a more theoretically sophisticated discipline is emerging.

Subsistence studies are a major focus of archaeological research. However, this research tends to focus mostly upon hunter-gatherers and upon the origins of food production. Through the study of subsistence patterns of early urban societies, we can begin to document and describe food economies that were necessary to maintain and support state-level societies. This volume focuses on providing a data-intensive foundation for subsistence studies of the Indus civilization. This database will illuminate such issues as the provisioning of urban centers from their surrounding hinterlands (Zeder 1988, 1991), as well as helping us to reconstruct subsistence changes that coincide with the origins of urbanism (Crabtree 1990). Ultimately, the goal of subsistence studies is to understand social interactions taking place among a highly varied range of producers and consumers.

It is possible to examine aspects of urbanization through changes in the use of food resources. During the transition from village-based to urban societies of the Indus civilization, the subsistence base broadened from foods that had been exploited for thousands of years, such as wild game, fish, and wild plants, to include new food resources such as domestic sheep, goat, cattle, and domesticated grains

(Meadow 1989a). Instead of being replaced by domesticates, wild resources took on a specific role as specialized foods in sedentary communities and urban centers. We can also evaluate the changes that occurred as domesticates were added to an earlier food system, a pattern that correlates with settlement change as small villages became urban centers, or were incorporated into a larger, regional pattern of cultural interaction.

Reconstruction of the human diet is a common goal in subsistence studies, as this is crucial to the study of ecological adaptation and subsistence strategies. The most common method is the study of the residues of food consumption and processing, primarily the study of plant and animal remains. Studies in South Asia subsistence have been primarily cultural ecological in orientation (Meadow 1979, 1980, 1986, 1989a, 1993, 1996; Reddy 1994; Thomas 1989; Vishnu-Mittre 1982, 1985; Weber 1993).

Urban and Rural Societies of the Indus Civilization

The nature and context of complex societies has been a major issue in anthropological and archaeological studies, particularly the transitions and relationships between chiefdoms and state-level societies. In these studies, the economic domain has received paramount focus as this sphere leaves distinct material residues that can be examined archaeologically. Primarily, the focus has been on craft production and specialization (Kenoyer 1994; Kenoyer et al. 1991; Miller, H. 1994, 1997a, 1997b; Vidale 1989), but subsistence remains can also yield appropriate data for tracking problems of complex societies and specialized economies (Zeder 1988, 1991).

The political environment and economy of the Indus civilization continues to be debated (Kenoyer 1998). Interpretations have characterized this cultural entity as variously a chiefdom, a series of independent polities (city-states), or a macroregional state-level society. Jacobson (1986) suggested that the Indus civilization was a state-level society, based on the fulfillment of a trait list including items such as writing, monumental architecture, and presence of cities. Kenoyer (1995a, 1995b, 1997) has argued that it might be more appropriate to view the Indus civilization as an ideological or cultural entity, composed of a series of city-states, each with its own particular relationship with the surrounding hinterlands, rural settlements, and other large urban centers, much like Mesopotamia or the Maya. Meanwhile, Shaffer (Possehl 1996a, 1996b; Shaffer 1995), following Fairservis (1986, 1992a, 1992b), argues that this civilization seems to be composed of social groups in various villages that were organized by kinship around a chief. These local chiefs were subject to paramount chiefs found in the large urban centers.

Perhaps the classical definitions of chiefdom and state are inappropriate to the present state of research of the Indus civilization. Strict taxonomic labels and neo-evolutionary frameworks are no longer useful for explaining the social complexity that existed in ancient South Asia, or indeed anywhere prehistorically (Blanton et al. 1996; Earle 1991a, 1991b; Feinman 1994, 1995; Hayden 1995; Kristiansen 1991).

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It may be better to avoid classification, and focus instead on examining the change in social, ideological, and economic interactions between urban and rural settlements (Schwartz and Falconer 1994).

An urban center is a large congregation of people that is inherently inefficient for distribution of resources due to the large number of people occupying a limited space. Goods must come to an urban center and be distributed along many possible avenues and pathways to reach the urban consumer. Thus, a major goal of the governing bodies of a city is to ensure adequate provisioning of various goods, particularly food resources (Hayden 1994). Provisioning is the reconstruction of distribution patterns of food in a variety of site contexts—urban centers as well as small rural sites. Provisioning includes the procurement, processing, and distribution of food as it moves from producers to consumers. One of the most important aspects of provisioning is the relationship between rural settlements and urban centers.

Urban centers are usually dependent on their rural hinterlands for a variety of foodstuffs; of course, this is not to say that individuals in urban centers do not produce their own food. Goods are transmitted through a variety of pathways: kin relations, client-patron relationships, direct consumer contact, and indirect sales to consumers through marketplaces. All of these relationships can provide specific signatures that are present in the static archaeological record although proper study of the dynamic cultural systems that maintain these behaviors is necessary to provide appropriate analogies.

Urban and rural settlements are intimately linked together as “(c)ities depend, to varying extents, on the agricultural surpluses provided by the countryside; these surpluses support the ruling elite, religious specialists, professional bureaucrats, craft specialists, and all others not directly concerned with food production” (Schwartz and Falconer 1994:8). Nevertheless, Kramer (1994) warns that rural settlements do not serve solely as a source of materials for urban exploitation. Economic and ideological specialization occurs in villages as these settlements may be economically self-sufficient, but they are never isolated. Villages produce and consume a variety of resources so that the flow of goods and information is traveling in both directions between urban centers and rural villages; thus, economic specialization exists in both urban as well as rural settlements. Zeder (1994) points out that the hinterland providers of animals to urban centers maintained considerable autonomy in the management and trading of those food resources.

