Animals and Inequality in the Ancient World

Animals ◦ and *Inequality* ◦ in the ◦ Ancient World

EDITED BY

Benjamin S. Arbuckle
and Sue Ann McCarty

UNIVERSITY PRESS OF COLORADO
Boulder

Published by University Press of Colorado
5589 Arapahoe Avenue, Suite 206C
Boulder, Colorado 80303

Printed in the United States of America

The University Press of Colorado is a proud member of the Association of American University Presses.

The University Press of Colorado is a cooperative publishing enterprise supported, in part, by Adams State University, Colorado State University, Fort Lewis College, Metropolitan State University of Denver, Regis University, University of Colorado, University of Northern Colorado, Utah State University, and Western State Colorado University.

∞This paper meets the requirements of the ANSI/NISO Z39.48-1992 (Permanence of Paper).

Chapter 2 was previously published in Spanish as "Un portal al inframundo: Ofrendas de animales sepultadas al pie del Templo Mayor de Tenochtitlan," by Leonardo López Luján, Ximena Chávez Balderas, Belem Zúñiga-Arellano, Alejandra Aguirre Molina, and Norma Valentín Maldonado, Estudios de cultura náhuatl 44 (2012): 9–40, http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0071-16752012000200002&lng=es&tlng=es.

Library of Congress Cataloging-in-Publication Data

Animals and inequality in the ancient world / edited by Benjamin S. Arbuckle, Sue Ann McCarty.
pages cm
Includes bibliographical references and index.
ISBN 978-1-60732-285-6 (cloth) — ISBN 978-1-60732-286-3 (ebook)
1. Animals and civilization—History—To 1500. 2. Animals—Social aspects—History—To 1500. 3. Human-animal relationships—History—To 1500. 4. Equality—History—To 1500. 5. Social archaeology. 6. Ethnoarchaeology. 7. Civilization, Ancient. I. Arbuckle, Benjamin S. II. McCarty, Sue Ann.
QL85.A535 2014
304.2'7—dc23

2013033573

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Cover illustrations: Nineteenth-century engraving of Temple of the Python, Ouidah Benin (Morienval 1898:41) (front left); Hampshire pig / vintage illustration from Meyers Konversations-Lexik on 1897, © Hein Nouwens / Shutterstock (front right and flap).

To the memory of Dugald Sinclair Arbuckle.—B.A.

To the many family, friends, cats, and colleagues who supported me during my cancer treatment—concurrent with the editorial phase of this volume—for their good humor, patience, concern, and infinite kindness.—S.A.M.

Figures

Acknowledgments

The editors thank University Press of Colorado, especially Jessica d'Arbonne and Darrin Pratt, for their interest in this project and deftly moving it through the publication process. The editors also thank all of the participants in the session at the Society for American Archaeology meeting in St. Louis in 2010, from which this volume developed, as well as all of the contributors to this volume for cheerfully providing brilliant manuscripts, interesting figures, and properly formatted bibliographies. Elizabeth Scott and an anonymous reviewer kindly read and provided valuable comments on the volume. Thanks also to Baylor University, the University of Virginia, and Patricia Wattenmaker for support during the production of this volume.

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An Introduction

Benjamin S. Arbuckle and
Sue Ann McCarty

The interaction of humans and animals has fascinated scholars for generations and continues to be a productive focus of research across a range of disciplines (Calder 2011; Campana et al. 2010; Clutton-Brock and Grigson 1983; Flannery, Marcus, and Reynolds 1989; Frizell 2004; Guerrini 2003; Ingold 1988; Nitecki and Nitecki 1986; Shipman 2011; van Buren 1939). Part of the reason for this continued interest is the degree to which animals are integrated into the fabric of human cultures and thus provide material and symbolic reference points around which cosmologies, cultural practices, aesthetics, and identities are built.

Archaeological approaches to the human-animal relationship, especially those focused on prehistoric periods, have long emphasized the value of using animals to address issues relating to environment and subsistence, particularly regarding the origins of domestic animals (Clark 1971; Davis 1987; Ducos 1968; Perkins 1973; Vigne, Helmer, and Peters 2005; Vigne et al. 2011; Zeder et al. 2006; Zeuner 1963). Despite this emphasis on technoenvironmental perspectives, recent trends have seen increasing interest in exploring the supranutritional roles of animals within integrated economic, social, political, and religious spheres of life, examining the many ways in which humans and animals have become intimately connected through a myriad of resilient but flexible "entanglements" (Hodder 2012). This new perspective, building on long traditions of anthropological thought, emphasizes animals as mechanisms for structuring human social relations. It is now an important component of the growing movement of "social zooarchaeology" and has found expression in related disciplines as well (Cantrell 2011;

Collins 2002; MacKinnon 1999; Marciniak 2005; Newmyer 2010; Russell 2011; Way 2011).

The chapters of this volume explore some of these current trends in the social archaeology of human-animal relationships, focusing on the ways in which animals are used to structure, create, support, and even deconstruct social inequalities—another major topic of archaeological inquiry. Although representing a diverse range of geographic and spatial contexts, from Neolithic Europe to the complex hunter-gatherers of coastal California, and from the Classic Maya to Colonial West Africa, each of the seventeen chapters in this volume builds on a set of shared themes that target the social rather than the strictly economic roles of animals, and focuses on animals as prominent media for expressing and manipulating social difference. These diverse chapters—each covering important specific topics in its own right, and collectively representing both the Old and the New Worlds—show that although the specific uses of animals may vary through time and space, animals become entangled within human social networks in predictable and consistent ways. These entanglements are so pervasive, so accepted, and so effective that animals often become core symbolic elements that materialize and naturalize social inequalities at a variety of scales extending from households to empires. It is this widespread and intimate association between animals and the creation and reproduction of social relations of inequality that is the shared thematic focus of the wide-ranging chapters of this volume.

The themes explored in this volume derive largely from the works of prominent anthropologists such as Claude Lévi-Strauss, Arjun Appadurai, Jack Goody, and Tim Ingold. This body of work has recognized that people in every cultural context, whether mobile hunter-gatherers or sedentary urbanites, incorporate animals into their cosmological and social systems. Lévi-Strauss (1963:89) famously expressed the idea that animals are "good to think," emphasizing that the materiality of animals can effectively be used as repositories for, and to express, a wide range of social information. This theme is especially prominent in the New World chapters of this volume, where contributions by Nawa Sugimaya et al., Leonardo López Luján et al., H. Edwin Jackson, and Abigail Holeman, for example, focus on the prominent symbolic messages encoded within the structured deposition of specific, often wild, taxa. These messages are saturated with political, ritual, social, and cosmological hierarchies and are often carefully designed to reify and naturalize the prominent inequalities present in complex societies.

In chapter 1, by Sugiyama et al., the authors explore a combination of general and specific meanings behind the incorporation of big cats and birds of

prey into foundation deposits within the Pyramid of the Moon at Teotihuacan, central Mexico, emphasizing both the overt power symbolism of human control over the natural world as well as exploring the cosmological significance of these dangerous and richly symbolic taxa. In their contribution, López Luján et al. (chapter 2) describe a spectacular and symbolically rich deposit (Offering 125) consisting of more than 1,000 animals representing fifty-six different species, including a "royal dog" from the Great Temple at the Aztec capital, Tenochtitlan. Here, the presence of taxa from every corner of the empire, often brought alive and at great expense to the capital, reflect both the economic power of the empire as well as its control over important cosmic processes while the majestically decorated canid is a physical representation of the journey made by dead sovereigns through the underworld. The animals included in this offering, therefore, are condensation points for multiple social messages that speak to a variety of audiences by reifying state power through the theatricality of public performance and the controlling of rare, powerful, and exotic animals; by speaking to the dominance of the royal family; and by supporting the religious underpinnings of Mexica identity and polity.

In his chapter (5), Jackson describes the manipulation of cosmologically related animal symbolism as one of the primary strategies of Mississippian elites for maintaining power in the American Southeast. Although less stratified than their Mesoamerican counterparts, Mississippian elites negotiated status differences through leadership in the ritual arena and in warfare, often involving control over access to specific, symbolically rich taxa, notably birds, and especially swans (whose remains are largely limited to the site of Cahokia), birds of prey, woodpeckers, and owls. In addition, birds such as cardinals, blue jays, and crows were also used by elites for their color symbolism, which was strongly linked to the cardinal directions and Mississippian cosmology.

The intersection of birds, color symbolism, and inequality is also explored by Holeman in her chapter (6) examining evidence for ritual authority and the use of macaws at the site of Paquimé, northern Mexico. Here, Holeman argues that hierarchy at Paquimé was based on the control of ritual knowledge. Dramatic evidence for raising parrots suggests that the red and green feathers of the scarlet and military macaws found in large numbers at the site played a central role in the ritual politics of this complex community in the Chihuahuan desert.

The theme of animals as symbolic elements involved in supporting political and ritual hierarchies is also explored in the Old World chapters by Roderick Campbell and Naomi Sykes. In an innovative analysis of life in Shang China (chapter 12), Campbell describes linkages between humans and animals that

support and reinforce a highly stratified social system, and he examines the symbolic, political, and economic consequences of deer hunting by elites. In a chapter (17) that likewise explores the social context of deer hunting, Sykes convincingly argues that the acquisition and consumption of venison played an important role in defining social difference throughout the Medieval period in England. Providing a deeply contextualized analysis that combines archaeological and historical data sets, Sykes shows that although the specific symbolism and practices of deer hunting changed over time in Anglo-Saxon and Norman England, it remained involved in the contested process of negotiating identity and was used by elites and commoners alike to define social difference both between and within social groups.

In a fascinating study from colonial West Africa, Neil Norman (chapter 14) examines the central place of snakes in the Hueda kingdom. Providing one of the most dramatic examples of animal symbolism structuring the political, ritual, and architectural organization of a complex society, Norman provides both historical and archaeological evidence for the physical and symbolic infiltration of pythons into every aspect of Huedan life from polity-level ritual performance conducted by the royal family to the everyday practices of commoners, and eventually culminating in the collapse of the Huedan kingdom itself.

Appadurai's (1986) concept of the "social life of things," which emphasizes the role of objects in mediating and structuring social relations, represents another prominent theme applied to the human-animal relationship. By identifying animals as "things" that readily become "entangled" (Hodder 2012) within human social relations, we can reimagine the role of animals within an infinite variety of social contexts outside of traditional techno-environmental approaches. For example, Arkadiusz Marciniak's chapter (9) on animal use in Neolithic central Europe explores how continuity and change in specific butchery and consumption practices, as well as taxonomic preferences, reflect processes of history building and localization during shifts in exchange networks and in the scale and intensity of regional interaction within early and middle Neolithic communities. These changes took place within a distinctive social context characterized by increasingly strong assertions of individual household independence, resulting in the continuation of some practices but also the development of new patterns of ritual consumption of animal products.

In addition, as active participants in structuring social relations, animals often become integrated into the competitive and often theatrical processes by which social status is contested and negotiated. These theatrical processes may involve the ritual use and hunting of wild animals, as seen in Norman's chapter on the use of snakes in the Hueda kingdom, and in Sykes's and Campbell's

chapters describing elite hunting in England and China, respectively. Within the foundation deposits of the Temple of the Moon at Teotihuacan (Sugiyama et al.), it was big cats and birds of prey that were used to symbolize elite authority, whereas in deposits from the Great Temple at Tenochtitlan (López Luján et al.), wild animals representing every corner of the empire were used to symbolize the combined cosmology, political power, and legitimacy of the Mexica. Within Classic and Late Bonito phases at Chaco Canyon, in the American Southwest, Adam Watson (chapter 7) identifies unique practices of communal hunting and feasting focused on the procurement of large game, often acquired at some distance from Chaco itself. Watson argues that these communal activities, organized around a Great Kiva, or ceremonial structure, provided important social contexts for the negotiation of power relations in the uniquely complex political system that developed in this region.

Domestic animals were also widely used by elites to reify their place in the social hierarchy. "Gastro-politics" (Appadurai 1981), or the use of food, including animals and their products, to actively pursue and reinforce competitive social advantages, became a central strategy in the quest for status, as did transforming animals into commodities and using them to create wealth and prestige in early complex societies. Pushing this concept back to the beginning of the human species, Speth (2010) has recently argued that the characteristic practice of big-game hunting was driven largely by hunters' political motivations rather than a concern for maximizing nutrient returns. Moreover, Goody (1982) has emphasized the importance of symbolism and social messages attached to animals, specifically within contexts of consumption and inequality. Goody's work has provided the foundation and stimulation for the development of approaches focusing on consumption practices in the archaeological record, especially as they relate to the expression and creation of persistent social inequalities (Dietler and Hayden 2001; Wiessner and Schiefenhövel 1996). From this perspective we get a framework for understanding how diet and foodways are used to express aspects of social status, including the zooarchaeological features that frequently distinguish elite from non-elite consumption practices (also see Arnott 1975; Crabtree 1990; deFrance 2009; Farb and Armelagos 1980).

These themes, including the concept of "luxury of variety," are central to arguments made in the chapter by Susan deFrance (chapter 3), in which she examines elite use of fauna to structure inequality at the Wari center of Cerro Baúl, Peru. Here, the presence of a wide range of taxa involved in both ritual and subsistence practices provides overwhelming evidence that animals were actively used by Wari elites as highly visible symbols of their hegemony. In

addition, taxonomic richness is one of the persistent features used by Jackson to distinguish elite and non-elite diets in Mississippian North America, and is also used by Ashley Sharpe et al. (chapter 4) in their examination of evidence for inequalities in consumption practices and species diversity among the Preclassic and Classic Maya at San Bartolo, Guatemala. Moreover, Charlotte Sunseri (chapter 8) shows that, along with burial wealth and access to exotic artifacts, the consumption of animals and animal products provides a unique window into the construction of social difference among complex hunter-gatherers of the California coast.

These themes are also explored in Old World contexts, suggesting that consumption practices are truly universal signifiers of status difference. Michael MacKinnon (chapter 15) explores changing dietary preferences and pet-keeping practices associated with issues of ethnicity, power, and environment during the romanization of the Mediterranean world. In an innovative case combining texts and faunal data, Levent Atici (chapter 11) contextualizes the valuation and consumption of animals and animal products within the hierarchical, multiethnic, urban community represented at the Bronze Age site of Kültepe, Turkey.

In early complex societies, especially in the Old World, the economic power of elites was often built upon the development of complex commodity economies based on domestic animals. Three chapters address the development of wool production, one of the most important animal commodities in the Old World, and its ubiquitous role in early complex societies. Benjamin Arbuckle (chapter 10) marshals faunal data to suggest that the emergence of systems of intensive wool production in Chalcolithic Turkey was associated with the rise of increasingly hierarchical social organization, and he suggests that textile production may have been a significant source of wealth and power for emerging elites on the central Anatolian plateau. Bringing texts to bear on the question of wool production in Bronze Age Turkey, Atici presents convincing evidence for the central role of the wool trade in structuring economic and political life in the city of Kanesh as well as on its impact on the development of exchange relationships between Kanesh and city states in Mesopotamia. In a broad synthesis of faunal and archaeological evidence for state formation in Saxon England, Pam Crabtree and Douglas Campana argue in chapter 16 that the reorganization of the rural economy toward the development of systems of specialized animal production, especially wool sheep, was a critical factor in the emergence of the complex, stratified socioeconomic system of Anglo-Saxon England. Elite control over animal-based commodity production is therefore seen as one of the primary factors that fueled the rise of complex societies in multiple regions of the Old World.

In a fascinating counterexample to the use of animals to reify social hierarchies, Joshua Wright (chapter 13) focuses on Bronze Age Mongolia, concluding that the activities associated with *khirigsuurs*, stone monuments often assumed to represent the power of prominent elites and that often include the deposition of horse remains, instead functioned as leveling mechanisms designed to emphasize group membership and limit the development of inequality. By providing a theatrical space for the congregation of otherwise highly mobile and dispersed community members, these landscape features—and the events, including horse sacrifice, that regularly took place within them—emphasized communal activity as well as shared values and histories, and actively discouraged individualizing ideologies among the early horse nomads of inner Asia.

Clearly, animals are integrated into human cultures in many different ways and have been used for a wide variety of purposes at various times and in various places. The chapters in this volume represent a sampling of this variety of human-animal relationships, with case studies focusing on topics ranging from royal symbolism and state-level ritual to corporate identity and commodity production, and from the use of animals to rationalize social difference to their deployment to emphasize group solidarity—all at a variety of scales from household to empire.

Among the diversity of specific relationships, however, are common themes brought about by the resilient entanglements formed between people and animals in which the latter consistently play central roles in defining worldviews and embodying social differences, while also serving as symbolic as well as material sources of power within complex and small-scale societies alike. Although representing diverse geographic and temporal contexts, the chapters of this volume all share this focus on exploring facets of the human-animal relationship and its universal role in structuring social inequalities. As such, these chapters reflect a sample of the exciting archaeological work that continues to target the complex and rich relationship between humans and animals as fertile ground for exploring the ancient world.

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1

Animals and the State

The Role of Animals in State-Level Rituals in Mesoamerica

Nawa Sugiyama,
Gilberto Pérez,
Bernardo Rodríguez,
Fabiola Torres, and
Raúl Valadez

INTRODUCTION

This chapter questions the ways in which human-animal interactions directly contributed to the reification of social hierarchies in the context of state-level rituals in ancient Mesoamerica. Animals were chosen to participate in elaborate rituals, whether as costumes in dances, as military regalia, as powerful icons, or as victims of sacrifice. We focus on a case study from the site of Teotihuacan, a cosmopolitan center that arose in the Basin of Mexico during the Classic period between approximately 100 BC and AD 650. At this site, the Moon Pyramid Project has uncovered a series of five burial offerings (Sugiyama and López Luján 2007), including four dedicatory caches that present a rich array of faunal remains including wild carnivores sacrificed in dedication to this monument, as well as animals prepared postmortem. Here we introduce zooarchaeological evidence from these offering caches that demonstrate that some of the animals used in these dedication rituals were physically captured and maintained within the city limits prior to their sacrifice.

We concentrate on dedicatory caches as prime examples of the roles animals played in the reification of social hierarchies. Here we present two key concepts that are essential in our understanding of the role of animals in state-level rituals at Teotihuacan:

1. Dedication rituals conducted at a ceremonial center were ritualized activities organized by the Teotihuacan state and were active arenas for power negotiations.
2. Amerindian communities granted agency to highly symbolic animals—animals with which the Teotihuacanos interacted during ritualized activities.

DOI: 10.5876/9781607322863.c001

We examine the faunal assemblage from Teotihuacan from this theoretical stance to reconstruct the social and political significance of these dedicatory caches and how they functioned to reify state power.

DEDICATION BURIALS AS RITUALIZED ACTIVITIES

In Mesoamerica, ethnographic and ethnohistoric documents illustrate that religion integrated, and therefore constrained, social, political, and economic organizations (Townsend 1997). At Teotihuacan, the attraction of a coherent state religious ideology, successful warfare, and charismatic rulership played the largest roles in the development of this ancient metropolis (Cowgill 1992; Sugiyama 2005). The rituals that took place in the ceremonial center were the mechanisms for creating and solidifying such state ideologies.

Although there are endless lists of static definitions of rituals (see summary in Bell 1992), we focus on one type of ritual: those directly related to state-level ideologies. Rituals, in this context, are the processes by which religious ideas are transformed into social actions that were critical to institutionalizing and empowering the state (Kertzer 1991). We focus on ritualized activity as a social practice that provides the occasion for solidifying social boundaries (Bell 1992; Flad 2001). Ritualized activities appropriate and condition individual perception and behavior where there is an opportunity for social empowerment (Bell 1992). Ritualization is the strategic play of power, of domination and resistance (Bell 1992:204; Foucault 1980:55–62). Actors of such a dynamic process include those who control the ritual and who have access to a powerful form of objectification; the participants who negotiate their degree of involvement or resistance against the act; and the performers, including the victims of human sacrifice, and the nonhuman actors such as the animals discussed in this chapter.

The dedication rituals that would have preceded the deposition of the burials at Teotihuacan were arenas used by the state to graphically demonstrate and make the participants embody existing and newly created social hierarchies. The offering caches represent the materialization of these rituals that were the means of social negotiation that empowered the state, as is evident in various Mesoamerican centers (e.g., Joyce and Winter 1996; Sugiyama 2005). Here we argue that social hierarchies were negotiated, in part, through the physical and symbolic interaction humans had with the animals used in such ritualized activities. Understanding the types of human-animal interactions that occurred in Teotihuacan allows us to interpret how and why certain species of animals became participants in state-level ritualized activities.

DEFINING HUMAN-ANIMAL INTERACTIONS IN AMERINDIAN SOCIETIES

We must first start with the most basic question, one that Ingold (1988) has discussed in depth in his edited volume, *What Is an Animal*? One answer is provided by the study of the Ojibwa Indians who believe the metaphysics of being and the actions of "persons" provide the key to their worldview (Hallowell 2002). "Persons" are defined as all animate beings who have the same ontological status expressed through the capacity for metamorphosis that occurs by establishing interpersonal relationships (Hallowell 2002). Therefore, for the Ojibwa, animals as well as plants and other objects of nature are "persons" that have agency and consciously interact with other "persons" (Hallowell 2002; Ingold 1988; Morrison 2000). This perspective has also been suggested by many ethnographers in other Amerindian communities (e.g., Saunders 1989; Zingg 1938). Through granting personhood to animate and inanimate beings, Amerindian societies perceive that as humans move through an empirical natural environment they are also moving through a cultural landscape that becomes the setting for developing meaningful relationships with their surroundings (Saunders 1991:109). Thus the animal and human are "constructed"—created by a culture-specific system of classification and etymology based on repeated relationships that are negotiated personally and/or collectively with the "other-than-human persons" (Hallowell 2002; Ulloa 2002).

The conceptualization of an animal taxon is contingent upon culture-specific familiarity with its morphology, behavior, and ecology (Cooke 1998; Urton 1985). Folk zoology often focuses on the distinctions between prey and predator, illustrating a hierarchy of animals in which wild carnivores occupy the upper levels of the animal hierarchy and herbivores the lower levels (Gossen 1975; Pinzón 2002). The associations of jaguars to hunters, warriors, and shamans by many Amerindians are simply a manifestation of part of their ethnozoological classification that acknowledges these underlying social classifications (Saunders 1991). A ruler, warrior, or shaman who "domesticates" (manages, controls) a plant or animal thereby reinforces the humanity of the animal, and the shaman receives magical properties (Pinzón 2002:65). Domestication creates a new perspective on the animal hierarchy, and the relationships between animals and humans become characterized by subordination and control.

Similarly, the physical capture, management, and taming of large carnivores would have dramatically altered the type of interaction with these animals and, as a consequence, developed the possibility for individuals to be placed differentially within nature's hierarchy. Individuals who controlled these top

predators were able to elevate themselves above these beasts. Controlling the natural domain was the key to controlling social hierarchies, a tactic that was no doubt critical to the establishment of Teotihuacan's highly stratified social organization. This study suggests that domestication and, in this case, animal management in Mesoamerica should also be understood, as Hodder (1990:12) suggested, "as an attempt to domesticate and control internal and social problems" in that "it served as a metaphor and mechanism for the control of society."

One of the effective ways human domination of beasts was manifested to the public was through elaborate state-level rituals. All over the world humans and animals participated in hunting rituals, royal rites, feasting, seasonal ceremonies, and dedicatory rituals (e.g., Ballinger and Stomper 2000; Brown 2005; Fiskesjö 2001) in which animal metaphors were used to maintain these social classifications. Furthermore, in some cases, the animals used in these state-level rituals were managed exclusively for ritual purposes.

For example, during the Postclassic period (AD 900–1521) at Tenochtitlan, the later Aztec capital, historical documents mention the presence of aviaries and zoos in which animals were kept for ritual purposes (Blanco et al. 2009; Nicholson 1955). It is believed that the animals deposited at the Templo Mayor, the Aztec ceremonial precinct, which included hundreds of diverse local and nonlocal species including the carnivores discussed in this chapter (Guzmán and Polaco 2000; López Luján et al., chapter 2, this volume; Polaco 1991; Quezada et al. 2010), were ritualized animals that helped exemplify Aztec state power.

The materials that we analyzed from Teotihuacan illustrate the process of ritualization, the very production and negotiation of social roles, and incorporated fauna as central actors in dedicatory offerings at the heart of the ceremonial precinct. We record for the first time the antiquity of animal management for use in state-level rituals through direct zooarchaeological evidence and focus on its importance within the context of the rising state of Teotihuacan, which became one of the largest and most important centers of Mesoamerica.

TEOTIHUACAN

Teotihuacan is a World Heritage Site located about forty-five kilometers to the northeast of Mexico City. This site quickly developed into an urban, sacred center that covered twenty square kilometers with a population over 100,000 inhabitants (Cowgill 2008; Millon 1981). There are three major monuments at the ceremonial center: the Moon Pyramid, the Sun Pyramid, and the Feathered Serpent Pyramid (FSP). From 1998 to 2004, the Moon Pyramid

Project, directed by Saburo Sugiyama and Rubén Cabrera, conducted extensive tunnel excavations at the Moon Pyramid. As a result, this project discovered seven building phases and five dedicatory caches (Sugiyama and Cabrera 2007). Each of the four burials that contained faunal remains included a mix of the dominant carnivores of the sky (eagles), earth (pumas, jaguars, wolves), and liminal areas (snakes) (Polaco 2004). All of these animals are among the most frequently depicted in Mesoamerica and are linked to various sources of power including gods, rulers, warriors, and shamans (Benson 1997; Seler 2004). At Teotihuacan these animals vividly "lived" within the ceremonial core as well as in apartment compounds as they are frequently represented in elaborate mural paintings (e.g., Fuente 2006).

In total over one hundred carnivores were deposited within the Moon Pyramid, an amount unequaled at any other sites dating to this period. Here, we present preliminary results on a sample of the individuals analyzed thus far. Nonetheless, this sample illustrates that the fauna interred in the Moon Pyramid records a transformation in the type of human-animal interaction that occurred during the Classic period. An interaction that included high levels of manipulation and control may very well have been a means of controlling not only the natural world but also the sociopolitical landscape in the rising metropolis.

BURIALS TWO AND SIX

Although the first three construction phases recorded at the Moon Pyramid were of modest size (around 23.5 to 31.35 square meters), the fourth construction phase (AD 250 ± 50) marked a substantial enlargement program increasing the volume of the structure by nine times compared to the previous phase (89.2 × 88.9 meters) (Sugiyama and Cabrera 2007:117). The completion of Building Four marks a radical change in the extent of state control, as this was the moment in which the Moon Pyramid, as well as the ceremonial center in general, reached a monumental scale. Furthermore, two of the earliest offering chambers were deposited within the Moon Pyramid at this time: Burial Two was placed along the central axis at the base, and Burial Six was located at the three-dimensional center.

By this time, the Sun Pyramid and the Ciudadela complex with the FSP were also constructed. In addition, Teotihuacan became a planned urban development, as the standard Teotihuacan orientation, fifteen degrees west of true north, was implemented at a city-wide scale (Sugiyama 2010:141). The deposition of Burial Two and Six explicitly manifested the new level of power

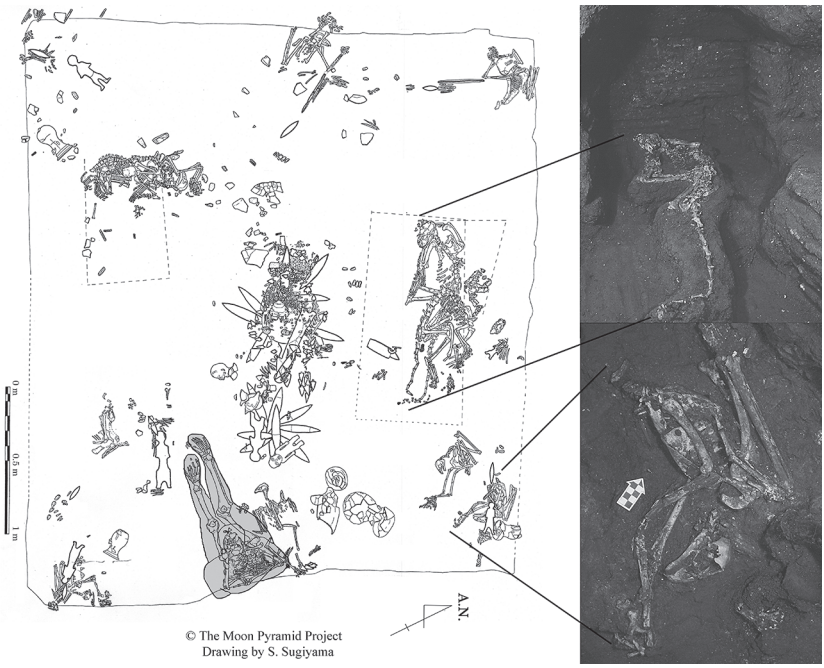

Figure 1.1. *General plan of Burial Two with photographs of a puma (Element 154) inside a wooden cage (above), and a complete golden eagle (Element 165) (below). Drawing and photographs by S. Sugiyama.*

reached by the Teotihuacan state. Thus, we pay particular attention to these two offering caches as arenas that the Teotihuacan state used as a means to reify this level of state power and control.

Burial Two contained a human male bound prior to its deposition, and seated along the northern wall (Figure 1.1). A rich and diverse fauna was discovered that included the complete skeletons of two pumas, one wolf, nine eagles, other avian species (Minimum Number of Individuals, MNI = 7), and six rattlesnakes (Polaco 2004). Besides these ossuary remains, an exceptional number of offerings were symbolically placed on the floor, including Tlaloc vessels, greenstone artifacts, worked and unworked shell, and obsidian artifacts (Sugiyama and López Luján 2006). Offerings in Burial Six included similar artifacts of exceptional quality, but most surprising was the ubiquity of faunal offerings and sacrifices, totaling over fifty individuals of mostly the same species of animals found in Burial Two, an amount unprecedented in Teotihuacan (Sugiyama and López Luján 2006) (Figure 1.2). The interments

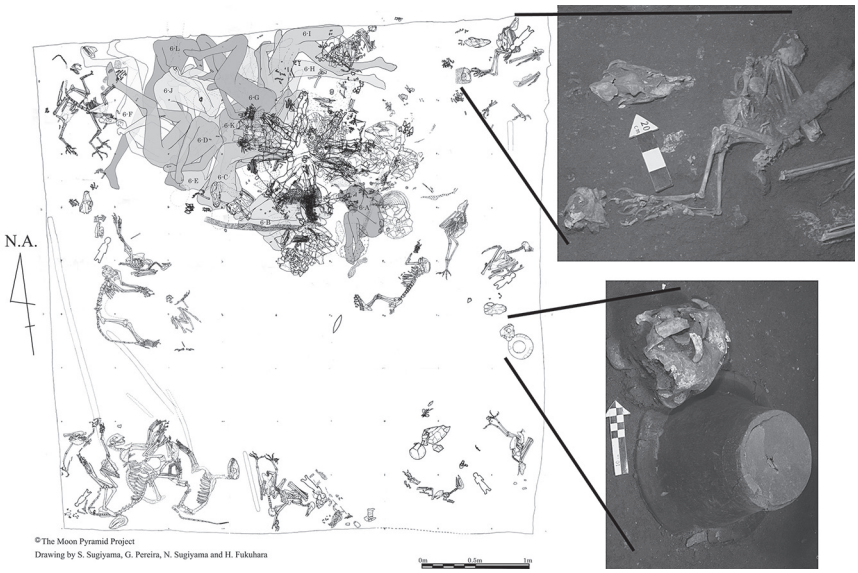

Figure 1.2. *General plan of Burial Six with photographs of a complete golden eagle (Element 2192) (above) and a puma head (below). Drawing and photographs by S. Sugiyama, G. Pereira, N. Sugiyama, and H. Fukuhara.*

in Burials Two and Six included all the carnivores mentioned above, but the use of two animal taxa particularly stood out: felines and eagles.

FELINES

The jaguar (*Panthera onca*) is the largest carnivore present in the Mesoamerican landscape and thus has always been one of the central figures in the iconography of the region (Benson 1972; Saunders 1989, 1998a). Since the rise of the Olmec cultures, felids were depicted as having had intimate interaction with humans (Furst 1968). Jaguars are described as courageous, ferocious, noble animals that resided in the upper levels of the animal hierarchy as "the masters of animals" (Saunders 1998b, 21). Likewise the puma (*Puma concolor*) held a similar importance; in contrast to the black skin of the jaguar that symbolized the nocturnal sky, the bright skin of the puma was associated with the sun (Aguilera 1985:17).

Both the jaguar and puma have been identified within Burial Six whereas only pumas have been identified in Burial Two of the Moon Pyramid. Jaguars would have been imported to the Mexican highlands, as they are not a native

species. Rather, they prefer the semitropical lowlands to the south, and the coastal regions of both the Pacific (Nayarit, Sinaloa and parts of Sonora) and the Gulf of Mexico (Veracruz and Tamaulipas) (Leopold 1987:527–529). Thus, it is highly probable that the jaguars present in the Moon Pyramid were imported from adjacent regions. The transport of such large wild carnivores would be difficult if they were fully grown, especially in Mesoamerica where transportation was on foot. This factor explains the preferential use in Burial Six of infant jaguars (MNI = 4), while there was only one juvenile and one subadult. In contrast, the majority of the pumas represent juveniles (MNI = 5) along with one young adult and one infant.

Two types of depositional patterns are observed among these felines: (1) crania and sometimes claws were deposited after extensive preparation, and (2) complete individuals were sacrificed. The former demonstrates that the Teotihuacanos used and manipulated these animals as ritual regalia (costumes, pelts) whereas the latter indicates that the populace at Teotihuacan had a much more extensive interaction with these wild beasts as they were probably tamed and kept within the city compounds.

Many of the burials included feline crania that demonstrate extensive preparation into pelts and costumes. Many of the jaguar crania, including the cranium identified as Element 2195 from Burial Six, demonstrate high levels of preparation. For this specimen the entire braincase has been removed, conserving only the snout and frontal portions with its mandibles (Figure 1.3a). This contrasts with some of the puma crania, such as the young adult puma from Burial Six (Element 1941), which conserved much more of the skull by cutting only along the occipital region to extract the soft tissue prior to pelt preparation (Figure 1.3b). As pumas are found locally, they were probably prepared within the city compounds and thus did not need such extensive preparation as the jaguars to facilitate transportation. The use of felid costumes and pelts is widely documented (e.g., Códice Mendocino 1549, Lam XLIX), and the zooarchaeological finds from the Moon Pyramid affirm that these pelts were extracted, traded, and used since the Teotihuacan occupation.

Among the complete individuals from Burial Six, one example represents a puma with fatal pathologies that would not have allowed the animal to survive in the wild. This individual (Element 1984) illustrates severe bone deformation and remodeling on the left humerus, and the individual's corresponding radius and ulna had become fused (Figure 1.4). The fused bones would have significantly restricted the movement of the forearm, making it difficult for this individual to hunt in the wild. Evidence of remodeling and healing on these bones suggests that this animal survived its disease/injury,

Figure 1.3. *Feline crania: (a) jaguar (Element 2195), and (b) puma (Element 1941).*

Figure 1.4. *Pathologies present on Element 1984: a, left ulna and radius, and b, humerus.*

probably through artificial feeding, exemplifying evidence of captivity and care for this feline.

In Burial Two, two pumas were found bound in wooden cages stacked on top of each other. These two pumas were buried alive, as coprolites were found from these animals (Figure 1.1). This evidence suggests that some of the felids deposited during Building Four were confined in cages in anticipation of the ritual, possibly for prolonged periods of time. In total, the Teotihuancanos used seven jaguars, ten pumas and four unidentified felids in these two burials, of which at least one jaguar, five pumas and one unidentified felid were interred complete. It is likely that the Teotihuacanos were able to obtain such large numbers of felids for the offering caches through keeping these carnivores in captivity in preparation for the ritual.

EAGLES

The golden eagle (*Aquila chrysaetos*) symbolized military might in Mesoamerica, as they were known as the jaguars of the sky (Benson 1997). They are closely associated with the sun, as both the eagle and the sun are found in the sky (Aguilera 1985:63). They represented, along with the jaguar, the bravest warriors, who were named *Quauhtli-ocelotl* ("eagle-jaguar"; Seler 2004:162). Eagles are found in abundance in Burials Two (MNI = 9) and Six (MNI = 18), and most represent complete individuals. Only a couple of instances suggest individuals were manipulated and prepared as objects for the offering chamber. In both cases, the eagles were deposited in a highly symbolic layout at each of the cardinal and intercardinal directions and at the center. They were, no doubt, important actors that oriented the ritual space (Figures 1.1 and 1.2).

Burial Six had the most abundant eagle remains found in a single offering chamber in Mesoamerica during this period. It is no coincidence that it was represented by eighteen individuals, as this number is highly symbolic in Mesoamerica and is repeatedly expressed in ritual contexts such as the number of obsidian eccentrics found in Burials Two and Six, as well as the number of humans sacrificed at the FSP (López Luján and Sugiyama 2008). It is also consistent that in Burial Two half of this number, nine eagles, was deposited in a very similar layout. Therefore the number of eagles to be offered was predetermined, resulting in the need for twenty-seven eagles during the fourth construction phase. Capturing twenty-seven golden eagles would be difficult within the short term. As the zooarchaeological markers of some of the eagles suggest (see below), the eagles interred in these two burials were a heterogeneous population made up of some individuals that were probably

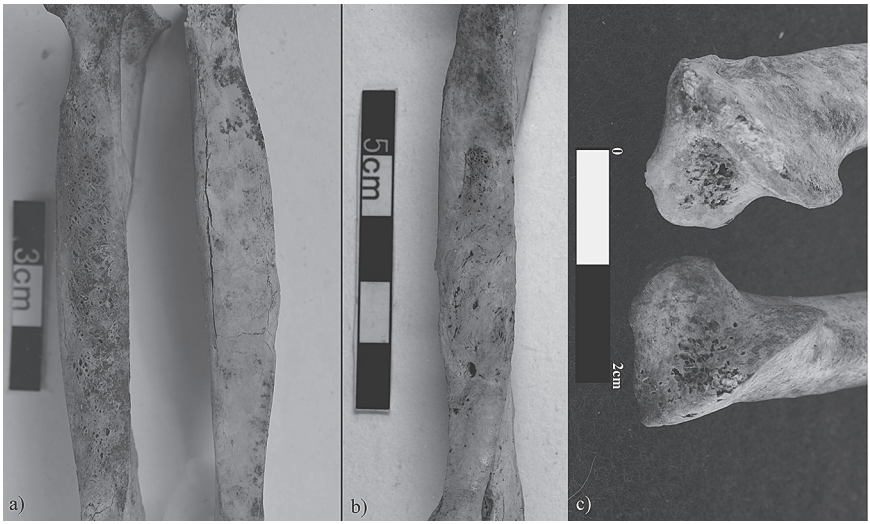

Figure 1.5. *Pathologies on eagles: (a) on the left side of the tarsometatarsal on Element 1961 from Burial Six; (b) on the left side of the tarsometatarsal on Element 2069 from Burial Six; and (c) on the distal articular surface of the left and right ulnas on Element 191 from Burial Two.*

captured as chicks to be raised in the city in anticipation of the ritual, some that were probably captured shortly prior to the ritual, and some individuals that were prepared postmortem.

Two types of pathologies have been recorded on the eagles that suggest long-term keeping of the raptors. On the medial side of the left tarsometatarsal of at least two individuals from Burial Six (Elements 1961 and 2069) there is apparent remodeling of the bone (Figure 1.5a and 1.5b). This type of lesion may be caused by tethering the raptor with a rope for prolonged periods, causing chafing and abrasion that result in a local lesion. Modern zoological literature supports this hypothesis, as American kestrels (*Falco sparverius*) exhibit similar features when fitted with standard jesses (Brisbin and Wagner 1970).

Another eagle from Burial Two (Element 191) illustrates slight osteoporosis on the distal articular surface of both ulnas (Figure 1.5c). This pathology may have resulted from a nutritional deficiency during the eagle's confinement, a supposition supported by similar cases of pathologies present on macaw bones from the site of Casas Grandes (AD 1200–1450), where accretions were reportedly due to malnutrition and vitamin D deficiency caused by containment in dark cages (Di Peso et al. 1974:280). Keeping raptors, particularly eagles, in

captivity and successfully breeding these animals is extremely difficult (Gilbert et al. 1981). As this assemblage represents the earliest zooarchaeological evidence of eagle management in Mesoamerica thus far, no doubt some of the observed pathologies are the result of the initial stages of experimentation in controlling these wild raptors.

Although some remains suggest that long-term captivity of eagles was practiced since the Classic period, the capturing and breeding practices were probably still not homogeneous, as there is evidence for a heterogeneous mix of raptors that do not demonstrate any modifications and others that demonstrate cutmarks on the distal articular surface of the tibiotarsus (Elements 1962 and 2010). These cuts were not intended to remove feathers or meat, as their legs are mostly bare, but to cut the tendons and ligaments that attach in this area to paralyze the raptor's feet and claws to reduce the risk to those that had to manipulate these wild birds.

As we can see, the faunal materials from Burials Two and Six express the extraordinary feats achieved by the Teotihuacan state that not only included the organization of a monumental construction program and the deposition of highly exotic artifacts and victims of sacrifice (human and nonhuman), but also required a dramatic change in the type of interaction humans had with these animals, which was unprecedented at the time. These two offerings are manifestations of imperial power as well as the materialization of Teotihuacan state ideology, and the fauna deposited inside them were integral actors.

BURIAL THREE

The construction of Building Five incorporated, for the first time, an *Adosada* platform (i.e., a small platform attached to the front of the pyramid) connected to the central structure, and the adoption of a typical Teotihuacan *talud-tablero* form (Sugiyama and Cabrera 2007:120–121). This building was probably constructed around AD 300 ± 50, which is most likely when Burial Three was integrated into the nucleus of this structure. It consisted of four male human sacrificial victims interred with associated rich offerings, including twenty-four animal heads, fourteen of which were preliminarily identified as wolves (*Canis lupus*) (Figure 1.6).

Many species of canids are thought to be important actors in ritual contexts in Mesoamerica, including wolves, coyotes (*Canis latrans*), and dogs (*Canis familiaris*) (Valadez et al. 2008). Canids in the Postclassic period are known to have been a symbol of a military order during the Aztec times where codices depict warriors dressed in canid military regalia (Blanco et al. 2007:71–72).

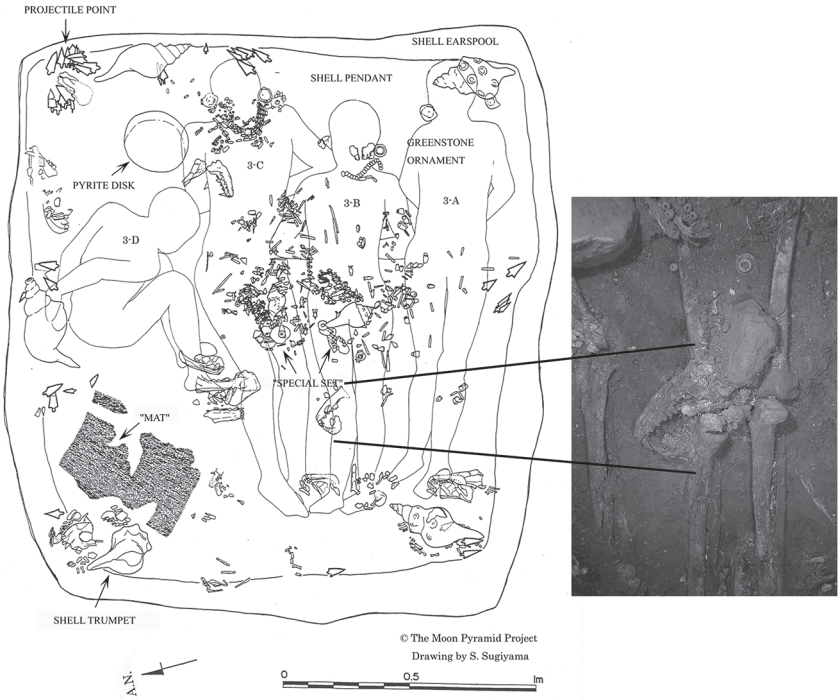

Figure 1.6. *General plan of Burial Three and photograph of canid cranium (Element 574). (Drawing and photograph by S. Sugiyama.)*

Similarly, at Teotihuacan we find at the Atetelco apartment compound a whole room filled with mural paintings of canid warriors (Cabrera 2006).

The close association of the sacrificial victims with the wolf crania suggests that these victims were closely associated with the symbolism of the wolf. As isotopic analysis of the humans sacrificed in the Moon Pyramid indicates many of them were either born or raised abroad; these individuals have been interpreted as warriors, possibly war captives (White et al. 2007). Associated artifacts, such as the imitation maxillary shell pendants and nose pendants, which resemble those found among the war captives deposited in the FSP (Sugiyama 2005), add to the evidence that these individuals may represent warriors. The importance of the wolf within this burial complex is apparent and the presence of the wolf crania can be interpreted as expressions of the identity of the victims, possibly as members of a military clan.

Figure 1.7. *Postholes of the cage that surrounded a wolf (Element 213) in Burial Two. Photograph by S. Sugiyama.*

Despite the apparent focus on wolves in Burial Three, it was not the only burial in which wolves were discovered. A particularly interesting case is the deposition of a complete wolf in Burial Two, where its remains were discovered surrounded by the impressions of postholes that confined it (Figure 1.7). This suggests that wolves, just like the pumas in Burial Two, were kept in wooden cages, possibly over the long term to use in rituals.

BURIAL FIVE

Burial Five was deposited immediately prior to the construction of Building Six and after the termination of Building Five. This burial included the remains of three humans, and a large quantity of atypical offerings such as highly controversial Maya-style greenstone objects (pendants, earspools, figurines, and beads) (Figure 1.8). Building Six (AD 350 ± 50) is almost the same form and size of the pyramid visible today (Sugiyama and Cabrera 2007). Although the faunal materials from this burial are still in the initial stages of exploration, it is already evident that serpents, particularly rattlesnakes (*Crotalus* sp.), were especially important in this offering cache, where at least eight individuals were deposited near and around these three human burials.

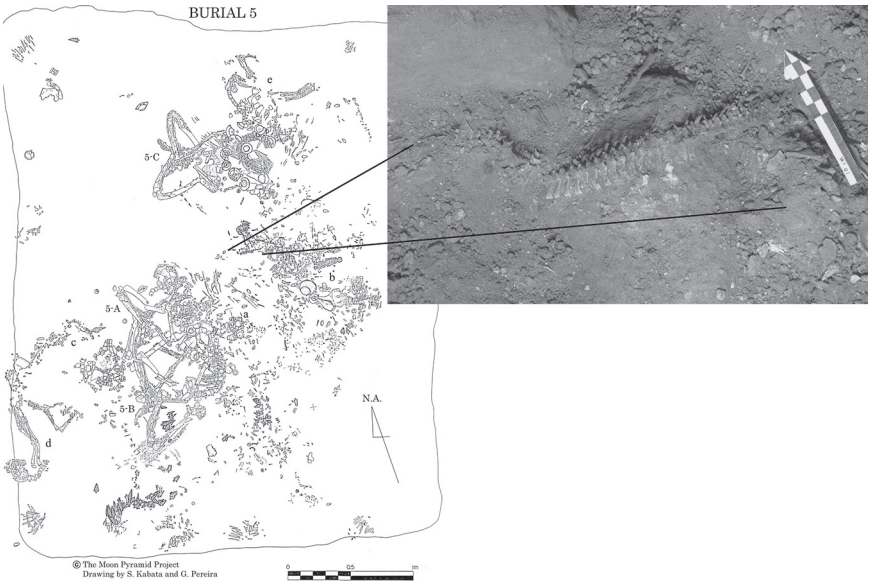

Figure 1.8. *General plan of Burial Five and photograph of a rattlesnake (Element 1021). (Drawing by S. Kabata and G. Pereira; photograph by S. Sugiyama.)*

Serpents were embedded within the Mesoamerican cosmology where serpentine qualities are present among various deities such as Quetzalcoatl (feathered serpent), who is abundantly depicted in Teotihuacan. They are associated with earth, water, and fertility (Aguilera 1985:73). Colonial documents mention snakes were often captured, as they are edible, their skins were useful, and their meat had curative functions (Aguilera 1985). When they were captured alive their fangs would be removed and they would be kept in a jar (Aguilera 1985:74).

The three individuals in Burial Five do not have their hands tied behind their back, unlike other burials in the Moon Pyramid. They are of high rank, as manifested by the abundant greenstone accessories adorning them, including a symbol of a knotted rope, the very symbol of rulership. We can therefore suggest that their close association with the rattlesnakes added to their identity. Although we have no direct evidence of the keeping of rattlesnakes at Teotihuacan, we note the presence of at least two rattlesnakes inside a woven basket in Burial Six, adding to the possibility they were confined in anticipation of the ritual.

ANIMALS AND THE STATE

It is obvious that the species that the Teotihuacanos picked for state-level rituals were determined by the widely established symbolism of the most ferocious carnivores present in the landscape. These were empowered animals, beasts that gained a fundamental role in state societies through their ecological and biological characteristics, their interaction with humans, and their status as top-level carnivores within the natural hierarchy. This case study from Teotihuacan demonstrates an example of the most explicit manifestation of their role in the establishment of the Teotihuacan state as major actors in state-level ritualized activities whereby we suggest that a shift in the type of human-animal interaction greatly empowered the state in a way unrecorded during the Classic period.

During the apogee of Teotihuacan, right around the construction of Building Four in the Moon Pyramid, there was a gradual change in the types of human-animal interactions. By this time Teotihuacanos had formulated a detailed knowledge of each species and carefully selected symbolically important fauna to be used in state-level ritualized activities. To be able to obtain some of the highly dangerous and exotic animals for this ritual, Teotihuacanos began to develop systems to manipulate, control, tame, and possibly even breed these animals. The Teotihuacan state symbolically and physically controlled these wild beasts, a tactic that helped control the social hierarchy of the rising metropolis. In this chapter, we have emphasized the great antiquity of such a practice and have tried to understand why it would arise during a period of accentuated development of the Teotihuacan state.

This case study helps us understand the role of animals in the development of social inequality in other Mesoamerican cultures as well. In the Mesoamerican worldview, and generally in all Amerindian cultures, the social landscape is part of the natural, hierarchical world, a system in which wild carnivores stand at the apex of the animal kingdom. The use of such carnivores in state-level ritualized activities was an arena to recreate and negotiate the human relationship within this natural hierarchy.

Acknowledgments. We thank the project directors of the Moon Pyramid Project, Saburo Sugiyama and Ruben Cabrera, for their continual support and for providing some of the figures presented in this chapter. Analyses of these materials have been supported by the National Science Foundation Doctoral Dissertation Improvement Grant BCS-1028851, the Fulbright Hays Doctoral Dissertation Research Abroad Program, and the William R. Tyler Fellowship from Dumbarton Oaks Research Library and Collections for N. Sugiyama's

dissertation research. We thank David Carrasco, William Fash, Rowan Flad, Richard Meadow, Andrew Somerville, and an anonymous reviewer for their insightful comments on earlier drafts of this chapter.

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2

Entering the Underworld

Animal Offerings at the Foot of the Great Temple of Tenochtitlan

Leonardo López Luján, Ximena Chávez Balderas, Belem Zúñiga-Arellano, Alejandra Aguirre Molina, and Norma Valentín Maldonado

DOI: 10.5876/9781607322863.c002

INTRODUCTION

Archaeological data relating to the fauna exploited by the Mexicas and their neighbors in the Basin of Mexico are relatively sparse. To a large extent, this is due to the fact that the majority of pre-Hispanic settlements from the fifteenth and sixteenth centuries have gradually been buried under Mexico City, a megalopolis that today houses more than 20 million inhabitants and that continues to grow at an unbridled rate (see Parsons 1989). Archaeologists have excavated only a few rural sites in detail, revealing some of the complex human-animal relationships in these kinds of contexts at the time of the arrival of the Spaniards. Outstanding examples include the projects of Elizabeth M. Brumfiel (2005) at Xaltocan, Raúl Ávila López (2006) at Mexicaltzingo, and Mary G. Hodge (2008) at Chalco, which focus on these modest settlements located at opposite ends of the Basin's lake system.

Based on the results published by these meticulous researchers, the faunal remains at these sites were dominated by a great diversity of wild animals that were captured locally to serve as food and raw materials (Ávila López 2006; Guzmán Camacho and Polaco 2008; Polaco and Guzmán 2008; Valadez Azúa and Rodríguez Galicia 2005). These animals included mainly ducks, rabbits, frogs, deer, turtles, and, in much lesser quantities, squirrels, opossums, armadillos, quails, freshwater fish, and mollusks. Also present in very high numbers were domestic animals such as the dog and turkey.

Unfortunately, there is little detailed archaeological information available on the residential units at major urban sites in the Basin, such as Tenochtitlan

and Tlatelolco. This prevents us from establishing the similarities and differences between the countryside and the city, and between social groups of low, medium, and high status, when it comes to uses and meanings attributed to animals. In contrast, the fauna recovered in urban archaeological contexts comes almost entirely from public areas with a ritual function. Remains from these areas can tell us not so much about the diet of the average inhabitant of Tenochtitlan as how animals were used symbolically by individuals of high status; which environments were reached during the empire's peak; how particular species were captured, transported, and kept in the royal palace; and why they were eventually buried inside temples and under plaza floors.