Strategies of control and interaction between urban centers and rural villages are dependent on the relative costs and returns of various options of obtaining food and other resources from the hinterland communities. These relative risks manifest themselves in the length and difficulty of trade routes, lack of key resources in the urban center, and location of particular needed resources. Hinterland populations cannot be kept in subservient positions by force or threat alone (Hayden 1994). It is more efficient to rule through the development of a common ideology supported by economic networks (DeMarrais et al. 1996; Joyce and Winter 1996; Kenoyer 1995a, 1995b) as this requires little investment in terms of military garrisons or other forms of bureaucracy.

Recent investigations by archaeologists in northwest South Asia have focused on the control of economic productivity, particularly in reference to sources and distribution of subsistence goods and wealth items. Economic power in complex societies is created through horizontal specialization in subsistence production as well as the diversification of tasks in the storage and distribution of a reliable surplus. It is through the *conversion* of stored wealth via a system of dependencies that leads to differential access to land and labor. A second major source of economic power comes from mercantile activity resulting from long-distance trade. Regular networks of trade usually accompany initial unequal access to basic means of production.

Clearly, there is a close connection between the production and processing of food, whether agricultural or pastoral, and the influence and control of trade. The connection between the growth and decline of the Indus civilization is linked to evolving subsistence systems, and this can only be understood with more research.

Chapters in this Volume

The chapters within this volume represent a wide range of approaches to understanding the subsistence strategies of the Indus civilization, examining many forms of the relationship between humans and their environment. Subsistence directly involves the environment and any fluctuations therein can be most easily monitored by examining food remains. Subsistence studies attempt to ascertain how cultures obtained, distributed, and consumed food. In order to reconstruct these subsistence systems, knowledge of site formation and taphonomic processes is required as these can severely bias the types and quantities of materials recovered. Taphonomic processes alter original patterns that result from initial disposal by consumers or harvesters. Such patterns cannot be interpreted directly as the sole product of human behavior. Even after various taphonomic factors have been examined, however, appropriate cultural models must be used or subsequent interpretations are invalid. Unsurprisingly, therefore, the interpretation of the disposition of remains and the use of ethnoarchaeological models received considerable attention from several of the contributors to this volume.

Four of the authors use detailed ethnoarchaeological research as an interpretive tool. South Asia possesses a rich ethnographic record in which one can test and examine various hypotheses that in turn may be applied to the somewhat mute archaeological record. Miller reviews evidence for the use of animals for transport and agricultural production, looking at the often "invisible" contributions of faunal materials, or so-called secondary products. Reddy discusses the usefulness of extensive ethnoarchaeological data on millet cultivation and processing for the interpretation of the Harappan phase in Gujarat. Madella examines the potential for phytolith analysis in South Asian subsistence research, using camp-hearth analysis from Kot Diji and Harappa. Finally, Belcher focuses on ethnoarchaeological models and the ongoing analysis of fish remains from various Indus civilization sites.

Other chapters adopt a regional approach. Thomas gives here a detailed study of subsistence ecology in the Bannu region, a peripheral area to the Greater Indus Valley. Through an examination of evolutionary responses, Thomas reconstructs an integrated farming system that may have increased productivity through controlled storage of surpluses. Tengberg and Thiébaud present a detailed charcoal analysis of five sties dating from the 7th millennium until the end of the 3rd millennium, ultimately producing a unique history of vegetation and wood exploitation of central and southern Baluchistan.

Fuller takes the peninsular subcontinent as his subject, discussing the adoption and spread of cultigens throughout South Asia, where the rejection of practices and foodstuffs in different regions is complicated by environmental conditions and constraints. Weber, meanwhile, focuses on one site, examining changes in agriculture over the entire occupation of Harappa, and linking these to possible cultural change. Finally, Meadow and Patel review the history of zooarchaeological research in South Asia, examining the zooarchaeological, iconographic, and bioarchaeological data for pastoralism in all its forms, and reinforcing the importance of understanding pastoralism in the South Asian context.

Detailed environmental and climatic data are used throughout the chapters to aid in the reconstruction of parts or even entire subsistence economies. In all, they comprise a much needed resource for researchers working in northwest South Asia, and it is hoped that the research and data published here will permit interregional comparisons with other urban and rural societies.

A Note on Chronology

The development and evolution of cultures in South Asia, including the Indus or Harappan civilization, has been extensively written about (see Allchin and Allchin 1982, Kenoyer 1998). A brief overview of the culture history of the Indus civilization, and a summary of its geographic, climatic, and geomorphological settings, appears in the next chapter of this volume.

Unfortunately, there is no consistent and uniform chronology in use for the Indus civilization, although some models are more popular than others. Possehl, in the following chapter, describes a series of stages and phases for the Indus age. An alternative approach is Shaffer's (1992) distinction of two traditions, the Baluchistan and the Indus. Most contributors to this volume adopt the latter scheme, and it should be noted that they use "Indus Valley civilization" or "Indus civilization" as a short-hand for discussing the Indus Valley and Baluchistan traditions. A brief account of Shaffer's chronology is provided for readers in the appendix.

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