ANIMAL REMAINS FROM TENOCHTITLAN

The island of Tenochtitlan, the capital of the Mexica empire, is well-known archaeologically as a result of the Templo Mayor Project (1978–2011), which has explored its sacred precinct for more than thirty years (López Luján 2006a:Volume 1; 2006b; López Luján and Chávez Balderas 2010a; Matos Moctezuma 1988; Matos Moctezuma and Cué Ávalos 1998). This impressive precinct rose at the exact intersection of two principal city axes. It was a rectangular area limited by a platform measuring about 460 by 430 meters. Inside was located an enormous complex of shrines, among which the Great Temple, a pyramid topped by two chapels consecrated to the rain god Tlaloc and the solar god Huitzilopochtli, stood out. There were also schools for nobles, ballgame courts, sacred springs, skull racks, and an enclosure that contained a recreation of "arid land."

After seven long field seasons working at the Great Temple and surrounding religious buildings, 165 buried offerings have been excavated. We have recorded in these ritual contexts an amazing diversity of animal species, infinitely superior to what has been observed at rural sites such as Xaltocan, Mexicaltzingo, and Chalco. As a result of archaeozoological research on materials recovered in the heart of Tenochtitlan, more than 250 species have been identified (López Luján 2005:101–103; Polaco and Guzmán 1994). The resulting information has been on display to the public in a gallery devoted to fauna in the Templo Mayor Museum (Polaco 1991; Polaco et al. 1989) and has also been published in numerous studies on biological, ecological, and taphonomic aspects of the animals deposited in offerings (e.g., Álvarez 1982; Álvarez and Ocaña 1991; Álvarez et al. 1982; Díaz Pardo 1982; Díaz Pardo and Teniente Nivón 1991; Guzmán Camacho and Polaco 2000; López Luján 2006a:Volume 2; López Luján and Argüelles Echevarría 2010; López Luján and Polaco 1991; López

Luján and Zúñiga-Arellano 2010; Polaco 1982, 1986; Polaco and Guzmán 1994; Olmo Frese 1999; Solís et al. 2010; Valentín Maldonado 1999a, 1999b, 2002; Valentín Maldonado and Gallardo Parrodi 2006; Valentín Maldonado and Zúñiga-Arellano 2003, 2006, 2007). Equally numerous are publications referring to cultural dimensions such as a preference for certain species; places, ways, and periods to obtain living or dead fauna; mechanisms of circulation; techniques of sacrifice and modification of cadavers; indigenous taxonomies; and persistence or transformation of all of these behaviors through time (Aguirre Molina 2002; Chávez et al. 2010; Jiménez 1991; López Luján 1991, 2006a:Volume 1; López Luján et al. 2010; Quezada Ramírez, Valentín Maldonado, and Argüelles Echeverría 2010; Temple Sánchez-Gavito and Velázquez Castro 2003; Velázquez Castro 1999, 2000, 2007; Velázquez Castro and Melgar Tisoc 2006; Velázquez Castro, Zúñiga-Arellano, and Valentín Maldonado 2004; Velázquez Castro, Zúñiga-Arellano, and Temple Sánchez-Gavito 2007; Velázquez Castro and Zúñiga-Arellano 2003). There are even published studies on the conservation and restoration of faunal remains uncovered by our project (Grimaldi 2001; Gallardo 2000; Hasbach 2000).

Among the principal features of the faunal remains from the Templo Mayor, we can mention the following:

1. The presence of species corresponding to six different phyla (López Luján 2005:101–102; Polaco 1991:16). Invertebrates preponderate (five phyla: Porifera, Coelenterata, Echinodermata, Arthropoda, and Mollusca), followed by vertebrates (phylum Chordata, six classes: Chondrichthyes, Osteichthyes, Amphibia, Reptilia, Aves, and Mammalia).
2. The predominance of species endemic to regions quite far away from the Basin of Mexico (López Luján 2005:101; Matos Moctezuma 1988:115–118; Polaco 1991; Polaco et al. 1989). These were imported by the Mexicas from practically all corners of the empire and beyond, from contrasting ecosystems such as tropical rainforests, temperate zones, marine environments, estuaries, coastal lagoons, and mangrove swamps.
3. The scarcity of edible species and the clear interest on the part of Mexica priests in those animals to which they attributed profound religious or cosmological significance (Díaz-Pardo and Teniente-Nivón, 1991:77; López Luján 2005:103). For example, predominating among fish were toxic species or those with rare anatomical features such as sharp teeth, strange bodies, bright colors, or strong dermal spines.
4. Evidence of captivity (López Luján 2006a:1: 223; Quezada Ramírez, Valentín Maldonado, and Argüelles Echeverría 2010:22–23). Numerous birds

of prey display evidence of bone pathologies that might have prevented them from surviving if not in captivity. However, their skeletons speak to us of healthy, well-fed individuals. Therefore, it is highly likely that the Mexicas captured and kept them, feeding them for long periods prior to their death.

5. Traces of cultural processes for modifying the animal cadavers, some of which may be qualified as "taxidermic" interventions (López Luján 2005:103, López Luján 2006a:1:222–223; Quezada Ramírez, Valentín Maldonado, and Argüelles Echeverría 2010:19–22). In fact, numerous specimens of fish, crocodiles, serpents, and birds of prey were prepared for the preservation of their heads and skins, whereas the body parts of others were transformed into ornaments, ritual instruments, or religious symbols.
6. The use of fauna in offerings to recreate vertical tiers of the universe and configure veritable cosmograms (López Luján 1998, 2005, 2006a: Volume 1). Thus, coral, clams, and snails symbolized the aquatic underworld; felines, turtles, and sawfish, the surface of the earth; and eagles, herons, and hummingbirds, the skies above.

In the rest of this chapter we present recent results from the seventh field season (2007–2012) of the Templo Mayor Project related to animal remains. Given the limited space, we focus on analyzing a single buried offering placed in a stone box—Offering 125—which was very small in dimensions but extremely rich in information concerning the ancient relationship between humans and fauna.

OFFERING 125

Since March 2007 we have been working at the foot of the Templo Mayor, the ritual setting where, according to historical accounts, the Mexica kings were cremated and buried (Figure 2.1) (Draper 2010; López Luján and Chávez Balderas 2010a; Matos Moctezuma and López Luján 2007). In this area we uncovered an enormous monolith, measuring 4.17 by 3.62 by 0.38 meters, which is even larger than the well-known Calendar Stone (Matos Moctezuma and López Luján 2009). This andesite sculpture represents the feminine aspect of Tlaltecuhtli, the venerated and feared Earth Goddess, progenitor of the creatures of the universe and devourer of their corpses after death (López Luján 2010).

To the west of this monolith and exactly at plaza level, we found a unique monument built with sixteen pinkish andesite blocks (Figure 2.2). These heavy pieces were overlapped to form a quadrangular frame in the shape of an inverted, stepped pyramid (Figure 2.3). Its silhouette reminds us of the

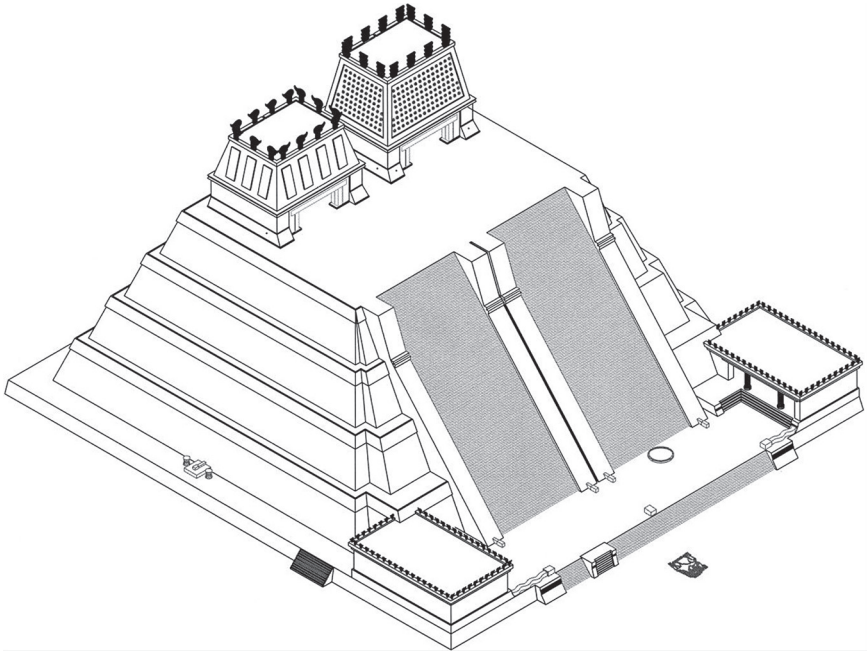

Figure 2.1. *Reconstruction drawing of the Great Temple of Tenochtitlan, showing the location of the Earth Goddess Tlaltecuhtli monolith. (Drawing by Tenoch Medina. © Proyecto Templo Mayor)*

maw, which is also stepped, of a reptilian Tlaltecuhtli, a mythological being who eats cadavers at the very center of the universe (Códice Borgia 1993:8, 53; Códice Vaticano B 1993:8, 23; López Luján 2010:117; Seler 1963). Therefore, it likely symbolizes the entrance to the underworld, the realm of the dead.

Under this stone monument and contemporary with the Great Temple's plaza floor VI-5 (AD 1486–1502), we found four other monuments with very similar characteristics, each one corresponding to an older and consecutive plaza level (AD 1440–1486; see Draper 2010:122–123; López Luján 2010:71–75). Within these five stone monuments, six superimposed buried offerings were detected. Offering 125, which dates back to the reign of Ahuitzotl (AD 1486 to 1502), is the richest of all, containing a total of 3,899 cultural and organic items. It was deposited inside a box made of small basalt blocks, oriented east-west, and with maximum dimensions of 50 by 85 by 46 centimeters. Huge slabs were used at the end of the ritual to cover the box and to protect its precious contents.

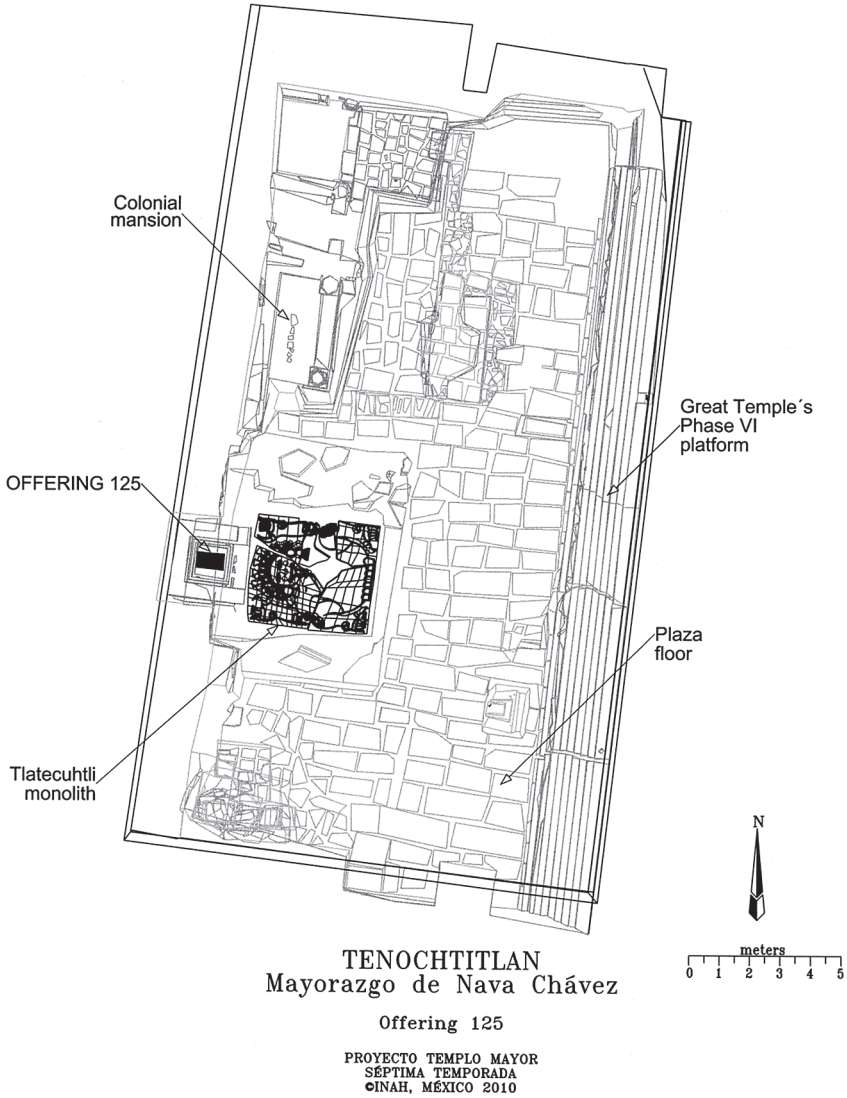

Figure 2.2. *Location of Offering 125, west of the Tlaltecuhtli monolith. (Drawing by Tenoch Medina. © Proyecto Templo Mayor)*

After a careful spatial analysis, we concluded that the Mexica priests laid six layers of objects inside this box. The first or bottom layer was composed of a richly dressed canid (Figure 2.4). Around this animal we found a group of

Figure 2.3. *Monumental stone frame in the shape of an inverted, stepped pyramid. It symbolized the entrance to the underworld and contained Offering 125. Photo by Leonardo López Luján. © Proyecto Templo Mayor.*

sacrificial flint knives, all of them dressed with costumes and insignia of nocturnal divinities or warriors killed in battle. The canid and knives were covered by a thick layer of marine animals. This was followed by more flint knives, the bodies of two golden eagles, and an artifact made of spider-monkey hair (Figure 2.5). The ceremony ended by depositing copal resin and sealing the box with gray andesite slabs.

ANIMAL REMAINS

The taphonomic study of Offering 125 and the meticulous analysis of the faunal specimens yielded highly varied conclusions. These were enriched by historical and iconographic information with important implications concerning economic, political, and religious dimensions.

In the offering were 1,945 faunal elements, corresponding to a minimum number of 1,264 individuals. They were classified in five phyla, ten classes, forty-six families, fifty-eight genera, and fifty-six species (Table 2.1). Of the five extant phyla, Mollusca is the most abundant (79 percent of the sixty-two

Figure 2.4. *Offering 125: deepest excavation level, with canine skeleton. (Photo by Leonardo López Luján. © Proyecto Templo Mayor.)*

Figure 2.5. *Offering 125: uppermost excavation level, with eagle skeletons and marine animals. (Photo by Leonardo López Luján. © Proyecto Templo Mayor.)*

Table 2.1 Offering 125: Identified Taxa

Phylum	*Class*	*Scientific name*	*Common name*
Coelenterata	Anthozoa	*Acropora cervicornis*	Staghorn
Coelenterata	Anthozoa	*Gorgonia* sp.	Soft coral
Echinodermata	Echinoidea	*Echinometra vanbrunti*	Sea urchin
Arthropoda	Malacostraca	*Coelocerus spinosus*	Channelnose spider crab
Arthropoda		*Macrobrachium americanum or M. carcinum*	Freshwater shrimp
Mollusca	Polyplacophora	*Chiton marmoratus*	Marbled chiton
Mollusca	Gastropoda	*Agaronia propatula**	Snail
Mollusca	Gastropoda	*Astraea* (*Ubanilla*) *olivacea*	Snail
Mollusca	Gastropoda	*Astraea* (*Ubanilla*) *unguis**	Snail
Mollusca	Gastropoda	*Busycon* (*Fulguropsis*) *spiratum plagosum**	Snail
Mollusca	Gastropoda	*Cantharus* (*Pollia*) *sanguinolentus**	Snail
Mollusca	Gastropoda	*Columbella fuscata*	Snail
Mollusca	Gastropoda	*Columbella major**	Snail
Mollusca	Gastropoda	*Conus spurius atlanticus*	Alphabet cone
Mollusca	Gastropoda	*Crepidula* (*Bostrycapulus*) *aculeata*	Spiny slipper-shell
Mollusca	Gastropoda	*Crucibulum* (*Crucibulum*) *spinosum*	Spiny cup-and-saucer
Mollusca	Gastropoda	*Cypraea* (*Macrocypraea*) *cervus**	Atlantic deer cowrie
Mollusca	Gastropoda	*Hipponix grayanus**	Snail
Mollusca	Gastropoda	*Jenneria pustulata**	Pustulate cowrie
Mollusca	Gastropoda	*Leucozonia cerata**	Snail

continued on next page

Table 2.1—*continued*

Phylum	*Class*	*Scientific name*	*Common name*
Mollusca	Gastropoda	*Malea ringens*	Snail
Mollusca	Gastropoda	*Mauritia arabicula**	Snail
Mollusca	Gastropoda	*Morum* (*Morum*) *tuberculosum**	Snail
Mollusca	Gastropoda	*Nassarius luteostomus**	Snail
Mollusca	Gastropoda	*Nerita* (*Cymostyla*) *scabricosta*	Rough-ribbed Nerita
Mollusca	Gastropoda	*Nodilittorina* (*Fossarilittorina*) *modesta**	Conspersa periwinkle
Mollusca	Gastropoda	*Oliva sayana*	Lettered olive
Mollusca	Gastropoda	*Olivella* (*Lamprodoma*) *volutella*	Snail
Mollusca	Gastropoda	*Opeatostoma pseudodon*	Thorn latirus
Mollusca	Gastropoda	*Persicula imbricata**	Snail
Mollusca	Gastropoda	*Pilosabia pilosa**	Bearded hoof-shell
Mollusca	Gastropoda	*Plicopurpura pansa**	Snail
Mollusca	Gastropoda	*Polinices hepaticus*	Brown moon snail
Mollusca	Gastropoda	*Stramonita biserialis**	Two row rock-shell
Mollusca	Gastropoda	*Thais* (*Stramonita*) *haemastoma canaliculata**	Hay's rock-shell
Mollusca	Bivalvia	*Anadara* (*Cunearca*) *bifrons**	Clam
Mollusca	Bivalvia	*Anodonta chalcoensis**	Freshwater clam
Mollusca	Bivalvia	*Arca pacifica**	Clam
Mollusca	Bivalvia	*Atrina* sp.	Clam
Mollusca	Bivalvia	*Chama* (*Chama*) *echinata*	Clam
Mollusca	Bivalvia	*Codakia distinguenda**	Clam
Mollusca	Bivalvia	*Corbula* (*Caryocorbula*) *ovulata**	Clam

continued on next page

Table 2.1—*continued*

Phylum	*Class*	*Scientific name*	*Common name*
Mollusca	Bivalvia	*Crassostrea virginica*	Eastern oyster
Mollusca	Bivalvia	*Dinocardium robustum*	Giant Atlantic cockle
Mollusca	Bivalvia	*Donax* (*Amphichaena*) *kindermanni**	Clam
Mollusca	Bivalvia	*Donax* (*Chion*) *punctatostriatus**	Clam
Mollusca	Bivalvia	*Megapitaria squalida**	Clam
Mollusca	Bivalvia	*Modiolus americanus*	Tulip mussel
Mollusca	Bivalvia	*Nephronaias aztecorum**	Freshwater clam
Mollusca	Bivalvia	*Pitar* (*Hysteroconcha*) *lupanaria*	Clam
Mollusca	Bivalvia	*Protothaca* (*Leukoma*) *asperrima**	Clam
Mollusca	Bivalvia	*Spondylus princeps*	Pacific thorny oyster
Mollusca	Bivalvia	*Tellina* (*Arcopagia*) *fausta*	Faust tellin
Mollusca	Bivalvia	*Trachycardium* (*Mexicardia*) *panamense**	Clam
Chordata	Actinopterygii	*Arothron* sp.	Fat puffer
Chordata	Actinopterygii	*Hyporhamphus* sp.	Halfbeak
Chordata	Actinopterygii	*Lutjanus* sp.	Snapper
Chordata	Reptilia	*Crotalus molosus*	Rattle snake
Chordata	Aves	*Aquila chrysaetos*	Golden eagle
Chordata	Aves	*Cyrtonyx montezumae*	Montezuma quail
Chordata	Mammalia	*Ateles geoffroyi*	Spider monkey
Chordata	Mammalia	*Canis lupus*	Wolf or dog

Note: Newly recorded species in Tenochtitlan marked with *.

taxa) with forty-eight species and one genus of snails, clams, and chitons. This is followed by the phylum Chordata (12.9 percent), with three genera of fish (fat puffer, halfbeak, and snapper), one species of reptile (rattlesnake), two species of birds (Montezuma quail and golden eagle), and two species of mammals (spider monkey and a canid that could be a wolf or a dog). The phylum Coelenterata (3.2 percent) is represented by one genus (soft coral) and one species (staghorn), while Arthropoda (3.2 percent) figures in the list with two species (channelnose spider crab, freshwater shrimp). Finally, the phylum Echinodermata (1.6 percent) includes a single species (sea urchin).

The identified taxa lived in nine different environments including coastal seas, reefs, estuaries, freshwater environments, grasslands/pine-oak forests, hillsides and prairies, temperate and tropical forests, temperate and arid mountains, and deserts (Table 2.2). Of the sixty-two taxa identified, fifty-four are endemic to ocean environments (87.1 percent). Thirty-five species (71.4 percent) come from the Panamic Province (Pacific Ocean): twenty-two species of snails, twelve species of clams, and the sea urchin. In contrast, twelve species (24.5 percent of the marine species) come from the Caribbean Province (Atlantic Ocean): six species of snails, three of clams, the staghorn, the marbled chiton, and the channelnose spider crab. Only a single species of snail (*Crepidula aculeata*) and clam (*Modiolus americanus*) live in both provinces (4.1 percent).

These percentages might have a straightforward historical explanation. It is known that during Ahuitzotl's reign (AD 1486–1502), most of the conquests were on the Pacific Coast of Mesoamerica (Hassig 1988:200–218). In those years, Cihuatlan, Tecpantepec, Ayotlan, Ometepec, Xoconochco, and Miahuatlan were converted into tributary provinces, while certain regions of Tehuantepec and Xochtlan were reconquered. In this way, the Mexica and their allies added territories located in the modern-day Mexican states of Guerrero, Oaxaca, and Chiapas to their domains. Obviously, this afforded them unlimited access to the resources from the Pacific Ocean, as a result of both tribute and trade.

As for how the marine animals could have been collected, this was generally not difficult. Almost all of the species identified lived in shallow waters, on rocks or atop other shells, under sandy layers in tidal zones, in coral reefs, or in seagrass beds. The only exceptions are the clam species Spondylus calcifer, *Spondylus princeps*, and *Chama echinata*, which dwell in rocky substrata at a depth of ten to twenty meters, which implies diving was necessary to get them. On the other hand, we know that these marine animals were alive when they were collected in their natural habitat and perhaps they were also still

Table 2.2 Offering 125: Provenience of Animals and Minimum Number of Individuals (MNI)

	Province		*Environment*									
Taxa	*Carribean*	*Panámica*	*Estero*	*Coastal sea*	*Reef*	*Freshwater*	*Forest of pin-oaks, pasture, zacatona*	*Mountain, hillside & meadow*	*Warm, temperate forest*	*Temperate & arid mountain*	*Rocky area of forest, savanna & desert*	*MNI*
Acropora cervicornis	x				x							2
Gorgonia sp.	x	x			x							1
Echinometra vanbrunti		x		x								4
Coelocerus spinosus	x			x								1
Macrobrachium americanum or *M. carcinus*						x						2
Chiton marmoratus	x			x								104
Agaronia propatula		x		x								2
Astraea olivacea		x		x								11
Astraea unguis		x		x								3
Busycon spiratum plagosum	x			x								1
Cantharus sanguinolentus		x		x								3
Columbella fuscata		x		x								323
Columbella major		x		x								6

continued on next page

Table 2.2—*continued*

	Province		*Environment*									
Taxa	*Carribean*	*Panámica*	*Estero*	*Coastal sea*	*Reef*	*Freshwater*	*Forest of pin-oaks, pasture, zacatona*	*Mountain, hillside & meadow*	*Warm, temperate forest*	*Temperate & arid mountain*	*Rocky area of forest, savanna & desert*	*MNI*
Conus spurius atlanticus	x			x								1
Crepidula aculeata	x	x		x								1
Crucibulum spinosum		x		x								1
Cypraea cervus	x			x								1
Hipponix grayanus		x		x								1
Jenneria pustulata		x		x								2
Leucozonia cerata		x		x								1
Malea ringens		x		x								1
Mauritia arabicula		x		x								7
Morum tuberculosum		x		x								1
Nassarius luteostomus		x		x								1
Nerita scabricosta		x		x								473
Nodilittorina modesta		x		x								9
Oliva sayana	x			x								1

continued on next page

Table 2.2—*continued*

	Province		Environment									
Taxa	*Carribbean*	*Panámica*	*Estero*	*Coastal sea*	*Reef*	*Freshwater*	*Forest of pin-oaks, pasture, zacatona*	*Mountain, hillside & meadow*	*Warm, temperate forest*	*Temperate & arid mountain*	*Rocky area of forest, savanna & desert*	*MNI*
Olivella volutella		x		x								2
Opeatostoma pseudodon		x		x								1
Persicula imbricata		x		x								2
Pilosabia pilosa		x		x								1
Plicopurpura pansa		x		x								1
Polinices hepaticus	x			x								4
Stramonita biserialis		x		x								3
Thais canaliculata	x			x								2
Anadara bifrons		x		x								1
Anodonta chalcoensis						x						1
Arca pacifica		x		x								1
Atrina sp.	x	x		x								2
Chama echinata		x		x								108
Codakia distinguenda		x		x								12

continued on next page

Table 2.2—*continued*

	Province		*Environment*									
Taxa	*Caribbean*	*Panámica*	*Estero*	*Coastal sea*	*Reef*	*Freshwater*	*Forest of pin-oaks, pasture, zacatona*	*Mountain, hillside & meadow*	*Warm, temperate forest*	*Temperate & arid mountain*	*Rocky area of forest, savanna & desert*	*MNI*
Corbula ovulata		x		x								1
Crassostrea virginica	x			x								1
Dinocardium robustum	x			x								27
Donax kindermanni		x		x								1
Donax punctatostriatus		x		x								2
Megapitaria squalida		x		x								2
Modiolus americanus	x	x		x								1
Nephronaias aztecorum						x						71
Pitar lupanaria		x		x								1
Protothaca asperrima		x		x								1
Spondylus princeps		x		x								2
Tellina fausta	x			x								33
Trachycardium panamense		x		x								1

continued on next page

Table 2.2—*continued*

	Province		*Environment*									
Taxa	*Carribbean*	*Panámica*	*Estero*	*Coastal sea*	*Reef*	*Freshwater*	*Forest of pin-oaks, pasture, zacatona*	*Mountain, hillside & meadow*	*Warm, temperate forest*	*Temperate & arid mountain*	*Rocky area of forest, savanna & desert*	*MNI*
Arothron sp.		x	x	x	x							1
Hyporhamphus sp.	x	x	x	x								5
Lutjanus sp.	x	x	x	x								2
Crotalus molossus											x	1
Aquila chrysaetos									x			2
Cyrtonyx montezumae								x				2
Ateles geoffroyi										x		1
Canis lupus											x	1

alive when they were offered in Tenochtitlan. This is evident from the bright colors and magnificent condition of most of the specimens, in addition to the fact that the clams still have a ligament or hinge, the snails an operculum, and the sea urchins the Aristotle's lantern or chewing organ. This also means that these animals were not consumed as food but rather were deposited whole in Offering 125 for their symbolic value. In fact, the vast majority of species recovered are not edible, with the exception of Eastern oysters (*Tellina fausta*), freshwater clams, and some marine clams (*Megapitaria squalida*, *Donax kindermanni*, and *D. punctatostriatus*).

CAPTIVITY

By all indications, once they reached Tenochtitlan, many living animals were confined alive to await the ceremonies in which they were offered to the gods of the sacred precinct. A good example is represented by the two adult eagles from Offering 125. Ninety-seven percent of their bones were recovered, all in magnificent condition and without any traces of perimortem cut marks, indicating that both were buried soon after death, with the decomposition of their bodies taking place within the box containing the offering. The priests placed these animals with their wings folded and feet tied together at the tarsometatarsi.

The more robust skeleton with a greater wing span represents a female eagle. It was found in the northwest quadrant of the box. It was placed on its right side with a general west-east orientation and with the head toward the west. This specimen had a mother-of-pearl, ring-shaped pectoral (*anahuatl*) over the sternum and pear-shaped, copper rattle bangles around the tarsometatarsi. The skeleton of the male, as in nature, is smaller. It was deposited in the southwest quadrant, also lying on its right side, with a general west-east orientation, but with the head and legs flexed toward the south. This specimen wore lavish, pear-shaped, gold rattle bangles on its tarsometatarsi.

The skeleton of the male eagle is distinguished by a visible deformity in the right wing, precisely at the articulation of the humerus with the ulna and the radius (Figure 2.6). The articular surfaces of the humerus are inclined toward the ventral part, which implies that the distal portion of the wing was bent toward the left, when the normal position would be toward the opposite side. Digital X-rays and CT scans indicate that this deformity was caused by a fracture. Importantly, although the fracture healed, this bird was unable to fly, which would have prevented it from hunting and feeding. Its bones, however, were robust and were of normal dimensions, which suggest that it was

Figure 2.6. *Male golden eagle's wings. That on the right shows a clear deformity at the articulation of the humerus with the ulna and the radius. (Photo by Leonardo López Luján. © Proyecto Templo Mayor.)*

kept in captivity and was cared for by expert hands. In this regard, we should recall that within Moctezuma's palace, there was a Totocalli, or "House of Birds," where eagles and many other birds were kept in cages (see Blanco et al. 2002; Nicholson 1955). Franciscan friar Bernardino de Sahagún (2000:762) mentions that at the Totocalli "there were stewards who took care of all sorts of birds, such as eagles and other large birds, that were called *tlauhquechol* [roseate spoonbills] and *zacuan* [Montezuma oropendola] and parrots and *alome* [scarlet macaws] and *coxolitli* [pheasants]."

On the other hand, the female eagle skeleton from Offering 125 contained on its sternum a concentration of highly fragmentary Montezuma quail bones, with green-bone fracture patterns and homogeneous coloring at the edges (see Serjeantson 2009:118–119). We believe that these bones could have been part of a pellet, in other words, the mass of undigested parts of a bird's food that is processed inside the gizzard and occasionally regurgitated. In the case of this offering, the exclusive presence of Montezuma quail might mean that the eagle, before being buried, had lived in captivity and was fed only quails.

In an evocative comment, Hernán Cortés (1994:67) noted that in the Totocalli there were three hundred men to attend to these birds, taking care of them: "And everyday all of these birds were given hens to eat, and no other food." Thus the faunal evidence fits well with historical accounts of Mexica practices of raising birds of prey.

The Totocalli was also the area of the palace where the most experienced fine metalworkers, lapidary-stone craftsmen, painters, and feather-workers in the king's employ were located (Sahagún 2000:762). The latter were able to handle the birds to harvest feathers without killing them to make ornaments and accoutrements that were status markers par excellence. Perhaps in the royal palace craftsmen also produced ritual artifacts that we see in the offerings. For example, sacrificial knives that were dressed as divinities by means of insignia made with clams, snails, and monkey skin were found in Offering 125 (López Luján and Aguirre Molina 2010). The offering also contained spider-monkey hair spatially associated with the characteristic gold ornaments of the pulque gods. However, it is hard to know if these remnants of hair were part of a headdress or a costume (López Luján and Chávez Balderas 2010b). Anyway, it is interesting to note that a priest wearing these same gold ornaments appears in the Códice Magliabechi (1996:55r) beside another individual dressed as a monkey.

SYMBOLISM

As we mentioned earlier, the animals from the Tenochtitlan offerings were selected more for their symbolic value than for their use as food. A good example in this regard is the female canid discovered at the bottom of the votive box. In the case of this animal, 95 percent of the bones, all in magnificent condition, were found, although perimortem fractures were detected on the left side of the seventh, eighth, and ninth ribs. We know that the skeleton belongs to an individual of the *Canis lupus* species, but so far it has not been possible to determine if it is a Mexican wolf (*Canis lupus baileyi*) or a dog (*Canis lupus familiaris*). The skeleton has proportions and morphology unlike those of the other wolves discovered at the Templo Mayor, as well as many characteristics compatible with the wolf, a few others with the dog, and others with both.

The canid skeleton represents an individual of advanced age. This is supported by the obliteration of the cranial sutures, the fusion of the epiphyses of the long bones, the fusion of the pelvis with the sacrum, as well as the presence of the hemal arch in the tail vertebrae and of abundant bone spurs resulting

from degenerative osteoarthritis. The longevity and osteoarthritis together with skeletal indicators of a good diet suggest that this animal benefited from human care while it was alive.

Based on our taphonomic study, the canid was buried very shortly after death and its body decomposed within the offertory box. It is clear that it was placed in a manner similar to that of the eagles: lying on its right side, with a general west-east orientation. The canid's head was next to the west wall of the box, with its snout toward the northwest. The front legs were extended toward the east and the back ones semiflexed and crossed next to the east wall.

Surprisingly, the canid wore jewels that were the prerogative of royalty: two earflares made of wood covered with turquoise mosaic, a necklace with sixty-four greenstone beads, a belt with thirteen *Oliva* gastropods, and two bangles with five gold bells each on the back legs. If the remains turn out to be those of a dog, which we are waiting to corroborate on the basis of DNA analysis carried out by Steve R. Fain, we might speculate that it was a royal pet buried to help its master reach the beyond, in accord with widespread beliefs about the afterlife throughout Mesoamerica (Chávez 2007).

We should also recall that this canid was covered with a thick layer of aquatic animals: snails, clams, chitons, fish, sea urchins, corals, freshwater shrimps, and a spider crab. In our opinion, the priests endeavored to express, through ritual language, a typical "definition by extension"—that is, a definition that expressed the whole by enumerating each one of its parts (see Dehouve 2009). In the Nahuatl language, the definition of a whole tended to be given through *difrasismos* or *trifrasismos*, in other words, by listing only two or three components symbolically connected. However, in Offering 125, we are faced with a true *inventory*, or exhaustive list. Therefore, the presence of fifty-five different taxa of sea and freshwater animals would materially express the idea of "aquatic world." In sum, we would have a canid literally immersed in a watery environment, which is significant in cosmological and eschatological terms. Historical documents speak of the belief in *Apanohuayan* ("The Place for Crossing the Water"), a dangerous river that had to be crossed by the dead on their journey to the ninth level of the underworld. For this journey they relied on the help of their dog companion. This idea is expressed in the scheme of the underworld represented in the Códice Vaticano A.3738 (1996:2), where the head of a swimming dog emerges from an aquatic band rendered with snails (Figure 2.7). In sum, if we tentatively identify the canid of Offering 125 as a dog, the priest could have materialized with it the idea of "dog under water" or taking it further, "dog that crosses the waters of Apanohuayan to lead his master to the ninth level of the underworld."

As for the golden eagles, we must recall that these birds of prey were for the Mexica the symbols par excellence of the sun and its daily movement. More specifically, the setting sun was known in Nahuatl as *Cuauhtemoc*, meaning "descending eagle." Taking this fact into account, as well as that Offering 125 was inside a stone stepped-frame representing the entrance to the underworld and that the two eagle skeletons were facing westward, we think these animals could have alluded to the dying sun or to the souls of eagle warriors heroically deceased in battle.

CONCLUSION

Based on this brief study, not only is it possible to confirm the richness of the contexts excavated by the Templo Mayor Project, but also their marked differences from rural domestic contexts in the Basin of Mexico when it comes to the use and significance of animals. We have been able to confirm that at the ceremonial center of the principal urban settlement in the region, the most highly prized species of fauna were not those that could be used as a food source or for obtaining raw materials for the production of tools. On the contrary, the species used were those that possessed symbolic qualities related to the social hierarchy and religion of dignitaries in the imperial capital (also see Sugiyama et al., chapter 1, this volume). Therefore, the enormous investment made by the Mexica state to obtain exotic animals should come as no surprise. Suffice it to consider the effort implied by the capture of certain specimens, their transportation—often alive—from inhospitable and remote regions, and, in certain cases, their subsequent upkeep in the palace. In this last case, it is clear that the animals not only served for the enjoyment of the sovereign and his court but also for the specialized production of exclusive consumption goods for the nobility, or to be buried in offerings in the Templo Mayor and in other religious buildings in the city.

On the other hand, the biological analysis of the offerings makes it clear that the Mexica priests invested considerable effort in these ritual deposits to emphasize the quantity of individuals, the diversity of species, and the plurality of habitats from which they came—aspects that also speak to us of the political and economic power of the empire. Although it is true that many animals (or the pieces manufactured from them) were buried as gifts to the supernatural, in the majority of cases they were used as symbols of specific gods, of particular regions in the universe, or of important cosmic processes. In the case of Offering 125, it is highly probable that the eagles, marine species, and the canid alluded to the transcendental passage to the beyond that ensued after death, which would be

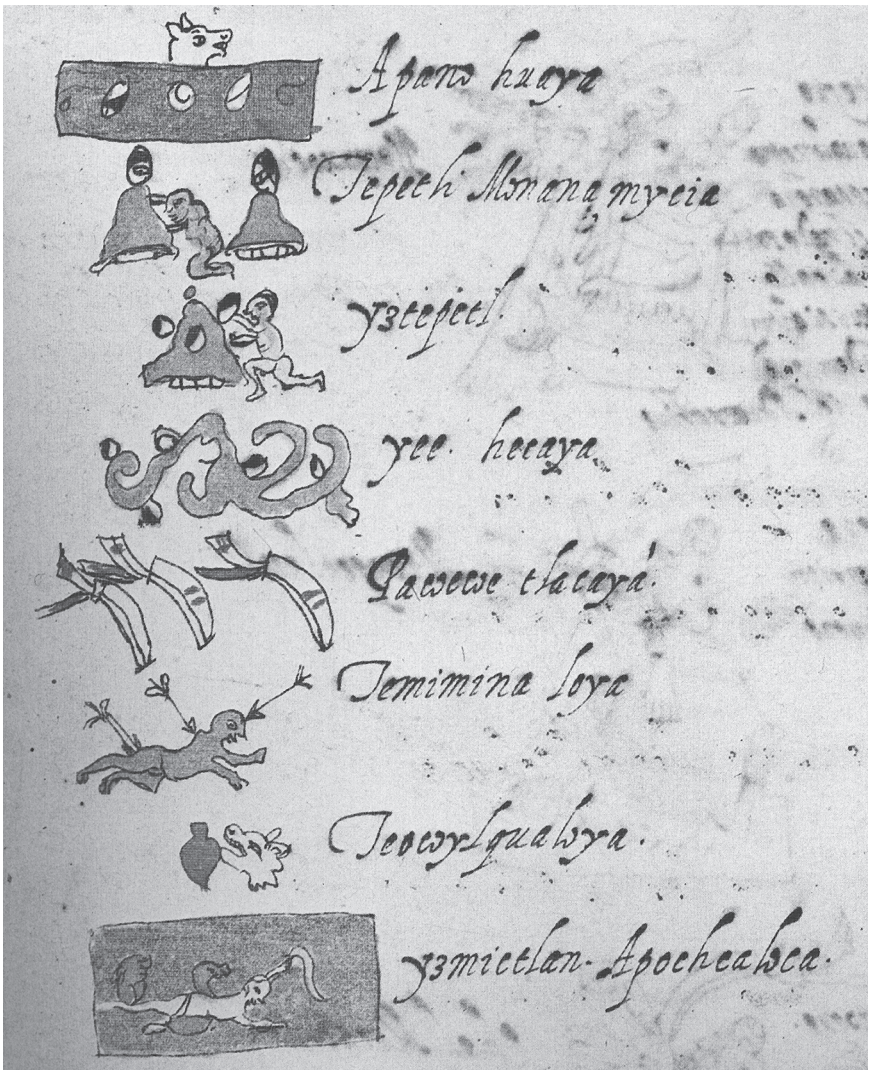

Figure 2.7. *The layers or "dangers" conducting to the Underworld after the Mexica worldview (Códice Vaticano A.3738 1996: 2). Apanohuayan was the uppermost layer. It can be seen as the head of a swimming dog emerging from an aquatic band rendered with snails.*

consonant with the meaning of the monumental entrance that frames the offering and the ritual use given to the area located at the base of the pyramid: the site of cremation and interment of the bodies of the sovereigns of Tenochtitlan.

In sum, the combined use of archaeological, biological, and historical information is revealed as a powerful means to shed light on the relations between the Mexicas and fauna through time. The continued analysis of faunal remains deposited in the offerings in the sacred precinct will help us better understand the technology, economy, politics, and religion of this ancient civilization.

Acknowledgments. We thank Dr. José Luis Villalobos Hiriart (Instituto de Biología, UNAM) for the identification of the decapods, Dr. José Luis Criales (CT-Scanner de México) for the analysis of the X-ray digital images and CT scans, and the volume editors and an anonymous reader for their useful critical comments.

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3

The Luxury of Variety

Animals and Social Distinction at the Wari site of Cerro Baúl, Southern Peru

Susan D. deFrance

INTRODUCTION

Distinct culinary and ritual uses of animals between members of different social strata are powerful and visual means to establish and maintain social disparity. How did the elites of an early Andean state society use animals to distinguish themselves from the general populace and bolster social and political inequality? The site of Cerro Baúl, located in far southern Peru, is a provincial capital of the Andean Wari imperium (Andean Middle Horizon) whose faunal assemblage demonstrates that the "luxury of variety" in animal use was an elite prerogative that fostered social inequality.

The ability to acquire a variety of animals reflects elite control of trade networks, the means to transport food items from distant lands, and the ability to order specialists to acquire local wild animals through hunting or other capture methods (also see López Luján et al., chapter 2, this volume; Sugiyama et al., chapter 1, this volume). A variety of fauna may also signify gifts or offerings that are brought by supplicants or individuals invited from the hinterland to the regional capital. A diverse range of foods circumscribed in their spatial distribution may indicate that elites created a class of luxury foods and restricted the intake of these foods to enforce their social standing (Van der Veen 2003). As has been demonstrated for Mississippian societies in the southeastern United States, the "luxury of variety" was something that the elites could "afford" (Jackson and Scott 2003).

Faunal variety is also achieved by the inclusion of nonfood animals used in ritual. Interpretation of ritual animals is complicated by the fact that many animals can serve in both dietary and ritual capacities. In

DOI: 10.5876/9781607322863.c003

addition, the remains of animals with low dietary value that are exotic (i.e., that do not naturally occur in the vicinity of the site) may represent the refuse from ritual activity (López Luján et al., chapter 2, this volume). Ethnohistorical and ethnographic studies of traditional Andean societies indicate that people create strong associations between the indigenous fauna and an Andean landscape that is considered animate (e.g., Allen 1988; Gade 1999; Guaman Poma de Ayala 1980; Urton 1985). Andean rituals related to death, fertility, and seasonal renewal often involved either the sacrifice of animals or the use of animal products (e.g., fat, blood) in ritual performance (Allen 1988; Guaman Poma de Ayala 1980). The curation and display of portions of exotic animals (e.g., feathers, pelts, teeth, worked-bone specimens) may also have served as symbols of power or prestige.

The summit of Cerro Baúl is characterized by spatial variability in architecture as well as in the distribution of animal remains across the site. The remnants of stone masonry architecture can be divided into residential compounds, ceremonial/ritual structures, and industrial complexes, particularly for lapidary and beer production. Following a discussion of the site, I describe the faunal remains from ten summit contexts to demonstrate how Wari elites created social inequality through the luxury of variety. The ability to acquire, consume, and display diverse animals bolstered the political and social standing of the upper echelon of Wari society.

THE ARCHAEOLOGY OF CERRO BAÚL

Originating from the Ayacucho region of central Peru, the Wari colonized the Osmore River drainage sometime early in the seventh century AD and held sway over the territory for roughly 400 years (Figure 3.1) (Williams 2001). Settling in the upper part of the river drainage (2000–2500 masl), the Wari elite established their colonial capitol on the summit of Cerro Baúl, a steep-sided trunk-shaped mountain (Moseley et al. 2005; Williams 2001). Subsidiary settlements and ethnic barrios were built on the slopes of Cerro Baúl and on neighboring hilltops. The Wari transformed the sierra habitat into productive agricultural land through the construction of a high-elevation canal (Williams 2001). In addition to a reliance on domesticated camelids, the elite who resided at the administrative center of Cerro Baúl were able to acquire a variety of both local and exotic food animals and several nonfood animals, presumably for use in ritual, symbolism, and display. The dietary and ritual uses of animals at Cerro Baúl differ from both neighboring sites in the Wari settlement hierarchy and Wari sites elsewhere in Peru.

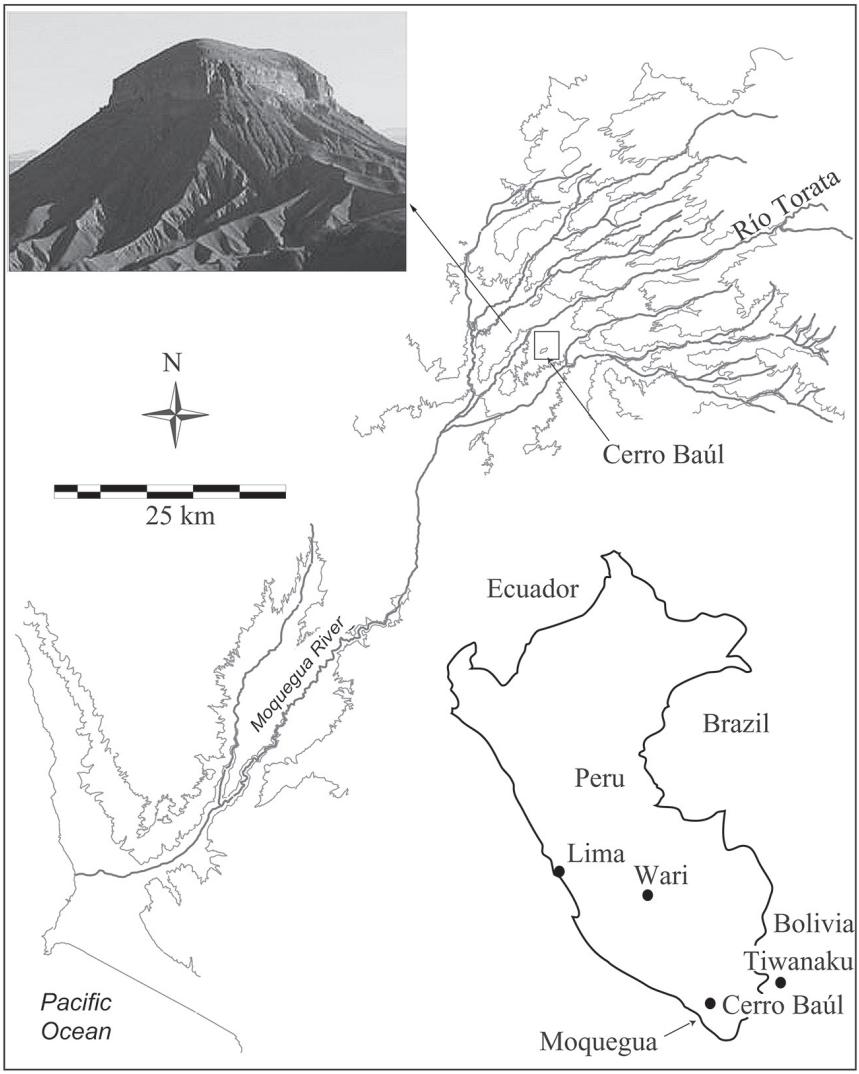

Figure 3.1. *Location of Cerro Baúl in southern Peru.*

The Wari capital at Cerro Baúl is enigmatic. The site is an illogical location for the capital of an imperial colony. There are no natural resources to sustain the population on the summit; with the exception of some ground birds (e.g., doves) and small mammals (e.g., foxes, vizcachas [Andean hares]), all food and water had to be transported to the hilltop. It is also not easily defensible,

despite its appearance as a natural bastion. However, what the site lacked in infrastructure was compensated for by its place in the cosmic landscape. Today, Cerro Baúl is considered an *apu*, or sacred mountain, with modern devotees trekking 600 meters from the valley floor to the summit to make dedicatory offerings. Once on the summit, some of the highest and most cosmologically important peaks in the southern Andes are visible, including Arundane and Picchu Picchu (Williams and Nash 2006). Clearly, the physical prominence and spiritual might of Cerro Baúl overshadowed its logistical difficulties. The political authority of the residents of Cerro Baúl was legitimated though by their ability to commandeer and control a sacred apu (Williams and Nash 2006).

The scale of stone masonry construction and labor investment at Cerro Baúl is evidence of a sophisticated political economic apparatus (Moseley et al. 2005; Williams 2001). Covering three hectares, the Wari settlement consisted of high-walled agglutinated buildings, some more than two stories high. The inward orientation of most compounds guaranteed social differentiation and restricted access. Stone quarries are present on the summit, but thatch for roofing material, stone paving for patios, and other construction materials had to be brought to the summit. The labor for construction and maintenance of the facility had to be secured, organized, and fed.

After thriving for several centuries, the settlement at Cerro Baúl came to a spectacular end (Moseley et al. 2005). Although some buildings fell out of use or were ritually "closed" prior to the demise of the site, the full-scale abandonment was a dramatic event that involved the destruction of much of the material culture, particularly ceramics, in combination with the torching of buildings. Material discarded on floor surfaces was covered and sealed by the collapsed and burned buildings. Because the summit was not reoccupied again until probably the second half of the fifteenth century AD, many of the contexts lay undisturbed for centuries. Despite burning, taphonomic destruction of bone was not a major factor affecting the faunal assemblage.

Excavations at Cerro Baúl and neighboring Wari sites began in 1989 and continue today as part of a multiyear program of research on Wari colonization in southern Peru (Feldman 1989; Moseley et al. 2005; Williams 2001). The primary excavation method consisted of identifying structure complexes (designated as Units) from surface architecture, and then excavating rooms, patios, and associated architectural features as distinct spatial entities using a gridded layout of one-meter squares. Thus far, excavations have been completed in twenty summit contexts, various barrios located on the slopes, and at the neighboring site of Cerro Mejía.

Table 3.1 Cerro Baúl: Excavated and Analyzed Summit Contexts

Unit/Structure	*Size (m^2)*	*Function*
1	259	brewery
2	125	residential
5	32	D-shaped temple
7	92	residential
9	272	elite residential/palace
10	235	D-shaped temple
24	117	elite residential
25	140	residential
26	134	ceremonial
40	149	elite residential/palace

During the 1989 field season faunal remains were collected with one-quarter-inch (6.35 mm) mesh. In subsequent field seasons excavators used site stratigraphy to make decisions regarding mesh size. Excavation units contain a layer of ash from the AD 1600 eruption of the Huaynaputina volcano. Excavators screened all strata below the ash lens with one-sixteenth-inch (1.8 mm) mesh. All faunal material was picked from screens in the field. All excavations within structures or plazas were terminated once intact floors were encountered; no subfloor excavations were completed with the exceptions of feature fill or looters' pits, including burials that extended below floor level. Faunal remains present in the stratum from the ground surface to the ash deposit and those within the ash layer are excluded from this analysis. Summit excavations produced an abundance of faunal remains from diverse domestic, industrial, and ceremonial structures. This chapter reports on ten of the most diverse and best-preserved summit contexts (Table 3.1, Figure 3.2).

EXCAVATION CONTEXTS

Unit 1 is a large brewery compound (259 square meters) for the production of maize beer or *chicha* (Figure 3.2). The trapezoidal compound consists of four rooms where the brewing, fermentation, and consumption of beer took place. Remnants of fermentation vats indicate that the brewery could have produced approximately 1800 liters of chicha per batch, making this one of the largest pre-Inca breweries in the Americas (Moseley et al. 2005:17267). Serving pitchers and consumption jars (*keros*) indicate that ritual libation

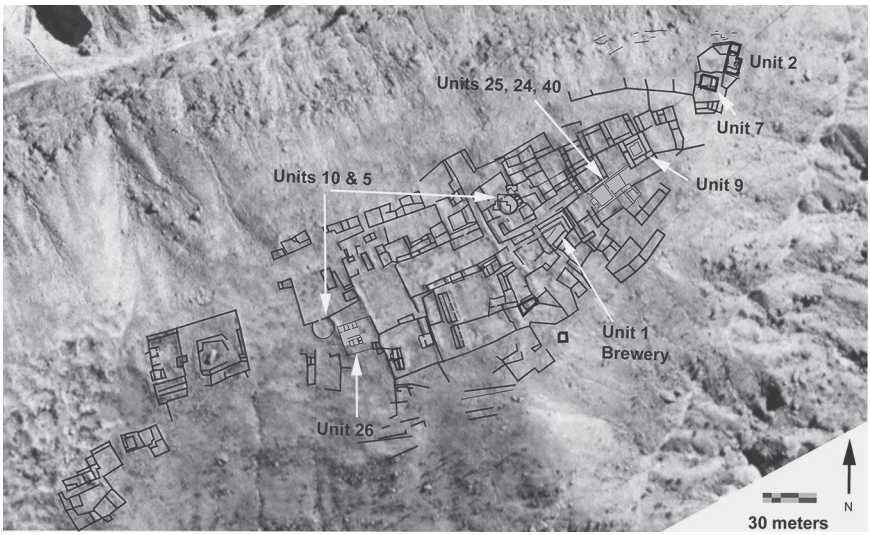

Figure 3.2. *Ten summit contexts, Cerro Baúl.*

was a very important component of Wari political economy. As with several other buildings, the brewery was torched as part of site abandonment. The discarded remains of ornate *keros* attest to the conspicuous ritual disposal of material wealth.

A large body of labor was needed for all aspects of beer production and serving. For the later Inca state, the social production of beer on a massive state-sponsored scale is interpreted as having mirrored household systems of beer production and consumption in which women's labor was instrumental in creating the beverage that sustained the household and, symbolically, society as a whole (see Bray 2003). The recovery of several shawl pins (*tupus*) in the brewery assemblage indicates that women had a significant role in the production of Wari beer, as was the case in the Inca state. Brewers in the service of the state would have been fed for their labor. Abundant animal remains throughout the structure indicate that food refuse as well as remains of animals of symbolic value were discarded in the building.

Unit 2 is a four-room compound at the northernmost end of the settlement (Feldman 1989; Williams 2001). The architecture is less formal than in some other structures and consists of open work areas and one roofed structure. One of the northern rooms that was originally an open patio served as a trash dump where a considerable amount of faunal material was discarded. The other rooms also had a significant quantity of well-preserved faunal remains.

Unit 7 located just south of Unit 2 is a domestic complex of nine small rooms and corridors. Built on the terraces that slope to the east and at a lower elevation than the monumental residential and ceremonial architecture on the highest part of the summit, the rooms and work areas of Unit 7 are on different elevations, the lowest of which contained refuse from food and *chicha de molle* (a type of maize beer made with molle seeds) preparation. In addition to everyday faunal staples, the animal remains include some probable nonfood taxa.

Units 5 and 10 are D-shaped structures similar to those previously interpreted as Wari ceremonial temples (Figure 3.2) (Cook 2000). The Baúl D-shaped buildings had tall stone walls and both opened to the northeast (Moseley et al. 2005). The interior of Unit 10, the larger of the two temples, was excavated in its entirety while that of Unit 5 was partially excavated. An agglutinated room associated with Unit 5 was also excavated. The presence of these two ceremonial structures probably relates to Andean dual *ayllu* (kin and nonkin political group) organization. Phosphate analysis of soils indicates the presence of food and beverages (Coleman 2004). However, the faunal remains are not abundant in either structure, suggesting that the floors were kept relatively clean. There is no evidence for the ceremonial destruction of these temples, as was evident with other buildings, although associated buildings exhibit evidence of burning.

Unit 26 is an elaborate complex in the same walled complex as Unit 10, the larger of the two D-shaped temples. Within a large walled-compound, the temple annex consists of a large central patio surrounded by smaller rooms along the north and south walls. The painted and plastered room in the northwest corner was the most ornate, possibly owing to its use as a funerary locale for the burial of an infant and a prepubescent youth (Moseley et al. 2005). Also found in this room were the remains of an unusual painted ceramic drum in Late Nazca style. South of the funerary room and along the west wall the remains of a subadult camelid offering were found; this represents the most intact offering thus far excavated from Cerro Baúl. Other animal remains include a second, less complete camelid offering, marine fish, and nonlocal animals.

Unit 9, located in the residential area east of the brewery, is the most elaborate palace complex excavated on the summit. The multiroom elite palace featured a large (9 square meters) interior patio that was accessible only through a series of corridors and passageways. The patio floor of cut-and-polished rhyolite slabs was surrounded by benches that provided seating for guests and dignitaries along all four walls. A looted burial of an adult is

among the features excavated in the central patio (Williams and Ruales 2002). The five contiguous roofed buildings surrounding the patio also had paved rhyolite floors, indicating a significant labor investment in architectural detail. These rooms yielded a variety of domestic artifacts associated with food preparation, weaving, and other activities. The ritual closing of this structure was accompanied by a spectacular "pot smash" in which over sixty varied ceramic vessels were destroyed. Moreover, the patio floor and surrounding rooms are scattered with the remains of an impressive final feast. The animal remains include the most diverse fauna of any structure thus far analyzed in terms of both species composition and provenance as determined by stable isotopic analysis (deFrance and Nash 2007; Thornton et al. 2011). A radiocarbon date indicates that the structure was "ritually closed" at about AD 800, although the remainder of the site continued to be used for another 200 years.

The current working hypothesis regarding the final feast and building closure is that this event represents an elaborate example of diacritical feasting (*sensu* Dietler 2001). Presumably, a party of select guests celebrated the interment of the individual in the central patio and then the building was destroyed in an act of reverence and remembrance (deFrance and Nash 2007; Nash 2010).

Southwest of the main palace complex (Unit 9) partial excavations were completed in two associated structures (Units 25 and 40). Employing similar architectural principles to Unit 9, access to an interior patio (Unit 25) was through a narrow corridor. Once inside the open courtyard, visitors could be seated along interior benches, presumably according to rank and status. Along the western wall was a small U-shaped roofed room. Using analogy with Inca ritual space, the U-shaped room was probably a focal point of state ritual (Moseley et al. 2005:17268). A small doorway on the opposite east wall opens into a simple open courtyard that served as a ceramic workshop (Unit 40). The animal remains from these two contexts are not as diverse as Unit 9 but nonetheless include some unique taxa.

Unit 24, located south of Units 40 and 25, appears to be a residential area associated with a household of non-elite status. The architecture is more modest than the buildings to the north. A large rectangular and at least partially roofed structure to the south had a central hearth and a relatively simple burial of an infant. Features, pottery remains, and some stone refuse and tools from lapidary work suggest multiple activities occurred in this compound. Midden material accumulated in some rooms, and well-preserved faunal remains are present.

ZOOARCHAEOLOGICAL METHODS

Identification of the faunal remains from Cerro Baúl was completed using the vertebrate comparative collection housed at the Contisuyo Museum in Moquegua, Peru. The Peruvian National Institute of Culture (INC) granted permission for the export of a small number of faunal remains for which there were no modern comparative skeletal specimens at the Contisuyo museum. These remains were identified using vertebrate comparative specimens housed at the Florida Museum of Natural History, Environmental Archaeology Program, the Division of Mammalogy, or the Division of Ornithology.

All of the remains were identified to the lowest taxonomic level. When possible, camelid specimens were classified as representing either small or large varieties. This distinction was based on measurements and size criteria of modern comparative specimens. The small camelids presumably include the alpaca and the vicuña, whereas the large camelids include the llama and the guanaco. Although there is overlap in the size ranges of these four species of camelids, the categorization of specimens into small and large varieties aids in identifying possible economic and functional variation in how camelids were used.

Methods of quantification include the Number of Identified Specimens (NISP) and estimates of the Minimum Number of Individuals (MNI). The faunal material from different rooms within structures was combined analytically for calculating all measures of relative abundance.

THE CERRO BAÚL FAUNAL ASSEMBLAGE

The Cerro Baúl faunal assemblage from the ten contexts presented here consists of 17,194 identified specimens representing a minimum of 483 individuals. Table 3.2 presents the scientific and common names of all the taxa represented, and summaries of the total NISP and MNI by structure. The assemblage contains the remains of at least thirteen mammalian taxa, seven taxa of birds, one reptile, one amphibian, one cartilaginous fish, and nine taxa of bony fishes (Figure 3.3).

The remains of camelids and guinea pigs are present throughout the site, indicating that these animals were the subsistence base of the population. In addition to the dietary staples, some other animals also represent food refuse. The remains of several rare and exotic animals are found in limited contexts and are often represented by singular or few elements.

The mammalian assemblage consists of one probable bat, at least two species of rodents, of which the leaf-eared mouse is by far the most common, and the vizcacha, or Andean hare, as well as guinea pigs, puna fox, domestic dog,

Table 3.2 Summaries of NISP, MNI, and Taxon Presence for Cerro Baúl Contexts

			U1	*U2*	*U5*	*U7*	*U9*	*U10*	*U24*	*U25*	*U26*	*U40*	*Total*
NISP for Unit		NISP	1416	4003	518	821	6512	11	806	649	1227	1231	17194
MNI for Unit		MNI	41	38	9	13	135	4	69	45	52	77	483
Total Number of Taxa		Taxa	11	13	3	7	20	3	5	5	5	8	
Scientific name	*Common name*		*U1*	*U2*	*U5*	*U7*	*U9*	*U10*	*U24*	*U25*	*U26*	*U40*	
cf. *Chiroptera*	cf. bat						x						
Phyllotis sp.	leaf-eared mouse		x				x		x	x	x	x	
cf. *Phyllotis* sp.	cf. leaf-eared mouse						x		x				
Cavia porcellus	guinea pig		x	x		x	x	x		x	x	x	
Lagidium peruanum	vizcacha, Andean hare		x	x		x	x		x			x	
Sigmodontinae	mice, rats						x						
Rodentia uid (*small*) non-*Phyllotis* sp.	rodent						x		x			x	
Rodentia uid	rodent		x	x	x	x	x		x	x	x	x	
Pseudalopex culpaeus	puna fox		x										
Canis familiaris	domestic dog			x		x			x				
Felis concolor	mountain lion			x									
Felis sp.	feline			x									
Oncifelis colocolo	pampas cat		x										
Hippocamelus antisensis	taruca		x	x									

continued on next page

Table 3.2—*continued*

Scientific name	*Common name*	*U1*	*U2*	*U5*	*U7*	*U9*	*U10*	*U24*	*U25*	*U26*	*U40*
Odocoileus virginianus	white-tailed deer		x			x					
Odocoileus/Hippocamelus	white-tailed deer/taruca					x					
Cervidae	deer					x					
Lama cf. *glama*	cf. llama	x	x	x	x	x			x	x	x
Lama sp.	llama, alpaca	x	x	x	x	x	x	x	x	x	x
Camelidae	New World camelids					x					
Camelidae / Cervidae	camelids/cervids					x					
Vultur gryphus	Andean condor		x			x					
Nothoprocta cf. *ornata*	tinamou	x	x								
Tinamidae	tinamous					x					
cf. *Tinamidae*	cf. tinamous					x					
Zenaida auriculata	eared dove			x							
Columbidae	doves, pigeons		x								
Glaucidium cf. *peruanum*	pygmy owl					x					
Tyranidae cf. *Muscisaxicola* sp.	flycatcher					x					
Lacertilia (sm.)	lizard (small)					x					
Lactertilia	lizard				x	x				x	

continued on next page

Table 3.2—*continued*

Scientific name	*Common name*	*U1*	*U2*	*U5*	*U7*	*U9*	*U10*	*U24*	*U25*	*U26*	*U40*
Bufo cf. *arequipensis*	toad		x								
cf. *Amphibia* (sm.)	amphibians										x
Isurus oxyrinchus	short-fin mako shark	x									
Engraulidae	anchovy, anchoveta					x					x
Clupeidae	sardines, herrings					x					x
Carangidae	jack					x					
cf. *Carangidae*	jack					x					
Cheilopogon heterurius	flying fish					x					
Exocoetidae cf. *Cheilopolgon heterurius*	flying fish					x					
Labrisomus sp.	blenny					x					
Scartichthys sp.	blenny					x					
Sciaena deliciosa	lorna					x					
Trachurus murphyi	jurel	x			x	x	x	x	x		x
Scombridae	tunas	x									

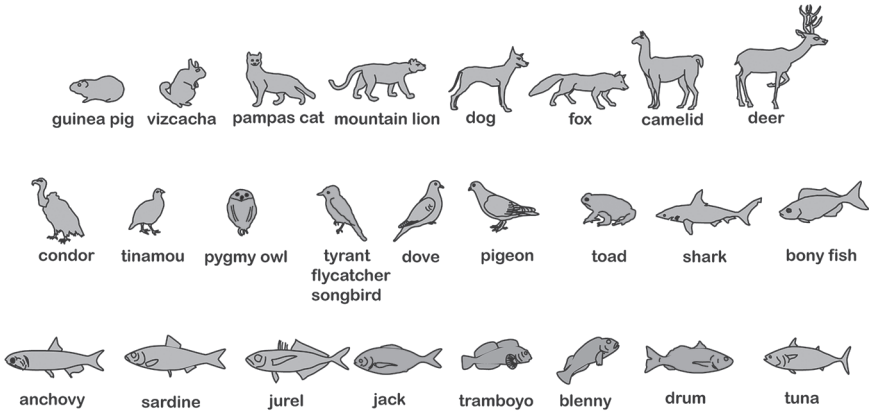

Figure 3.3. *Key to animals found at Cerro Baúl.*

mountain lion, pampas cat, taruca (north Andean deer), white-tailed deer, and at least two species of camelids. The bat and rodents are interpreted as commensal, nonfood animals. The vizcacha, guinea pigs, two species of deer, and the camelids are all interpreted as food remains. The pampas cat, mountain lion, and canines probably do not represent food animals, but rather, were probably of ritual or symbolic significance.

The camelids include relatively small and very large individuals. However, the majority of the individuals are relatively uniform in size and cluster in the larger size range, suggesting that they are llamas. Using dimensional measurements and size comparisons, I was conservative in identifying specimens as representing small-sized camelids. Specimens in the smaller size range may represent the alpaca or the vicuña. Some very large individuals may be either large male domestic llamas or hunted guanaco. In the absence of hunting paraphernalia it is most probable that the larger specimens are remains of domestic llama. The measurement data do not indicate that size variation in the use of camelids was spatially correlated. As described below, camelids served dual roles as both offerings (i.e., ritual animals) and food animals.

The avian assemblage includes remains of the Andean condor, tinamous, spot-winged pigeon, eared doves, pygmy owl, and the small-sized tyrant flycatcher. Remains of at least two other unidentified medium-sized birds are present. The tinamous, doves, and pigeons are interpreted as food remains, whereas the condor, owl, and songbird probably served nondietary purposes. All of the bird remains are from species found in the highlands and the western slopes; none are from the eastern rainforest habitat.

Reptiles and amphibians are represented by remains of small-sized lizards and a toad. Neither is thought to represent food refuse. I discuss the possible role of toads in Wari ritual below.

Fishes are represented by the remains of one cartilaginous fish (a short-fin mako shark) and by at least nine species of bony fish, including anchovies, shad, herring, sardines, silversides, jacks, flying fish, two species of blennies, lorna (drum fish), jurel, and at least one tuna. The shark is represented by only one large tooth and therefore is probably not food refuse. All of the bony fishes are marine species and are considered to have been food remains.

INTRASITE VARIABILITY IN FAUNAL REMAINS

The Cerro Baúl faunal assemblage exhibits great variety in the range of animals present, suggesting that access to diverse food and nonfood animals was a privilege of the elite inhabitants. Dietary animals include nineteen taxa. Abundant remains of camelids and guinea pigs are present in all contexts and vizcachas occur in several contexts. In addition, rare or exotic animals are also present. The zooarchaeological assemblage includes at least ten nonfood taxa that are interpreted as animals that fulfilled ritual and/or symbolic roles.

Spatial variability in the distribution of food and nonfood taxa is present in the ten summit contexts (Figure 3.4). Units 1, 2, 7, 9, and 40 contain the greatest variety of fauna, ranging from seven to twenty taxa, with Unit 9 containing the greatest diversity; the two D-shaped temples (Units 5 and 10) contain the least (n = 3). The Unit 26 assemblage is not very diverse (n = 5), but two camelid offerings occur in this structure. Eight of the exotic and probable nonfood taxa (pampas cat, small feline, puna fox, mountain lion, short-fin mako shark, condor, tyrant flycatcher, pygmy owl) that occur in either Units 1, 2, 9, 24, or 40 are represented by single elements. Units 1, 2, and 9 contain the greatest number and variety of probable symbolic and ritual animals (see Figure 3.4).

Nonfood, exotic, or symbolic fauna from Unit 1, the large brewery, include the taruca, puna fox, pampas cat, tinamou, short-fin mako shark, jurel, and tuna. A largely intact camelid cranium found along the wall of the brewing room is a probable offering. The cranium was lodged between the stones that supported the cooking vessels used for the production of chicha; however, it was unburned, suggesting that it was deposited after the brewery was no longer in use. The context suggests that the cranium was purposefully placed along the wall, rather than simply representing abandoned butchering waste.

Unit 2 contains remains of domestic dog, mountain lion, Andean condor, toad, and a small unidentified feline. The Andean condor specimen is a cut

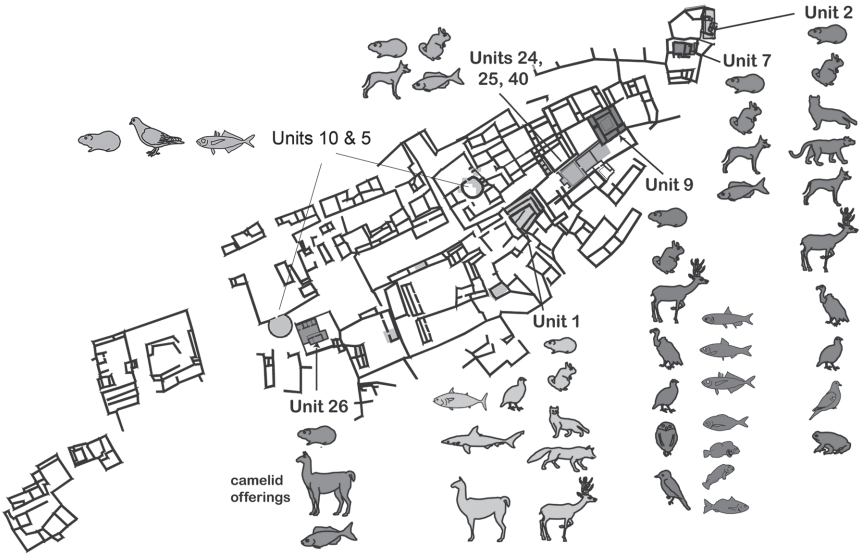

Figure 3.4. *Distribution of animal remains across the site.*

and polished distal portion of an ulna. Domestic dog is also present in Units 7 and 24, and a specimen from an unidentified canid is present in Unit 25. A large portion of a male taruca cranium is also present in Unit 2. Although deer meat is highly comestible, the presence of only an antlered cranium may indicate that the taruca served some nonfood purpose, such as for display.

The remains of one large toad recovered in Unit 2 are interpreted as nonfood refuse. There was no suitable natural habitat for toads on the summit; therefore, these animals were transported to the site. The recovery of toad remains in only a high-status summit context supports the interpretation that these are remains of animals used for ritual. Like other bufonid toads, the skin covering the backs of Andean *Bufo* contains parotid glands that secrete toxic substances. These substances include bufotenin (bufotoxin), an alkaloid neurotransmitter (Lyttle 1993). Although *Bufo* remains in other geographic areas are interpreted as evidence of their use to induce ritual hallucinations (Weil and Davis 1994), others question the ability of the toxin to affect human neurological function (Cooke 1989; Lyttle et al. 1996). It is thus speculation as to whether anuran toxins were ingested by the Wari culture (deFrance 2004). Alternatively, these animals may have played a symbolic role in the life of Wari elites or been associated with water rituals, as has been documented among modern highland populations in the Lake Titicaca basin (Binford and Kolata

1996:45). Although we have a poor understanding of how and why toads were used, iconographic representations of toads with clearly visible parotid glands occur in zoomorphic ceramics from Cerro Baúl as well as at Conchopata, the large Wari capital near Ayacucho (Anita Cook, personal communication), indicating that they were important to the Wari.

Unit 9 has a very large and diverse assemblage of fauna. Uncommon animals include puna fox, white-tailed deer and taruca, Andean condor, pygmy owl, and tyrant flycatcher. The small tyrant flycatcher may represent the remains of a songbird that was used for its colorful feathers. Tyrant flycatchers inhabit a variety of habitats and elevations (Ridgely and Tudor 1994); therefore, this specimen may have been captured locally. Both the pygmy owl and the Andean condor inhabit the western reaches of the Andes, with the pygmy owl occurring primarily at lower elevations.

Unit 9 also has the most diverse assemblage of marine fishes of any summit context. Of the marine fishes, jurel (NISP = 157) are particularly abundant and include many fragments of the neurocranium, suggesting that whole fish were brought to the site. The quantity and variety of marine fish (NISP = 1358, n = 8 taxa) in Unit 9 alone is greater than in any other summit context (deFrance 2004). All marine fish originated from the coastal region roughly 100 kilometers away.

In addition to the abundance of marine fish, Unit 9 also contained the remains of three camelid individuals with bulk carbon and nitrogen isotopic signatures indicating a probable coastal diet (Thornton et al. 2011). These camelids were recovered from the central patio of Unit 9. Along with other abundant food refuse, they may be associated with a diacritical mortuary feast (deFrance and Nash 2007) connected with the ceremonial closure of this structure around AD 800 (Moseley et al. 2005), 200 years earlier than the final site abandonment. These data suggest that either the Wari extracted goods from the coast or that supplicants made the trip themselves, bringing a variety of fish, possibly via llama caravan. Due to restricted isotopic sampling it is not known if other structures excavated more recently (e.g., Units 24, 25, 26, 40) contain camelids that also exhibit coastal dietary signatures.

The faunal remains represented in Unit 26 consist of the remains of an almost complete large-sized subadult *Lama* cf. *glama* individual that is interpreted as an offering. The remains of the individual show extensive butchering, with evidence of knife cuts to disarticulate the carcass and probably to remove the flesh. However, the majority of the skeletal elements were left intact (i.e., only a small number of specimens such as ribs were hacked into smaller portions for either preparation or consumption and only some long bones were fractured). Once

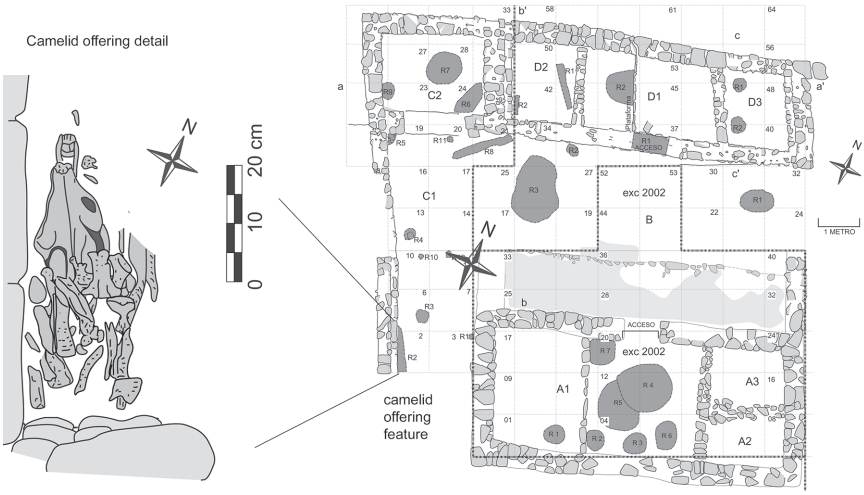

Figure 3.5. *Plan view of Unit 26, with detail of llama offering.*

the specimen was butchered and defleshed, it was rearticulated in approximate anatomical position and interred within the room (Figure 3.5). Interestingly, the age of this camelid—just under three years, based on dental eruption and epiphyseal fusion (Wheeler 1982, n.d.)—corresponds to the age at which modern camelids in indigenous communities are first bred, shorn, and trained to work as pack animals (Wing 1988:169), indicating that the sacrificed animal had reached maturity as an animal of utility. Dimensional measurements of the proximal breadth of the first phalanges and the distal breadth of the scapula are within the size range of measurements for domestic llama reported by Miller and Burger (1995:431–432, 437) (n = 6; average first phalanx Bp is 20.6 mm).

A second partially complete camelid individual is present in a second room in Unit 26. The humeri and femora along with portions of thoracic vertebrae, one rib, and a metapodial fragment from a large-sized individual were interred as a "bundle" within one of the smaller rooms. These remains exhibit butchering marks that include hacks (two specimens) and multiple small cuts (two specimens). One humerus and one femur were hacked into smaller portions of approximately one-fourth to one-half of the specimen. The proximal and distal humeri and femora are fused, whereas the centrum epiphysis of a thoracic vertebra is partially fused, indicating that the individual is greater than 3.5 years of age (Wheeler n.d.).

Although no other artifacts are in direct association with the camelid offerings, other rooms within this structure contained the remains of imported

artifacts, including a Nazca-style pottery drum, nonlocal pottery, and two child burials (Moseley et al. 2005). The association of the camelid remains with human burials and imported pottery indicates these animals were afforded special status in death or were part of specific set of ritual practices.

Units 24, 25, and 26 have lesser quantities of nonlocal and nonfood animals. All three of these units have abundant camelid refuse as well as the remains of the imported marine fish, jurel. Both of the D-shaped temples have little variety of faunal remains, although Unit 10 also contains jurel. In addition, Units 7 and 24 have dog remains.

DISCUSSION AND CONCLUSIONS

The distribution of animal remains from ten high-status contexts across the summit of Cerro Baúl indicates that faunal use by the elite inhabitants was characterized by the luxury of variety. Domesticated camelids and guinea pigs were the dietary mainstays, but significant culinary diversity was achieved through the addition of locally hunted mammals (e.g., vizcachas, deer) and birds (e.g., doves and tinamous). The elite residents also imported food animals from distant habitats, most notably several species of marine fish and camelids that probably had been reared on the coast. Although the coastal trading partners of the Wari are not known at this time, some animals were obtained from over 100 kilometers away.

In addition to dietary variety, the remains of several nonfood animals suggest that animal products were used for either display purposes or other symbolic roles. The worked condor ulna from Unit 2 and the butchered condor wing digit in Unit 9 may have been remnants from feathered costumes. The plumage of the colorful flycatcher (Unit 9) might also have been used for clothing ornamentation. The display of feline pelts is suggested by the remains of pampas cat, a small unidentified feline, and the mountain lion from Units 1 and 2. Fox pelts might also have been used for display (Unit 1). Although deer meat might have been eaten, deer crania with antlers could have been powerful symbols or used for display, and the lone tooth of a short-fin mako shark is strongly suggestive of ornamentation. Finally, toads may have been ingested or related to rainfall rituals. Thus, the remains of thirty-four taxa at Cerro Baúl are significant in demonstrating the ability of elites to acquire exotic and wild animals for diverse purposes.

Comparisons of faunal diversity with both local Wari sites and sites elsewhere in the Andes indicate that the pattern of animal use at Cerro Baúl is unique. In contrast to the summit, the taxonomic variety of faunal material

from primarily domestic contexts on the slopes of Cerro Baúl is limited, consisting only of camelids, guinea pig, and unidentified bony fish (see deFrance 2004; Moseley et al. 2005). In general, faunal remains from slope contexts are less well-preserved than those on the summit due to greater erosion from wind and precipitation. Also, the structures on the slope were smaller in size with more shallow deposits, which also contributed to greater erosion. Although some possible taphonomic factors contribute to poor bone preservation, the fauna is local and mundane.

Adjacent to, and at a lower elevation than, the elite center of Cerro Baúl, the Wari inhabitants of Cerro Mejía are interpreted as having occupied a lower social niche than that of the elite administrators of Baúl (Moseley et al. 2005; Nash 2002). The site of Cerro Mejía represents a second-tier provincial center in the Wari empire. In contrast to Cerro Baúl, the diet of people who resided on Cerro Mejía was local and mundane, consisting almost exclusively of camelids and three other taxa with no hunted, imported, exotic, or ritual fauna (deFrance 2004; Moseley et al. 2005).

Faunal remains from Wari sites in other areas of the Andes are also far less diverse than that of Cerro Baúl. Ongoing zooarchaeological research by Silvana Rosenfeld at the sites of Conchopata located in the Wari heartland of Ayacucho and at provincial sites near Cuzco indicates a dominance of camelids with little or no use of exotic or imported fauna (Rosenfeld 2011). At Conchopata, camelids are present as are abundant guinea pig remains, some canids, a possible ferret, small and medium-sized unidentified birds, and some amphibians. Rural and administrative sites in the Cuzco region include camelids and some deer, but few other animals (i.e., few guinea pigs, no canids, no birds).

Burial contexts from the site of Beringa in the Majes valley of southern Peru, another provincial center, contain a variety of animal offerings that include some imported or exotic fauna, although the majority of the animals probably were obtained locally (Gladwell 2001). The well-preserved offerings are dominated by camelids but also include a possible fox, a small dog, antlered deer crania, a song bird, two colorful species of macaws (probably from the eastern Andes), worked bird bone from large-sized birds (e.g., vulture, flamingo), and unidentified riverine or marine fishes. The Beringa assemblage is most similar to Cerro Baúl in terms of diversity and evidence for long-distance trade in fauna, indicating that elites in some other areas of the Wari realm were also able to obtain a variety of animals.

Wari political economy and symbolic life incorporated local and exotic animals that fostered social inequality. The diverse pattern of animal use exhibited

at Cerro Baúl is significant among the regional Wari sites and those elsewhere in the Central Andes. Elites controlled local pastoral production, the rearing of guinea pigs, and some aspects of hunting. They also engaged in trade with distant populations or accepted animals or animal products from guests as gifts or payments, particularly from coastal regions. Life for the elite inhabitants of Cerro Baúl consisted of a table of plenty along with personal and public ornamentation that used feathers, fur, and teeth. In the South Central Andes, one means through which the Middle Horizon Wari created and institutionalized inequality was through the luxury of variety in animal use.

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4

Shifting Patterns of Maya Social Complexity through Time

Preliminary Zooarchaeological Results from San Bartolo, Guatemala

Ashley E. Sharpe,
William A. Saturno,
and Kitty F. Emery

DOI: 10.5876/9781607322863.c004

INTRODUCTION

This study presents the initial results of the analysis of vertebrate remains recovered during the first five excavation seasons at the Maya site of San Bartolo, Guatemala, with a focus on social inequality among elite and intermediary classes as revealed by differences in animal remains from ritual and secular deposits. San Bartolo provides an unprecedented view of the religion, art, and lifestyles of the ancient Maya, particularly during the poorly understood Preclassic period and the transition from Preclassic to Late Classic periods. Located within the swampy lowlands of the Petén forest (Figure 4.1), the site was initially occupied at least 2,500 years ago (Saturno et al. 2006). San Bartolo is perhaps best known for its elaborate Preclassic murals illustrating a number of ancient myths, nearly all of which incorporate animal imagery (Saturno 2002; Saturno et al. 2004, 2005). These images, when combined with the actual faunal evidence, provide an opportunity to compare the ritual and domestic use of animals among Maya community members of different social ranks.

We compare the faunal remains between chronological periods and social contexts, as well as with the animals depicted in the Preclassic murals, to gain insight into how certain animal species may have been used to emphasize status distinctions among different Maya social classes in the past. In particular, we explore whether the domestic and/or ritual use of particular species was limited to certain classes, if the ritual significance of animals played a role in these class divisions, and if these patterns of socially delimited animal use changed through time.

Figure 4.1. *Mesoamerica, with San Bartolo and other Late Preclassic Maya sites. (Map courtesy of the San Bartolo Project.)*

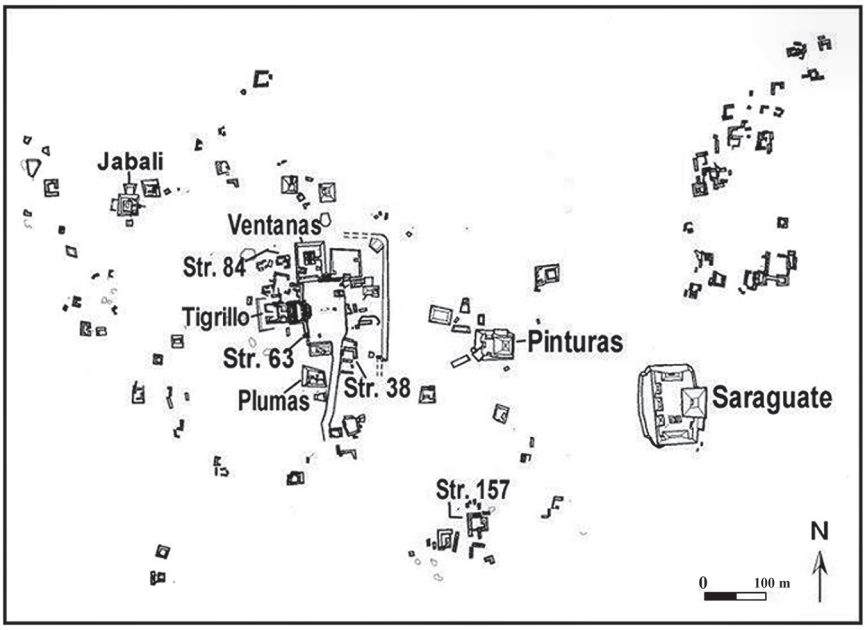

Figure 4.2. *Major sites of excavation at San Bartolo, with locations where faunal material was recovered. (Map courtesy of the San Bartolo Project.)*

THE SAN BARTOLO EXCAVATIONS

The earliest phases of the site date to the Middle Preclassic (ca. 800–400 BC). San Bartolo's "golden age" took place during the Late Preclassic (400 BC–AD 200), when the largest stone monuments and temples were constructed (Saturno 2002). The site was mostly abandoned during the Classic period and was reoccupied during the Late Classic (AD 600–800), although new construction projects were rare and old structures were renovated for reuse. Like many Maya sites in Guatemala, Belize, and southern Mexico, the last San Bartolo inhabitants departed around AD 800, during a time of social unrest that coincided with the abandonment of a number of Maya communities in an event popularly known today as the Classic Maya collapse.

Annual excavations at San Bartolo have been conducted since its discovery in 2001, under the direction of William Saturno and the codirection of Monica Urquizu of the Instituto de Antropología e Historia of Guatemala. The site consists of three large pyramid complexes surrounded by several smaller residential groups (Figure 4.2). Thus far, over 100 structures have been discovered (Saturno 2002). The Las Pinturas complex appears to have served as the

religious center of the site, and includes a platform with four temples that were rebuilt several times during the Preclassic period. The largest of the four temples contains the murals. San Bartolo's central complex, Las Ventanas, lies to the west, and includes a palace (El Tigrillo), ballcourt, administrative structures, and the site's Main Plaza. A complex of lower-elite residential structures, Las Plumas, is located a short distance to the south, and was occupied during both the Late Preclassic and Late Classic periods. A smaller residential complex, Jabali, is located to the west. A third pyramid complex, Saraguate, also includes a ball court (Urquizu and Menendez 2006). The largest residential complexes at the site are concentrated around Las Ventanas and Jabali.

For this study, we divided the faunal contexts into three categories based on archaeological markers of status and function: elite domestic, lesser or non-elite domestic, and elite ritual. Elite domestic remains were recovered from the Las Ventanas and Jabali groups, believed to be the residences of those who had the most power and authority at the site, including the king and his court. Lesser or non-elite domestic remains were recovered from the Las Plumas residences, as well as a few smaller residential structures located around the site core. Ritual remains came from the religious center of the site, Las Pinturas, as well as a "special deposit" near Las Plumas.

For these comparative divisions we follow status and function designations made by the project archaeologists based on established archaeological markers such as the size and quality of architectural features and associated artifact assemblages, as well as spatial distance from the primary administrative, dwelling (palace), and ritual complexes (Urquizu and Saturno 2002, 2004). Although such divisions are an effective heuristic devise, they are still arguably arbitrary, for neither social status nor functional use is easily segregated into such categories. A thorough explanation of the distinguishing factors among different Classic Maya social ranks lies outside the scope of this chapter (see Hendon 1991; Palka 1997), but we define an elite as anyone who belonged or was closely associated with the ruling family, including community administrators and the highest-ranking priests. Lesser elites included administrative attachés, merchants, and craftspeople. The non-elite class constituted the farmers, servants, and lower-ranking merchants and artisans.

THE MURALS

The San Bartolo murals are located within a small substructure on the east side of the Las Pinturas complex, and have been dated to the Late Preclassic period (Saturno 2002). They represent some of the earliest and best-preserved

Figure 4.3. *Section of the North Wall murals. The base of the image is the back of a feathered serpent, on which six individuals appear in this detail. The backward-facing Maize God (center) and other deities emerge from the cave, surrounded by various animals and vegetation that suggest the cave's "wild" aspect. Two snakes appear in the upper and lower left, respectively, along with a reptile (left) and a jaguar (above the kneeling woman at left), as three oropendolas near the jaguar's head circle their hanging nest. Drawing by Heather Hurst.*

examples of Maya mythology as depicted in art. For the zooarchaeologist, the murals suggest that the San Bartolo inhabitants had a strong fascination with the natural world, and they reveal a close relationship between certain animal species and the rituals of kingship. Along the North Wall trails a large feathered-serpent, emerging from a cave—the mouth of the underworld—with eight individuals on its back (Hurst 2004; Saturno et al. 2005). One of the riders is the Maize God, an important deity featured prominently in Maya lore for his heroism and links to divine kingship. The cave from which the serpent emerges (Figure 4.3) may represent a primordial source of life (Saturno et al. 2005:18). Surrounding the cave is a series of animals, including two snakes (one possibly a fer-de-lance, *Bothrops asper,* based on the coloring and markings), an unidentified reptile, a jaguar (*Panthera onca*), and three birds that Sharpe has tentatively identified as Montezuma oropendolas (*Psarocolius montezuma*) based on a depiction of their distinctive hanging nest.

Two scenes also run along the West Wall, displayed back-to-back like the folded pages of a Maya codex (Figure 4.4). One illustrates a series of heroes luring a large mythical bird down from the heavens with sacrificial offerings

Figure 4.4. *The West Wall murals, depicting three sacrifices to the Principal Bird Deity. On the three tripods are sacrifices (left to right) of what are likely a catfish, deer, and turkey, respectively. Drawing by Heather Hurst.*

(Saturno et al. 2004). The offerings consist of a fish (possibly a catfish, based on the presence of chin barbels), a white-tailed deer (*Odocoileus virginianus*), and a possible turkey or other large galliform bird. Fish, deer, and turkeys are also represented as offerings in the Maya codices dating to over a thousand years later, and were crucial offerings during ceremonies described by the Spanish friar Diego de Landa in the sixteenth century (Bill et al. 2000; Bricker 1991; Landa 1941; Taube 1988). These patterns reveal a remarkable continuity in the types of animal offerings used in elite rituals celebrating the divine power of the Maya kings over the millennia.

Although not illustrated here, the life of the Maize God pans out beside the sacrifice scene, from his mythic birth to his coronation by his own hands, followed by his subsequent death and reincarnation in the watery depths of the underworld. To the right of the story, the coronation of the San Bartolo king is depicted (not illustrated here), signifying his superhuman status. Altogether, the scenes illustrate a complex series of myths and symbols that have yet to be fully understood, but that yet reveal a deep antiquity for the role certain animals played in legends ranging from the Preclassic to Postclassic and Colonial times.

METHODS OF THE ZOOARCHAEOLOGICAL ANALYSIS

The faunal remains included in this study come from the first five seasons of excavations at San Bartolo and were identified by Sharpe in the Peabody Museum Zooarchaeology Laboratory at Harvard University under the supervision of Dr. Richard Meadow (Sharpe 2009). The Number of Individual Specimens (NISP) was calculated for all specimens larger than one centimeter.

The Minimum Number of Individuals (MNI) was determined for specimens identified below the level of class (with the exception of birds), and was based on grouping skeletal elements from the same taxa identified in contemporary lots located in the same area of a structure (White 1953). Interpretation of the status-based faunal associations was conducted by Sharpe and Emery at the Florida Museum of Natural History based on contextual data provided by Saturno. All specimens are currently stored in the San Bartolo Project Laboratory in Antigua, Guatemala.

This study includes only those remains that were identified to or below the level of class. Unidentified taxa that lacked a definitive context were also excluded, as were taxa that were likely intrusive, including shrews, bats, and rodents. These exclusions limit the size of the studied assemblage but ensure that the data are pertinent to the questions of status and animal use. The pertinent taxa have been grouped according to chronological period (Preclassic or Late Classic) and social context—that is, remains from elite residential and administrative structures, those from elite ritual structures, and those from lower-status structures that are likely the households of the lesser-elite or middle-class.

DESCRIBING THE FAUNAL ASSEMBLAGE

Due to the poor preservation of animal remains throughout the site, a total of only 511 identifiable specimens were recorded in the assemblage (Table 4.1). Unidentified mammal material, mostly small shaft fragments, constituted about 40 percent of the total. This diachronic study of the relationship between fauna and social status only includes specimens that were definitively associated with social contexts, a sample of 359 specimens. Although this is a small sample size, we believe it is adequate to perform preliminary comparisons of social inequality in Preclassic and Late Classic contexts at San Bartolo because it contains only the most useful specimens for the study and because the contextual associations are well-defined. Faunal assemblages in the Maya area tend to be small due to taphonomic and cultural conditions, and very few assemblages in the lowland region of Guatemala contain any Preclassic faunal remains, let alone remains that can be correlated among contexts with different social classes. Thus, this sample is pivotal to understanding the important Preclassic and transitional Classic periods in the Maya area.

Fieldwork over the past several years has focused on the Las Pinturas structure, so many of the faunal remains come from these excavations (23.5 percent). Extensive excavations at the Tigrillo Palace also contribute a significant

Table 4.1 List of the animal taxa identified in the San Bartolo assemblage. Taxa are arranged by common name in taxonomic order.

Taxon	*Total NISP*	*Total %NISP*	*Total MNI*	*Total %MNI*
Turtle (*Testudines*)	50	9.8	6	6.5
Bird (*Aves*)	11	2.1	4	4.3
Ocellated turkey (*Meleagris ocellata*)	2	0.4	2	2.2
Bat (*Chiroptera*)	4	0.8	1	1.1
Opossum (*Didelphis* sp.)	6	1.2	4	4.3
Spider monkey (*Ateles geoffroyi*)	3	0.6	1	1.1
Carnivore	5	1.0	4	4.3
Raccoon (*Procyon lotor*)	3	0.6	1	1.1
Gray fox (*Urocyon cinereoargenteus*)	12	2.3	6	6.5
Dog (*Canis lupus familiaris*)	21	4.1	12	13.0
Ocelot/margay (small felid)	1	0.2	1	1.1
Felid	14	2.7	1	1.1
Peccary (*Tayassuidae*)	19	3.7	8	8.7
Cervid	10	2.0	4	4.4
Brocket deer (*Mazama* sp.)	5	1.0	3	3.3
White-tailed deer (*Odocoileus virginianus*)	34	6.6	16	17.4
Lowland paca (*Agouti paca*)	6	1.2	2	2.2
Agouti (*Dasyprocta punctata*)	3	0.6	3	3.3
Rodent	44	8.6	7	7.6
Shrew (*Soricidae*)	1	0.2	1	1.1
Rabbit (*Sylvilagus* sp.)	5	1.0	5	5.4
Medium mammal	119	23.3	-	-
Medium–small mammal	70	13.7	-	-
Small mammal	13	2.5	-	-
Vertebrate	50	9.8	-	-
Total	511	100	92	100

portion of the analyzed fauna (39.1 percent). Given this focus on elite structures, it is not surprising that about two-thirds of the animal remains come from elite deposits, associated with either ritual or domestic contexts. Most of the excavated structures are dated to the Late Preclassic period, which is reflected in the overall larger proportion of animal remains from this time (49.5 percent as opposed to 12.4 percent from the Late Classic period).

COMPARISON OF PRECLASSIC AND LATE CLASSIC ANIMAL USE

An overall comparison between the Preclassic and Late Classic contexts reveals that the former is much more taxonomically diverse (Table 4.2). This is partly the result of the larger Preclassic sample size. Nonetheless, the specific species that make up this more diverse Preclassic assemblage are intriguing because many of the most culturally significant species only appear during this period, including dogs and wild cats. These are two important symbolic taxa represented in art and closely associated with the mythical themes of sacrifice and the underworld. A Preclassic period focus on dogs has also been noted at other lowland sites, such as Cuello, Colha, and Cerros (Carr 1986; Clutton-Brock and Hammond 1994; Shaw 1999). The San Bartolo Preclassic murals include a jaguar in the symbolism associated with kingship, a theme repeated throughout artwork in Maya and other Preclassic cultures (Benson 1985, 1998).

During the Classic and Late Classic periods, large animals, particularly white-tailed deer (*Odocoileus virginianus*) and peccary (Tayassuidae), appear to have been the prime focus of hunting at major sites, and were also used as sacrificial offerings (e.g., Emery 2003; Masson 1999, 2004; Pohl 1994). The overall patterns at San Bartolo correlate well with these regional findings, revealing an increased use of artiodactyls to the exclusion of other animal species from the Preclassic to Late Classic periods. The white-tailed deer is also represented as a sacrificial animal on the San Bartolo murals, emphasizing the local importance of this species beyond domestic purposes. These overall patterns are better understood when compared among deposits from different social ranks and between domestic and ritual contexts.

COMPARISON OF ELITE AND LESSER/NON-ELITE ANIMAL USE

Comparison of the remains recovered from domestic elite and lesser/non-elite contexts reveals that the elite domestic contexts had a greater diversity of taxa, including species represented in the murals such as wild cats and large galliform birds, which are absent from the domestic lesser/non-elite

Table 4.2 Overview of animal taxa recovered from ritual, elite domestic, and lesser/non-elite domestic contexts at San Bartolo between Preclassic and Late Classic occupations.

Ritual Contexts

	Preclassic		*Late Classic*		*Undet.*		*Total*	
Taxon	*NISP*	*%**	*NISP*	*%**	*NISP*	*%**	*NISP*	*%***
Peccary	2	1.9	0	0	0	0	2	1.7
Deer	10	9.3	4	40.0	2	100	16	13.4
Dogs	21	19.6	0	0	0	0	21	17.6
Gray fox	4	3.7	0	0	0	0	4	3.4
Opossum	6	5.6	0	0	0	0	6	5.0
Rabbit	3	2.8	0	0	0	0	3	2.5
Mammal, med.	20	18.7	0	0	0	0	20	16.8
Mammal, med–sm.	26	24.3	5	50.0	0	0	31	26.1
Mammal, sm.	2	1.9	0	0	0	0	2	1.7
Bird, small	3	2.8	0	0	0	0	3	2.5
Turtle	10	9.3	1	10.0	0	0	11	9.2
Totals	107	100	10	100	2	100	119	100

Elite Domestic Contexts

	Preclassic		*Late Classic*		*Undet.*		*Total*	
Taxon	*NISP*	*%**	*NISP*	*%**	*NISP*	*%**	*NISP*	*%***
Peccary	1	1.9	12	63.2	1	0.9	14	7.9
Deer	1	1.9	3	15.8	4	3.8	8	4.5
Spider monkey	0	0	0	0	3	2.8	3	1.7
Gray fox	7	13.2	0	0	0	0	7	3.9
Ocelot/margay	0	0	0	0	1	0.9	1	0.6
Felid	14	26.4	0	0	0	0	14	7.9
Raccoon	3	5.7	0	0	0	0	3	1.7
Lowland paca	1	1.9	0	0	0	0	1	0.6
Agouti	1	1.9	1	5.3	0	0	2	1.1
Mammal, med.	0	0	3	15.8	78	73.6	81	45.5
Mammal, med–sm.	25	47.2	0	0	7	6.6	32	18.0
Mammal, sm.	0	0	0	0	5	4.7	5	2.8

continued on next page

Table 4.2—*continued*

Turkey	0	0	0	0	2	1.9	2	1.1
Bird, small	0	0	0	0	5	4.7	5	2.8
Totals	53	100	19	100	106	100	178	100

Upper-Middle Class Domestic

	Preclassic		*Late Classic*		*Undet.*		*Total*	
Taxon	*NISP*	*%**	*NISP*	*%**	*NISP*	*%**	*NISP*	*%***
Peccary	1	3.6	2	6.9	0	0	3	4.8
Deer	3	10.7	22	75.9	0	0	25	40.3
Gray fox	0	0	1	3.4	0	0	1	1.6
Agouti	0	0	1	3.4	0	0	1	1.6
Rabbit	1	3.6	0	0	1	20.0	2	3.2
Mammal, med.	16	57.1	3	10.3	0	0	19	30.6
Mammal, med–sm.	1	3.6	0	0	0	0	1	1.6
Mammal, sm.	2	7.1	0	0	4	80.0	6	9.7
Bird, small	3	10.7	0	0	0	0	3	4.8
Turtle	1	3.6	0	0	0	0	1	1.6
Totals	28	100	29	100	5	100	62	100

* % of period totals, ** % of category total

assemblages (Table 4.2). This suggests that the use of these symbolically significant species was limited to the elite ranks even in domestic contexts (also see Jackson, chapter 5, this volume). In contrast, the lesser and non-elite domestic contexts primarily contained artiodactyls during both occupational periods (Figure 4.5b).

During the Preclassic period, carnivores made up a large portion of the elite material (45.3 percent), although this is not the case for contemporary material from the lesser/non-elite structures. The remains of one wild cat uncovered at the Palace are of particular interest for examining the role of animals in inequality. The Maya prized felines, particularly jaguars, as symbols of courage. Jaguar pelts were worn by priests and other important societal figures (Benson 1985, 1998). The association between jaguars and kingship was also a fairly common motif among the Olmec of south-central Mexico, whose civilization was contemporaneous with the earliest known occupation levels of San

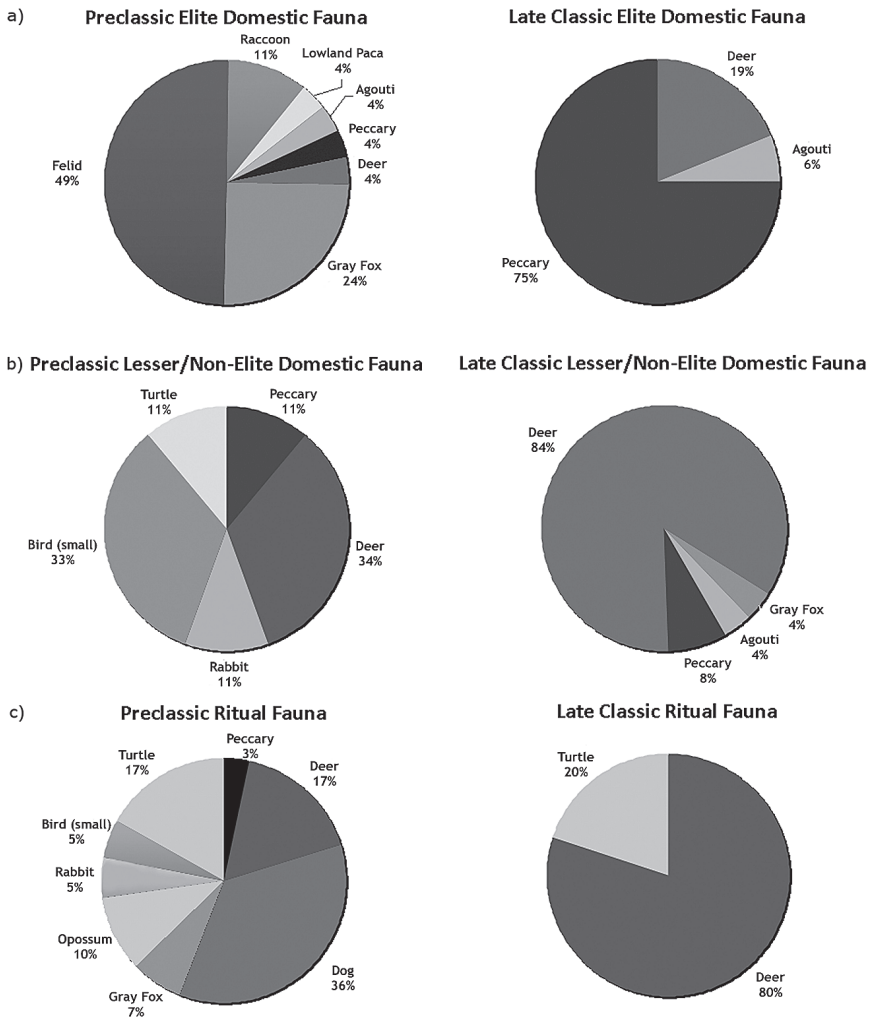

Figure 4.5. *Comparison of Preclassic and Late Classic animal taxa from (a) elite domestic, (b) lesser and non-elite domestic, and (c) elite ritual contexts. Proportions are based on NISP, and exclude unidentifiable mammal remains.*

Bartolo (Coe 1972). The San Bartolo murals depict a king seated before a jaguar skin during a coronation ritual. Elsewhere, the Maize God wears jaguar-spotted attire in a separate ceremony. Thus, both the faunal evidence recovered at San Bartolo and the murals suggest that wild cats had an important role in

legitimating the power of the king within the community, even as early as the Preclassic period when Maya states were beginning to form.

Although the small sample size of the assemblage makes comparisons between Preclassic and Late Classic animal use difficult, these preliminary results suggest that the Late Classic inhabitants had different dietary preferences than the Preclassic community. There is a clear decrease in species diversity between the Preclassic and Late Classic periods, especially regarding elite contexts, thus making diversity similar between social classes during this later period. By the Late Classic period, artiodactyls make up the majority of identifiable remains in all domestic contexts (78.9 percent of the elite material and 82.8 percent of the lesser/non-elite material). The Late Classic inhabitants of the site, both elites and non-elites alike, may have intentionally focused their hunting practices on acquiring artiodactyls. This focus on large-bodied game species during the Late Classic is also reflected in other Maya assemblages (Emery 2004).

The greater similarity between elite and lesser/non-elite animal use during the Late Classic period in comparison to the Preclassic period is intriguing. During both periods status differences were of paramount importance to the residents of Maya communities, although perhaps in different ways. During the Preclassic period the Maya kings were donning the cloak of divine status, emphasizing their rulership and presumably defining the roles of their entourage as a separate class. During the Late Classic period, such social classes were entrenched, often reaffirmed in actions and material objects (Inomata 2006). In the nearby Petexbatun region, there is evidence that faunal variation between social classes became less defined through time, possibly as a result of the loss of control over certain taxa by elites in the area as social tensions increased (Emery 2003). There is not enough evidence to make a similar claim for the patterns observed in the San Bartolo remains. However, it is possible that the smaller Late Classic population at the site had a less distinct division between elite and lesser/non-elite classes than did the Preclassic community, which resulted in the similarity observed in the Late Classic assemblages from both social tiers.

Another important finding is the significant emphasis on white-tailed deer and peccary within domestic contexts during the Late Classic period. At other contemporaneous Late Classic sites, deer were a common part of deposits associated with individuals of higher status, although they were also found in association with lower-status households (Emery 2003; Masson 1999; Masson and Peraza Lope 2008). The Late Classic elite at San Bartolo, however, appeared to have focused more heavily on peccary than was common at other neighboring sites. Although deer remains are generally found in greater abundance than peccary at sites in the lowland Maya regions, the two species

have both been associated with higher or elite status contexts at other communities (Masson 1999; Pohl 1976).

At the Las Plumas residences, the artiodactyl bones may have been valued by both social groups for crafting tools and ornaments during the Late Classic: several long bones and at least one antler had been cut or carved to make awls, pins, and at least one bead. Chert hammerstones and knives were found alongside these remains (Ortiz Kreis and Mencos 2005:367–368). Furthermore, the structures at Las Plumas contained a significant number of unidentified medium- or large-mammal remains, which were most likely artiodactyl (see Table 4.2). A few exhibited evidence of cutting and carving. This material was possibly the detritus of bone-crafting activity.

At other contemporary Late Classic sites, crafting materials are often found associated with elite or lesser-elite specialists within a community (Emery 2009; Emery and Aoyama 2007; Moholy-Nagy 1997). At Las Plumas, there is not enough material to suggest the structure was ever used as a "workshop" for the specialized manufacture of a specific type of craft object (Moholy-Nagy 1997:294), but it is clear that it at least served as a production area at one time for the creation of bone ornaments and tools.

COMPARISON OF ANIMAL REMAINS IN RITUAL AND NON-RITUAL ELITE CONTEXTS

It is also important to distinguish between ritual and non-ritual contexts, a possibility only for the elite deposits since material remains at San Bartolo cannot clearly distinguish non-elite ritual deposits. In the Maya area, elites were often involved in ritual feasts, performances, and other activities that may have involved different animal taxa than did domestic activities (Inomata 2006). For this comparison we consider only structures that were either (1) primarily ritual and nonresidential or (2) clearly defined caches and dedication or termination offerings found in ritual or domestic structures. Again, these classifications are based on archaeological findings and interpretations (Urquizu and Saturno 2002, 2004).

Ritual remains include those uncovered from the construction fill and collapse material within the mural room, as well as from the large structure to the west of the mural room that is believed to have been the Preclassic religious center of the site. The fauna from elite ritual contexts at San Bartolo differs significantly from elite non-ritual contexts, although the total number of identified specimens from both ritual and non-ritual areas was nearly identical (Figure 4.5). Dogs and deer constitute over a quarter (29 percent) of the

Preclassic ritual remains. The only identified ritual fauna from the Late Classic period are deer and turtles. Combined, dogs, deer, and turtles constitute a significant proportion of the ritual fauna at San Bartolo (40.3 percent). Peccary, the most significant animal among the Late Classic elite residences, were not found in the Late Classic ritual contexts.

All of the dog remains uncovered at San Bartolo came from Las Pinturas; however, while they all dated to the Preclassic period, they were not deposited contemporaneously. The main Las Pinturas structure was rebuilt over seven phases, and the dog remains, mostly teeth, were recovered from the fill between several different phases. The roots of many teeth were intact, and none had been drilled for use as ornamentation, as is commonly found at many sites (Garber 1989; Teeter 2004). The fact that the only dog remains at San Bartolo were in the ritual center suggests that dog teeth, and possibly dogs themselves, were reserved for ritual purposes. At the Postclassic Maya site of Cozumel, a significant number of dog teeth were also found disassociated from postcranial elements; it was hypothesized that the teeth may have held a special symbolic meaning within the community (Hamblin 1984:114). It has been suggested elsewhere that unperforated dog teeth found with perforated teeth were "blanks" for future crafting projects (Middleton et al. 2002:242–243). It is possible that the San Bartolo dog teeth were used in specific rites or in the production of ceremonial ornaments by attendants associated with the ceremonial complex.

The Late Classic ritual remains came solely from one ceremonial deposit near the Main Plaza, unlike those from the Preclassic period, which mostly came from the fill of the Las Pinturas structure. Thus, the Late Classic ritual remains differ from the Preclassic remains in that they come from a specific event, whereas the Preclassic remains represent intermixed material from the religious structure of the site.

The Late Classic deposit, located fifty meters south of the Tigrillo Palace, resembles a termination ritual (Craig 2004). Termination rituals often consist of a number of potsherds and other dedicatory offerings placed in a specific area or structure, signifying its use had come to an end (Garber 1983; Garber et al. 1998). In this instance, several thousand sherds were deposited within a structure, reaching a depth of at least a meter. One recipient of this offering was a large statue of a potbellied individual, which appears to have been created by the Preclassic inhabitants of the site and was later moved by the Late Classic occupants into the structure housing the possible termination-ritual deposit (Craig 2002, 2003, 2004). The statue resembles a number of other Preclassic figures, often found near the Pacific coast of Guatemala (Rodas 1993). The San

Bartolo statue is unique in that it wears the carved shell of a turtle on its back, giving it the striking resemblance to a Classic period *Pauahtun*, or Skybearer, which were also depicted wearing turtle shells. These deities were believed to hold up the sky at the four cardinal directions (Milbrath 1999:149–150). Interestingly, the remains of a turtle were also found within the dedicatory sherds, and may have been of symbolic importance.

The possible termination-ritual deposit also included the bones of a young white-tailed deer, placed over the partially cremated remains of at least two adult humans of unknown gender (Sharpe 2009). While many of the unburned human bones were covered in ash, the deer bones were not. Deer were often associated with the themes of renewal and rebirth; deer sacrifices marked the end of calendrical cycles (Milbrath 1999:20, 61; Montero-Lopez 2009; Pohl 1983). Mary Pohl (1981:515–516) suggests that in the ancient Maya *cuch* ritual illustrated on Late Classic vessels, sacrificial victims were often associated with, or attired as, deer. The Spanish friar Diego de Landa also commented on the use of deer in the New Year ceremonies (Landa 1941:141, 144), and there are a number of instances in the Madrid and Dresden codices where deer are sacrificed on similar occasions (e.g., Bill et al. 2000; Bricker 1991; Colas 2006). Although the San Bartolo murals date to the Preclassic period, they illustrate the sacrifice of a deer to a mythical entity; the individual performing the sacrifice also has a small deer attached to his waistband. The young San Bartolo deer from the Late Classic deposit may have been sacrificed during a similar event.

CONCLUSIONS

San Bartolo offers zooarchaeologists the chance to compare faunal material and ancient art to learn how the Maya used and viewed their animal resources. Although the number of animal remains currently recovered is small, preliminary results provide insight into how the differential access and use of animals changed over time. During the Preclassic period, many different animal species were used and deposited in both domestic and ritual contexts. The Preclassic elite appear to have used a more diverse array of species than were exploited during the Late Classic, although sample size requires that this suggestion be tested further. Animal species recovered from Preclassic ritual and elite contexts were also depicted on the mural walls of Las Pinturas, including deer and turkey, revealing their symbolic significance and importance in establishing social inequality during the Preclassic. Jaguars were also featured on the mural walls, including on the throne of the king, and Preclassic wild

cat remains recovered from the palace affirm this connection between felines and kingship.

The most significant aspect of San Bartolo's faunal assemblage is the marked decline in species diversity from the Preclassic to Late Classic periods among both elite and intermediary classes, although most dramatically among the elite. Although it is possible that this decrease is a result of sampling bias, the specific shifts in taxa suggest it reflects an actual trend in the use of animals. Smaller-bodied animals are particularly underrepresented during the Late Classic, such as rabbits, opossums, turtles, and birds. By the Late Classic, the residents of San Bartolo had begun to focus on specific large-body, high-status game species, namely deer and peccary. In elite residential contexts, peccary appear to have increased in frequency of use while white-tailed deer became more important in both elite and intermediary-class residences. By the Late Classic period, deer had also become the focus of elite ritual ceremonies, alongside turtles.

These preliminary results from the San Bartolo zooarchaeological data also reveal complementary patterns between the use of animals in different social classes and their depiction on the Preclassic mural paintings. Sacrificial and symbolically important animals depicted on the murals, such as deer, turkeys, and wild cats, were found not only in ritual contexts at San Bartolo but also exclusively among the elite residences and the palace. This suggests that the ancient Maya elite differentiated themselves from the lower classes by maintaining preferential control over these select species, which were also depicted as important actors in mythical stories. Future studies in Maya archaeology that investigate how animals created social distinctions in the past will hopefully find further evidence to elaborate on these preliminary results.

Acknowledgments. We would like to thank Dr. Richard Meadow and the Harvard Peabody Zooarchaeology Laboratory for providing invaluable assistance throughout the analysis. We would also like to thank everyone from the San Bartolo Archaeological Project that contributed to this research, particularly Jessica Craig (University of Kansas) for her notes and information regarding the shrine at Structure 63, and Astrid Runggaldier (Boston University) for her suggestions concerning the Tigrillo Palace material.

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5

Animals as Symbols, Animals as Resources

The Elite Faunal Record in the Mississippian World

H. Edwin Jackson

INTRODUCTION

In the great civilizations of the Old and New Worlds, particularly where domesticated livestock provided the primary source of meat, animals were commodities, leveraged in economic and political transactions by those in power just as other resources were (deFrance 2009). Autocratic rulers controlled the goals and scale of production in centralized economies, and could divert livestock resources as needed to support the goals of state, as well as control access to animal products in a manner that ensured that the social and political order was reflected by patterns of consumption. In the late prehistoric Mississippian societies that populated the southeastern United States from about AD 1000 to 1550, meat was hunted, trapped, fished, and gathered, precluding animals from political strategies that required sustainable surplus production, herd management, or livestock movement.

The Mississippian elite's impact on production and consumption of animal resources is best regarded as a part of the broader framework of political authority that relied variably on local efforts to forge social solidarity and on a complex system of cosmologically related symbols, ritual responsibilities, and access to a regional prestige-goods economy (e.g., King 2003). Faunal remains from Mississippian sites attest to variable levels of elite provisioning, episodes of intense labor mobilization, an apparent preferential access to certain cuts of meat and certain rare or symbolically charged species, and the use of certain animals in ritual activities (e.g., Jackson and Scott 2003; Pauketat et al. 2002; Scott 2005).

DeFrance (2009) identified three broad themes in discussions of the impact of status distinctions on the

DOI: 10.5876/9781607322863.c005

zooarchaeological record: (1) evidence for the role of animal resources in the political economic relationships forged between elite and non-elite; (2) how differences in access to certain animals reflect the social differences of consumers; and (3) the role of animals in the expression of ideology and the performance of ritual as these relate to the differential distribution of social position and political power. Mississippian zooarchaeology has produced evidence to illustrate each of these themes, although most research has dealt with the first two. Therefore in this chapter, and in the hope of encouraging further research into this dimension of Mississippian animal use, I briefly examine evidence for political-economic relationships and how social standing may have determined access to certain faunal resources, and then consider how ritual manipulation of animals may affect elite faunal samples.

Meat in Mississippian diets was provided by deer, turkeys, and where abundant, waterfowl and fish, supplemented by a wide range of medium and small mammals, birds, reptiles, and amphibians (e.g., Compton 2009; Kelly 1997; Smith 1975). Deer was the only sustainably exploited large game animal, with much smaller contributions made by other large-mammal taxa, such as bear or elk. The relative contributions of taxa varied from region to region and household to household.

FAUNAL RESOURCES AND MISSISSIPPIAN POLITICAL ECONOMY

Bogan's (1980, 1983) analysis of material from the Toqua site, a Mississippian center in eastern Tennessee and Scott's (1983) analysis of fauna from the Lubbub Creek site, a single-mound polity center on the Tombigbee River in west central Alabama (Figure 5.1) provided the earliest consideration of political-economic ramifications for Mississippian faunal patterning, using the frequency distribution of deer elements to argue that elite were provided venison hunted and field-butchered by non-elite—conclusions based on an underrepresentation of low-value anatomical units. Scott demonstrated that the pattern at Lubbub Creek was due to provisioning rather than simply field butchering by comparing it to the assemblage from a small farmstead, the Yarborough site, which displayed an excess of low-value anatomical units (skulls and lower limbs) (Jackson and Scott 1995a; Scott 1982).

Using deer-element representation, similar evidence for political-economic relationships between rural producers and elite has been documented for mound and other elite contexts at Moundville in Alabama (Jackson and Scott 2003, 2010; Michels 1992), and the Crenshaw site in southwest Arkansas (Scott and Jackson 1998). Crenshaw differs from both Lubbub Creek and

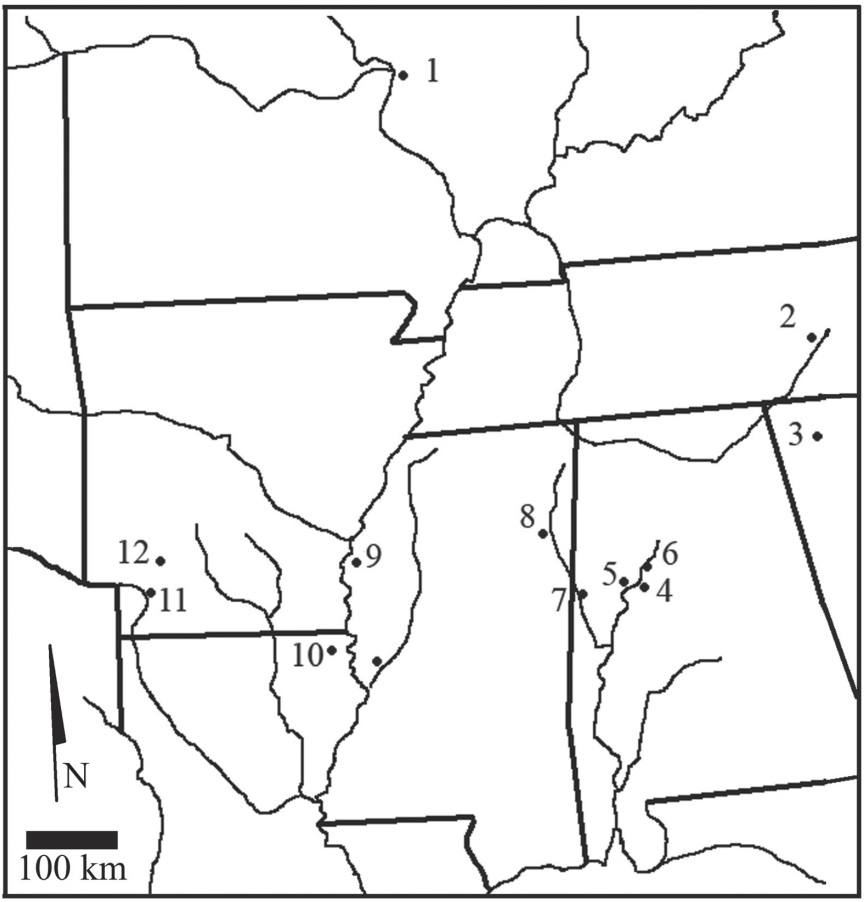

Figure 5.1. *Sites discussed in the text: (1) Cahokia, IL; (2) Toqua, TN; (3) Etowah, GA; (4) Moundville, AL; (5) White Site, AL; (6) 1TU66, AL; (7) Lubbub Creek, AL; (8) Yarborough, MS; (9) Winterville, MS; (10) Lake Providence, LA; (11) Crenshaw, AR; and (12) Tom Jones, AR.*

Moundville in having a preponderance of hindquarters, in contrast to greater representation of shoulders from the Alabama sites. At Cahokia, Kelly's (1997) analysis of samples from elite and non-elite contexts demonstrated that regardless of social position, low-utility elements of deer were poorly represented, suggesting provisioning of the general populace. Samples from elite contexts were dominated by high-utility cuts (mainly hindquarters) while

those from non-elite contexts were mainly comprised of moderate-utility cuts (essentially shoulders) (Kelly 1997:80).

A second component of Mississippian political economy is the capacity of the elite to mobilize labor, including intensive procurement for particular events. Labor mobilization is manifest in mound and other construction projects conducted at the centers. It is also manifest in meat procurement to supply feasts that were part of these events. Whether feasts were aimed at solidarity-building efforts or restricted to elite participants (e.g., Blanton et al. 1996; King 2003), they required the capacity of hosts to draw upon the labor of hunters to supply the necessary meat.

Provisioning feasts on a grand scale is evident at Cahokia, the most dramatic example coming from refuse that was generated by feasts during mound construction on the main plaza and that was then deposited in a large borrow pit now beneath Mound 51 (Pauketat et al. 2002:258). Deer remains dominate the more than 10,000-specimen sample (Kelly 2001; Pauketat et al. 2002). Axial and upper limbs are well represented, with low-utility elements extremely poorly represented, a distribution that supports the interpretation of the fauna in the feature fill's as the remains from feasting. Minimal bone breakage indicates processing for meat. Extrapolating from excavation volume to total pit size, Pauketat (2010:109) suggests that the sub-Mound 51 feature might contain several thousand butchered deer carcasses. Overall, taxonomic diversity is low, but those species present are abundant, suggesting intensive procurement. The assemblage includes large numbers of birds, especially swans and prairie chickens, and relatively few fish. Swan-wing elements are absent, suggesting these were removed to produce curated fans (Kelly 2001). Prairie chicken is typically only found in elite contexts (Kelly 1997), pointing to the unique nature of the pit contents.

Two features containing feasting refuse have been documented at Winterville, in northwest Mississippi (Kowalski et al. 2009). One large probable borrow pit dating to the commencement of mound construction is filled with several refuse-rich strata, each separated by lenses of clean fill. Deer and fish dominate the faunal assemblage, and the volume suggests intensive procurement efforts. Deer remains are limited to meat-bearing anatomical units. Fish are large-sized and include taxa representing the main Mississippi River channel. A much later feature, dating near the end of Winterville's occupation, has a much different character, but based on the apparent intentional discard of large fineware serving vessels, the presence of nonlocal ceramics, and botanical materials that include a tobacco seed and more than 1500 clasping coneflower seeds (*Rudbeckia amplexicaulis*) (Flosenzier 2010), it is interpreted as evidence

for small-scale ritual feasting, possibly hosted by the resident of a nearby mound. Deer, swamp rabbits (*Sylvilagus aquaticus*), and fish, mainly bowfin and catfish (chiefly bullheads, *Amieurus* sp.), dominate the faunal assemblage. The rabbits and the fish suggest local procurement efforts (VanDyck 2010). Deer elements include meat-bearing elements but also primary butchering debris, suggesting local procurement. Low levels of bone breakage suggest meat consumption rather than the more intensive processing. Whether the particular meats chosen for the feast have particular ritual meaning is not clear and the particular combination of swamp rabbits, bowfin, and catfish may simply reflect localized procurement.

FAUNAL RESOURCES AND SOCIAL DISTINCTIONS IN THE MISSISSIPPIAN WORLD

The second theme is how social differences in access to resources engendered socially distinctive faunal assemblages. In an early consideration of this issue, Jackson and Scott (1995b:107) suggested five dimensions that distinguish elite Mississippian faunal refuse: high sample diversity; an abundance of prime cuts of meat, particularly when considering venison; greater representation of rare taxa; low frequency of butchering debris; and finally, a higher proportions of birds. Sample diversity may be a product of simple access to a more varied diet, but one must consider also the potential implications of the wide range of symbolic meanings assigned to birds, as well as rare or dangerous taxa that might engender restrictions in their consumption or use. Further, it is sometimes difficult to distinguish between animals used for meat and those employed in non-culinary activities, such as production of craft goods or use in ritual.

Mound-related samples from Moundville demonstrate that elite were accorded access to a greater variety of animal resources, including a range of taxa that do not ordinarily occur in non-elite assemblages (Jackson and Scott 2010). Sample sizes from the two mounds are quite different (Mound Q NISP = 9,628; Mound G NISP = 3119 (Jackson and Scott 2010:Table 8.2) but both show considerable richness. Mound Q produced forty-six taxa (fifteen mammal, ten bird, eight reptile, one amphibian, and twelve fish), while the much smaller Mound G sample included thirty-two taxa (thirteen mammal, nine bird, three reptile, and seven fish). In addition to ample venison, residents of both mounds enjoyed large amounts of turkey as well as passenger pigeon, ducks, geese, other waterfowl and other birds, and a variety of fish. Birds comprise a particularly large proportion of both samples: 17 percent of NISP from

Mound Q and 16 percent from Mound G. Samples include a variety of small and medium mammals, numerically dominated by squirrels, and bear is present in both. Deer long-bones were cracked open to extract marrow, but otherwise breakage was minimal, indicating the absence of intensive processing for grease.

Distinctions between the two assemblages may indicate differences in status or in how animals were incorporated into mound-summit activities. On Mound Q, where artifact and other evidence suggests intensive crafting and ritual (exotic raw materials, sandstone saws, paint-mixing bowls, paint palettes, and pieces of cut human bone) (Knight 2010), there is a significant variety of furbearing animals. Mound G, lacking evidence for craft production, but distinctive in its higher ratio of fine serving vessels and bottles (Knight 2010), produced a number of animals unique for Moundville, including gray fox, sandhill crane, peregrine falcon, shark, and bison. Peregrine falcon is a possible referent to the falcon-warrior motif in Southeastern Ceremonial Complex (SECC) art (King 2007), whereas bison, shark, and sandhill crane were not locally available and point to far-flung connections.

Kelly's (1997:82) American Bottoms research documents a number of distinctions between elite and non-elite faunal use during the Stirling phase (AD 1100–1200), including a significantly higher representation of birds, in particular turkey and prairie chicken, in elite faunal samples. Twelve bird taxa are represented in elite samples from Tract 15A, compared with only four taxa produced from non-elite contexts in the ICT-II tract (Kelly 1997:Table 4.4). Similarly more small and medium mammals are present in elite samples (six taxa from Stirling phase contexts at Tract 15A versus two from ICT-II).

RITUAL USE OF ANIMALS BY THE MISSISSIPPIAN ELITE

It is not always clear that greater species diversity can or ought to be attributed to variety in the diet, as distinct from other kinds of animal uses, (e.g., Moundville's Mound Q). However, there are instances where species representation points strongly to the probability that particular animals, because of associated symbolic meanings, became part of the archaeological record as a consequence of their use in ritual. Although ritual knowledge was likely to have been parceled out along several social dimensions, it is clear the elite maintained and perpetuated their access to an important portion of this body of knowledge and to a range of material symbols. They did so through exchange and production that underscored the supernatural roles of the elite segment of society. The special relationship of the elite to cosmological forces

provided legitimacy to political authority and social inequality (e.g., Barker 1992). Ritual performance was both a responsibility to one's followers and a strategy for harnessing cosmological forces to increase one's political power.

Ethnohistoric and ethnographic accounts indicate the importance of animals as representatives of different parts of the earthly and cosmic realms of Indian conceptualizations of the universe. These associations were often inferred from particular characteristics of certain taxa; simultaneously, as determined by the realms they represented, the associations conferred supernatural qualities on the elite social stratum (Hudson 1976; Jackson and Scott 1995b). There were likely to have been multiple dimensions on which these qualities were measured: pure–polluted, order–disorder, weak–strong, and harmless–dangerous, for example. To be able to project this system of beliefs about the animal world back in time is at least partially borne out by the choices of animals depicted in Mississippian art and iconography (e.g., King 2007; Reilly and Garber 2007; Steponaitis and Knight 2004; Sullivan 2007). Patterning in the zooarchaeological record might partially reflect this system of beliefs and the extent to which it propagated rules of proscription that affected access to certain animal taxa as well as the uses of these animals in ritual performance. Mediating against clear-cut patterning, ritual behavior was not restricted to elite arenas, and there is evidence of animal use in ritual activities from non-elite contexts (Jackson, Scarry, and Scott 2009; Maxham and Scarry 2009).

With that said, distinguishing the quotidian from the symbolic can be difficult to operationalize. Animal completeness, specific portions, presence of other artifacts or materials interpreted to have symbolic meaning, and animal associations with burials provide some criteria for identifying ritual use of animals (deFrance 2009:135). Treatment of material (burning or distinctive butchery, for instance) and context also provide potential clues. Mortuary inclusions or caches would seem to be the most recognizable instances of ceremonial animal use. However, it is possible that refuse from the use of animals in rituals might be commingled with everyday trash, as could be the case for Mounds G and Q at Moundville, if some or all of the rarer taxa were used for ritual purposes rather than simply sustenance.

Mound 34 at Cahokia provides an example of a faunal assemblage that is the product of ritual activities emphasizing birds, though incorporated into middens that also included feast-related refuse (Kelly n.d.). Mound 34, located 400 meters east of Monks Mound, was a focus of excavations in the 1950s (Kelly et al. 2007). Along with spatulate celts, real and chert-effigy sharks' teeth, wooden-bowl fragments, negative-painted pottery, copper, and engraved marine-shell cup fragments, is a faunal assemblage that includes

fifty-eight bird taxa. Waterfowl comprises three-fourths of the bird NISP, of which 20 percent is swan. Unusual and rarely found birds include a variety of hawks and eagles (including peregrine falcon, golden eagle, and kestrel), Carolina parakeet, ivory billed and other woodpeckers, and four different owls. Ethnohistoric references to hawks and eagles, owls, and woodpeckers, as well as their depictions in Mississippian art, lead Kelly to conclude that the birds from Mound 34 were involved in rituals that resulted in the eventual incorporation of war symbolism into Mississippian religious iconography, and ultimately into SECC art that included bird (or bird-warrior) symbolism as a major theme.

Kelly and Kelly (2007) tracked the distribution of swans in American Bottoms. Despite the fact swans could produce a relatively large amount of meat, they do not regularly occur in subsistence refuse in the Mississippian period. Instead they are found mainly at Cahokia and at three subsidiary centers. At Cahokia, they are found in the sub-Mound 51 pit, in the vicinity of Mound 34 and in the ICT-II tract. Although the first two have already been interpreted here as ritual-related, the ICT-II tract was a non-elite residential area. There, the vast majority of swan remains came from a single Lohmann phase (AD 1050–1100) feature (NISP = 217) and 92 percent of the elements were from wings, suggesting wing feathers were plucked and the wings discarded. By the Stirling phase, the height of the Cahokian reign (AD 1100–1200), the only examples of swans outside of Cahokia are wing elements and a high proportion of these were ringed and snapped or otherwise cut. Kelly and Kelly surmise that the distribution of swans was highly regulated by the elite.

Mound excavations at Lubbub Creek produced several bird taxa likely related to ritual use, including cardinal, mockingbird, Carolina parakeet, crow, blue jay, and merlin, all only found in mound context (Scott 1983). Plumage colors of the cardinal, blue jay, and crow were associated by southeastern Indians with the cardinal directions, and the merlin is a close relative of the peregrine falcon. Bear and bobcat were found only in the mound as well (Scott 1983). Finally, half the rodent bones from the entire site were collected from mound contexts, though the mound sample amounted to only 15 percent of the entire site assemblage. At the time Scott (1983) interpreted the rodent remains as commensal taxa, drawn to the mound by (inferred) large corn granaries.

Feast provisioning may simultaneously provide evidence of the political economy and symbols employed in rituals. The Lake Providence site, a terminal Coles Creek mound center in northeast Louisiana (ca. AD 1200) (Weinstein 2005), produced feasting refuse from middens associated with one of the site's four mounds. The deposit produced a large percentage of

local fineware ceramics, local ceramics that mimic motifs found on American Bottoms Ramey Incised, and some 350 sherds of vessels from the American Bottoms (Weinstein 2005). Nearly 20 percent (N = 4800) of the associated fauna (NISP = 24,000) are the bones of squirrels (Scott 2005), a proportion to which no other Lower Mississippi Valley site comes even close. Use and then discard of local ceramic fineware, along with Cahokian imports and a meal that included a main course of squirrels, seems to qualify as a ritual feast, occurring during an interval in the Lower Mississippi Valley described as the Cahokia Horizon (Williams and Brain 1983). Different interpretations are possible, but the intersection of the largest sample of Cahokian ceramics outside the American Bottoms and a feast with a main course of squirrels is unlikely to be coincidence. Aside from the obvious demonstration that the Lake Providence elite could command an astonishing display of procurement effort for the feast, there may be a more specific connotation (Scott 2005). Among the historic Chickasaw there was an appointed office given the name *Fane Mingo*, which translates as Squirrel King. The Fane Mingo served a diplomatic function in interactions within and between tribes. Perhaps a symbolic connection between squirrels and diplomacy had its origins several centuries earlier, reflected in the consumption of squirrels in diplomatic feasting between foreign nations. The Lake Providence case suggests that zooarchaeologists must be sensitive to the possibility of deployment of specific foods due to their symbolic meanings for specific political interactions.

Two Caddoan ceremonial centers in southwest Arkansas add additional insights into ritual manipulation of animal remains. The assemblage from Crenshaw has been reported previously (Jackson and Scott 1995b; Scott and Jackson 1998), but its relevance to the discussion warrants review. Excavators at Crenshaw uncovered a ritual deposit of more than two thousand deer frontals with attached antlers (Schambach 1996). Other taxa included a great horned owl, unmistakably an avian analogy for deer. Adjacent to this "deer temple" is the residence of a ritual specialist whose faunal diet belied an elite status. Excavations produced 12,000 specimens from the structure deposit and another 4,000 from adjacent deposits. Eighteen mammal taxa are present, including bear and cougar. At least fifteen bird species are represented, including a disproportionately large amount of passenger pigeon, compared to the rest of the site. Other unusual birds include woodpeckers, cuckoo, blue jay, mockingbird/thrasher, blackbirds, and two unidentified small passerines, a suite suggesting ritual use rather than simply consumption.

In contrast to other Caddo sites on the Red River where fish amounts to between 20 and 40 percent of NISP, fish contributes less than 3 percent

(Scott and Jackson 1998:24), a fact attributable to the dominance of deer in the assemblage. Structure-floor deposits produced evidence of ritual behavior, including pipe fragments, native copper beads and other ornaments, freshwater-pearl beads, marine-shell beads, finely carved bone pins, and seventy-three human teeth representing at least ten individuals, sometimes attached to bits of mandible (Schambach 1996; Scott and Jackson 1998:4). One last but potentially important aspect of the structure's faunal remains are 379 bones of moles, shrews, pocket gophers, rats, and mice. The original analysis considered their presence to be commensal, based on the significantly lower proportion of burned specimens compared with squirrels and rabbits (Scott and Jackson 1998:11). Like the Lubbub Creek mound sample, this would seem to be a reasonable interpretation.

Recent excavations at the Tom Jones site, also in southwestern Arkansas, provide further evidence for deer-related ritual in the Caddo area (Lockhart 2010; Schambach 2003), and intriguing indications of ritual use of other taxa. The Tom Jones site includes a large temple mound and five house mounds. Unlike other Caddo centers in the region that are situated along major rivers or their tributaries, Tom Jones is located in a remnant prairie that is perched on the watershed divide between the Red River and Ouachita River watersheds (Lockhart 2010).

Excavations exposed four purposefully burned mound structures that were then covered with a new mound mantle. Three of these structures are elite mound-summit residences, whereas the fourth is a structure that was built at the foot of the large temple mound and is interpreted as a ceremonial cookhouse, based on the ceramic inventory of twenty-four vessels destroyed by the fire. Meals prepared there were presumably consumed on the mound summit. In addition to purposeful burning and immediate burying, the structures shared the ritual placement of deer scapulae on each floor. For each of the samples, scapula was the most frequent deer element. In the case of the cookhouse, five scapulae were included in this final offering, one of which was placed under an overturned vessel. Excavation produced an NISP of approximately 6,295 specimens from the cookhouse built into the side of Mound A and another 958 from the domestic structure on the summit of Mound B (Jackson 2011).

Despite their modest size, the samples from both the cookhouse and residential floor display considerable diversity, including not only the expectable suite of deer, squirrel, raccoon, and turkey, but also duck, quail, passenger pigeon, pileated or ivory-billed woodpecker, flicker, and mourning dove, plus several unidentifiable passerines. Given the site's upland setting, a surprising

variety of fish is present as well, including main-channel species such as buffalo fish, freshwater drum, pickerel, and white bass. Faunal assemblage characteristics of the two samples clearly exhibit the profile of elite consumption.

Of particular interest to the discussion of ritual animal use are the small and very small mammal remains in the samples from A and B. In the Mound B floor sample, squirrel is considerably more plentiful (NISP = 67) than rabbit (NISP = 9) despite the expectable abundance of rabbits in a prairie setting. Because the bones come from a floor deposit, it is possible that sweeping would be more likely to collect larger bones, while missing those of squirrels and smaller animals. Indeed there is an even larger number of microfaunal remains (small rodents, voles, etc.; NISP = 71, seven percent of total NISP).

The larger sample from the Mound A cookhouse also includes a significant number of squirrel bones: nearly 850 specimens were identified as fox squirrel, gray squirrel, or tree squirrel (*Sciurus* sp.), roughly 13 percent of the total NISP. Unlike the Mound B sample, only thirty-four microfaunal specimens were recovered from the cookhouse floor, although the sample was seven times larger. Because it is hard to imagine that a cookhouse would have been less attractive to rodents and other small mammals than a domicile, two things seem apparent. First, it is at least possible that microfauna from Mound B are there because of human action. Second, the preponderance of squirrels, particularly in the floor refuse of a cookhouse that served activities on the temple mound summit, suggests that Tom Jones offers a second example of ritual squirrel-consumption like that documented at the Lake Providence site.

Pohl (1983) has documented the common use of small animals, in particular reptiles and amphibians, in Mayan ritual contexts. Building on Pohl's observations, Claassen (2005, 2007) suggests that the small size of animals in ritual is symbolic of the beginning or distant time, transformed in spatial terms to distant places where one's view of things appears small. Claassen's own research focuses on Archaic-era ritual use of cave and rockshelters in the Southeast, making the case that the presence of small taxa in cave deposits represents ritual offerings. Ritual on the Mound B summit is already implied by the presence of a large woodpecker, mourning dove, flicker, and three unidentified songbirds, and the ritual placement of deer scapulae during the decommissioning of the structure. If the abundance of microfauna is a function of ritual, the same may be true of the large microfaunal representation in the Crenshaw religious specialist's domicile, where other lines of evidence point to ritual performance. A third possible example to which this alternative interpretation may apply is the microfaunal assemblage from mound deposits at Lubbub Creek. In contrast to the high concentrations of microfaunal remains in these

ritual contexts, the samples from Moundville's mounds G and Q had notably scant microfaunal specimens ($N = 7$ for Q, and $N = 3$ for G) (Jackson and Scott 2010:347). Although maize-storage differences or general housekeeping may explain the contrast, further consideration of the role of microfauna in Mississippian ritual contexts deserves exploration.

With regard to the numerical dominance of squirrels in the cookhouse sample, the historic diplomatic symbolism of this creature noted earlier may be relevant. The Ouachita River and Red River valleys were home to clusters of Caddoan settlements and mound centers each probably representing independent polities. The Tom Jones site is uniquely situated on the watershed divide between these territorial units, and as such it is at least possible that its function was in part in the arena of intersocietal relations, serving as an intermediary between these distinct riverine-oriented social entities.

CONCLUSIONS

Animal use by the Mississippian elite was conditioned by a complex matrix that included political authority and negotiation, economic relations that bound elite to commoner and elite to elite, kinship, proscriptive rules, and ritual performance. The product of this matrix is elite faunal assemblages that differ sufficiently from those of commoners to reinforce archaeological interpretations of status differences based on other categories of artifacts, architecture, and use of community space (also see Sharpe et al., chapter 4, this volume). There is, however, no single suite of animal resources that can be isolated and used to demarcate a single "Mississippian elite diet." There is regional variation that can only be understood by careful comparison of assemblages from elite and non-elite contexts. Moreover, there is subtle variation in faunal refuse from different elite contexts, offering opportunities to evaluate differences among elite households related to economic support and distinctive animal needs as defined by, for instance, group memberships, particular craft or other production efforts, the size and scale of hosted meals, and the rituals that underpin their political or social office.

The last of these has been explored by zooarchaeologists the least. As the emerging research on SECC iconographic art is showing, a significant underpinning of political power in Mississippian chiefdoms is provided by artistry that refers to concepts of cosmology and myths of supernatural beings in human and animal form. If production, exchange, and possession of SECC paraphernalia served as a display of the elite's connections with the cosmic forces that legitimized political authority, maintaining or influencing those

connections must have required the performance of rituals. With the present evidence provided by SECC iconography, dramatic assemblages such as from Cahokia's Mound 34 (Kelly et al. 1997), and historic references (Hudson 1976), we should expect certain animals—such as swans, woodpeckers, falcons, snakes, or cougars—to be found in ritual contexts. But there is no a priori reason to believe that the list of possible taxa incorporated into ritual performance was limited to those depicted in art or described in ethnohistorical accounts. Indeed, assumptions, such as small animals being commensal, may mask important evidence for elite manipulation of the animal world in their efforts to retain their special and possibly quite individualized relationships to the supernatural.

Through careful consideration of context, species composition, anatomical representation, bone modification, and associated artifacts, zooarchaeologists are poised to advance our understanding about how, for particular cases, the political, social, and ideological dimensions of Mississippian elite behavior contributed to the distinctive composition of their faunal refuse.

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6

The Parrots of Paquimé

A Look at the Role of Aviculture in Thirteenth-Century Northern Mexico

Abigail Holeman

INTRODUCTION

The desert of northern Mexico is not the place one would expect to find extensive remains of tropical birds. However, in northwestern Chihuahua that is exactly what has been found. Charles C. Di Peso and Eduardo Contreras found secure evidence for the raising and breeding of scarlet macaws at Paquimé (also known as Casas Grandes) during their excavations at the site in the late 1950s and early 1960s (Di Peso et al. 1974; Somerville et al. 2010). The presence of large quantities of macaws has long been a point of interest for scholars and lay people alike, and the abundance of scarlet macaws more than 500 kilometers from their natural habitat, along with other long-distance trade items, has been used as evidence for the economic foundations of social inequality at Paquimé. In this chapter, I contextualize the remains of the scarlet macaw, as well as those of the regionally indigenous military macaw, to understand their symbolic roles within the Casas Grandes system beyond their use as a means of subsistence.

Over the past couple of decades Paquimé has become important in discussions of hierarchy in the region of the US Southwest/Mexican Northwest. However many questions remain unanswered. The large quantity of nonlocal items such as marine shells, scarlet macaws, and Salado Polychrome (a nonlocal ceramic type) led Di Peso (1974) to interpret this large regional center as a northern outpost of a Mesoamerican empire. According to Di Peso, Paquimé was settled by Mesoamerican *pochteca* traders coming north to control resources. Subsequent interpretations have tried to understand Paquimé on its own terms as a local

DOI: 10.5876/9781607322863.c006

development (see Lekson 1999 for an exception). The exotic trade items still play a role in interpretations of Paquimé, now as prestige goods (Bradley 1993, 1996; Earle 1991; Whalen and Minnis 1996). While most researchers agree Paquimé was complex, the level and specific form of that complexity is still hotly debated (Lekson 1999; Whalen and Minnis 1996, 2001a, 2001b, 2003, 2009; Woosley and Olinger 1993; Van Pool and Leonard 2002). Although ritual is sometimes given as the implicit prime economic mover in discussions of trade at Paquimé (e.g., Spielmann 2002), it is always portrayed as ritual in the most general sense, or ritual writ large. A few studies of mortuary remains (Rakita 2009) and polychrome ceramic designs (Van Pool 2003) have begun to discuss the role of ritual at Paquimé on a smaller and more specific scale; I hope to add to these discussions. In this chapter I explore the ways in which ritual knowledge is mobilized through the use of specific bird species at Paquimé.

Rather than continue the argument of whether or not societies in the US Southwest/Mexican Northwest were hierarchical, egalitarian, or heterarchical, I take the suggestion of Nelson (1995) and Rautman (1998) and ask *how* these societies were complex. I argue that hierarchy was based on the control of ritual knowledge, and that prestige items only took on value within a certain ritual system. As Brandt (1994:15) notes in her discussion of Southwestern Pueblo societies north of Paquimé, "the fundamental basis for social ranking in Pueblo societies is possession and ownership of ceremonial property, knowledge, and ceremonial participation. In all of the pueblos traditionally, and in most today, these aspects provide the basis for claiming rights and authority and apportioning responsibility." Using comparisons with the Pueblo Southwest and Mesoamerica, I suggest that the macaws at Paquimé were prestige items, not simply because they were a difficult-to-acquire trade good, but also because they were a form of ceremonial property and the contexts in which they were found suggests they were mobilized as symbols of ritual knowledge.

PAQUIMÉ, NORTHWESTERN CHIHUAHUA, MEXICO

Paquimé is a large, late prehistoric site located along the Río Casas Grandes in Northwest Chihuahua, Mexico (Figure 6.1). This region is home to the Chihuahuan Desert, which lies between the Sierra Madre Occidental to the west, on the border between the states of Sonora and Chihuahua, and the Sierra Madre Oriental to the east. These large mountain ranges block most rain from the west and east coasts, creating a rain shadow (Schmidt and

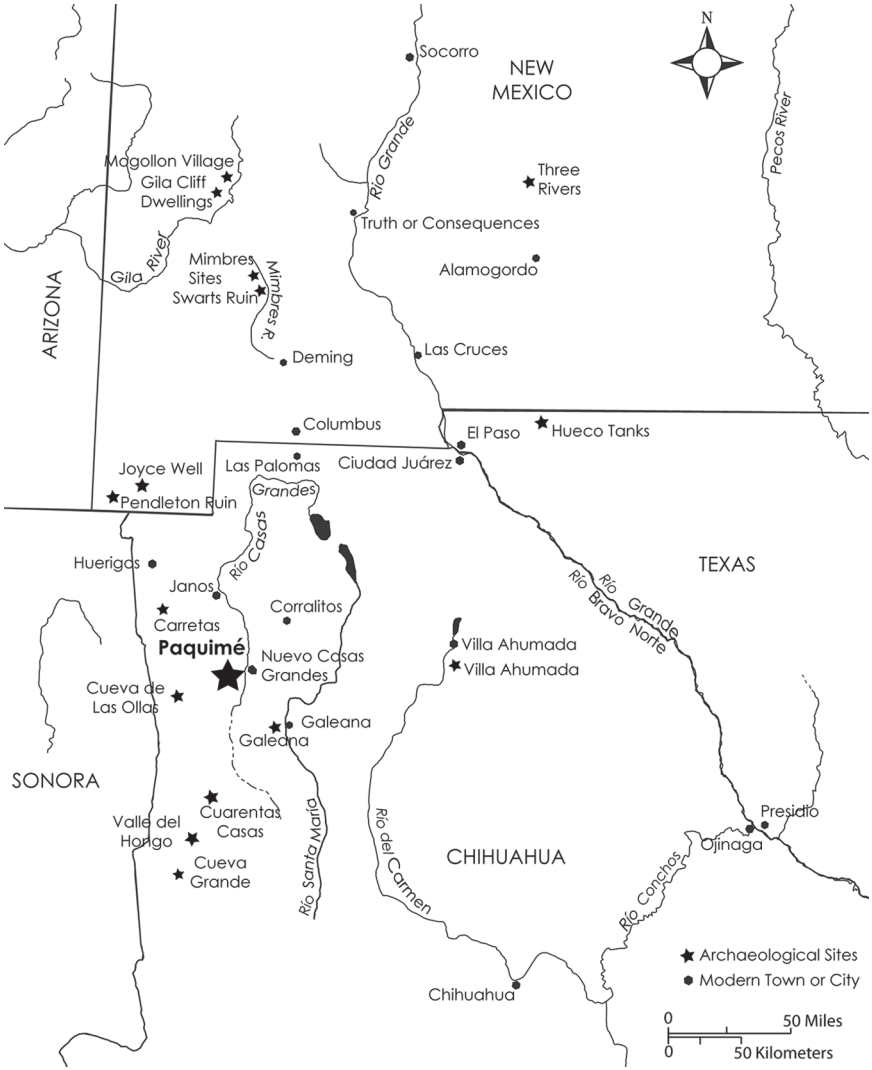

Figure 6.1. *Paquimé and the surrounding region of Chihuahua and Sonora, Mexico and Arizona and New Mexico in the United States.*

Gerald 1988). As a result, this region is characterized by desert scrub brush, various species of agave, ocotillo, and non-columnar cacti species.

Major excavations of the site took place from 1958 through 1961 and were overseen by Charles C. Di Peso and Eduardo Contreras (Di Peso 1974). The

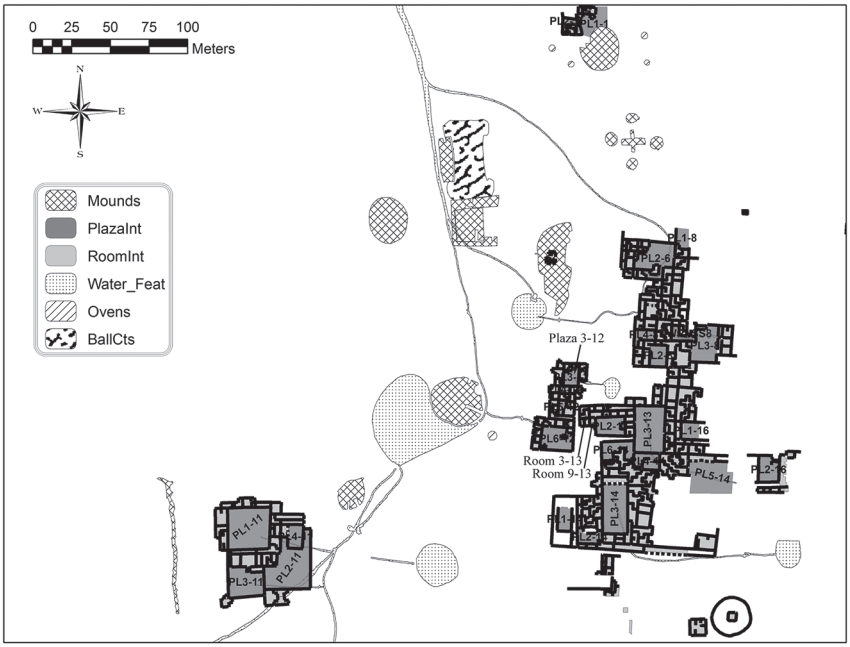

Figure 6.2. *Paquimé: rooms discussed in the text.*

main occupation of Paquimé, known as the Medio period, dates to AD 1200–1350 (Dean and Ravesloot 1993). Work in the surrounding area has shown the Medio period may be pushed earlier to AD 1150 (Whalen and Minnis 2009). The Medio period saw a transition from semisubterranean pithouse structures to aboveground adobe room-block structures, along with changes in ceramics and other artifact categories (Di Peso et. al. 1974; Rakita 2009). Di Peso and Contreras's excavations revealed that Paquimé was one of the largest late-prehistoric sites in the American Southwest/Mexican Northwest, exhibiting a surprising diversity of public and private architecture (Figure 6.2).

Di Peso and Contreras exposed roughly two-thirds of the site, focusing on the western portion, including eighteen platform mounds, five large in-ground roasting ovens, a complex internal water system, and over 180 multi-story rooms (Di Peso et a. 1974). It is estimated that Paquimé includes a total of more than 1,100 rooms (Whalen, MacWilliams, and Pitezel 2010:546). In addition to the size of Paquimé, the incredible finds in a few of the rooms have captured much attention. For example, in Room 18 in Unit 8 over 50 Gila Polychrome (a nonlocal ceramic design) bowls were found. Next to this room,

in Room 15, Unit 8, over 4 million shells, both worked and unworked, were found in the fill and underneath a false wooden floor. In Room 23, Unit 16, ten human skulls were found next to a long-bone cache that included the remains of human as well as various prey animals.

Another unique find includes extensive evidence of aviculture. The skeletal remains of tropical macaws, including both scarlet (*Ara macao*) and military macaws (*Ara militaris*), were found buried under plaza floors and room floors, and in features identified as birdcages. These cages were located along a few plaza walls and had two low adobe walls with a distinctive donut-shaped stone in the front for access. The tops were closed by large, flat stones. Many of the bird remains were found in these features. Breeding is suggested by the presence of macaw remains in almost every stage of development, from eggshells to mature adults, as well as the results of isotope analysis (Di Peso et al. 1974:5:531, 8:292–296; Somerville et al. 2010). The specific birds raised at Paquimé include the scarlet macaw and the common turkey (*Meleagris gallopavo)*. The military macaw does not appear to have been bred at Paquimé, as there are no eggshells or nestlings. Instead, the presence of only older birds suggests the military macaws were captured in the wild and brought to the site.

Of particular interest for this discussion is the presence of scarlet and military macaws found buried together. The remains of these birds were, more often than not, found together in prepared burials. Scarlet macaws almost invariably occur in greater numbers than military macaws, both in the bird burials and in the overall population of bird remains at Paquimé. These finds are unusual in the US Southwest/Northwest Mexican region, and have shaped many interpretations of the site (Creel and McKusick 1994).

The scarlet macaw, which is indigenous to tropical habitats at least 500 kilometers to the south of Paquimé (Creel and McKusick 1994; Di Peso et al. 1974:vol. 8), has bright red feathers along its back and chest, with blue and yellow wingtips and tail feathers. The military macaw has bright green feathers along its back and chest with blue wingtips and red tail feathers, along with a red patch immediately above the beak. These birds were not used as a food source but were buried whole in prepared burials, sometimes with grave offerings. Following McKusick (Di Peso et al. 1974, vol. 8:278, 290), I suggest these birds were buried together due to their prominent green and red colors. Interestingly, Di Peso and his colleagues (Di Peso et al. 1974, vol. 8:269) found that turkeys were not used as a food source at Paquimé either. Turkeys were raised for feathers and for use in sacrifices, as over 300 headless burials attest, but there is no indication that these birds were butchered for food (Di Peso et

al. 1974:vol. 8). This suggests that birds at Paquimé were valued for ritual rather than subsistence purposes.

The economic focus of many interpretations of Paquimé has led to an interpretation of the scarlet macaws as a trade item to the exclusion of other ideas. These birds are combined with other trade items such as shell and nonlocal ceramics to provide evidence of Paquimés' position as a trading center, or to argue for hierarchy based on control of prestige goods (Bradley 1993, 1996). I agree that control of these unique and difficult-to-acquire goods contributed to creating and maintaining hierarchy at Paquimé, but I also want to know the *nature* of the role these colorful birds played in the Paquimé symbolic system. The interment of exotic scarlet macaws and the locally available military macaws together was clearly intentional and systematic. If control of prestigious trade goods was important to maintaining hierarchy at Paquimé, why were the military macaws treated in a manner similar to that of the scarlet macaws?

Along with others, I argue the power to create and maintain a hierarchical position lay in the ability to control and mobilize ritual knowledge (Brandt 1977, 1994; Whiteley 1988, 1998), or as Whiteley (1998:93–94) put it in reference to the Hopi, "secret ritual knowledge serves as the. . .'currency' of power. . .[and] both configures the structuring of hierarchy and provides the idiom of political action." To be effective, this ritual knowledge must be displayed in highly controlled contexts; in other words, it must be displayed in rituals (Weiner 1992).

Although the meaning of particular rituals may be archaeologically elusive, I suggest several broad cosmological principles that structure these rituals, leaving material patterns that can be, and have been, identified in the archaeological record. One of these is the concept of color/directional symbolism, which is a prominent theme to the north and south of Paquimé in both the Pueblo Southwest and in Mesoamerica (DeBoer 2005; Freidel et al. 1993; Miller and Taube 1993; Ortiz 1969; Parsons 1996).

COSMOLOGICAL PRINCIPLES AND THE CREATION OF VALUE: COLOR/DIRECTIONAL SYMBOLISM

Color/directional symbolism is a cosmological principle seen from southern Mesoamerica to the northern US Southwest (and points beyond). The association of color and direction, at the most basic level, refers to the notion that each direction—north, south, east, and west, plus a center above and a center below—is associated with a particular color, plant, animal, and deity. The same group of colors—red, blue or green or blue/green, yellow, black, white, and a mix of all colors—is used in all Mesoamerican and Southwest cultures

Table 6.1 Color/directional symbolism of the different cultures in the American Southwest and Mesoamerica.

	North	*South*	*East*	*West*	*Center Above (Zenith)*	*Center Below (Nadir)*	*Citation*
Yucatec Maya	White	Yellow	Red	Black	Blue/Green		Miller and Taube 1993
Classic Maya	White	Yellow	Red	Black	Blue/Green		Schaafsma and Taube 2006
Zuni	Yellow, Evergreen, Crane, Grouse, Mountain Lion, Winter	Red, Tobacco, Corn, Badger, Summer	White, Deer, Turkey, Antelope, Gray Wolf, Fall	Blue, Spring Herb, Coyote, Bear, Spring	Many/All Colors, Sun, Sky, Eagle,	Black, Frog, Water, Rattlesnake	Cushing 1979:186, 188
Tewa (San Juan)	Blue	Red	White	Yellow	Black	Many/All Colors	Ortiz 1969:18; Ford 1980:20
Zia Pueblo (Keresan speakers)	Yellow	Red	White	Blue	Slightly Yellow	Dark (black?)	Stevenson 1894:130
Tree of each direction	Spruce	Oak (*Quercus undulata*)	Aspen	Pine	Cedar	Oak (variety pungens)	Stevenson 1894:28
Animal of each direction	Lion	Badger	Wolf	Bear	Eagle	Shrew	Stevenson 1894:130
Hopi	Yellow (northwest)	Red (southeast)	White (northeast)	Blue/green (southwest)	Black	Many/All Colors	Voth 1905:157–158; Parsons 1996:365; Bradfield 1995

continued on next page

Table 6.1—*continued*

	North	*South*	*East*	*West*	*Center Above (Zenith)*	*Center Below (Nadir)*	*Citation*
Bird of each direction	Oriole	Parrot or Macaw	Magpie	Mountain Bluebird	Swift or Swallow	Canyon wren	Bradfield 1995:92–93
Stone or Shell	Yellowish stone	Pink stone	White stone or Shell	Turquoise	Black stone	Grayish stone	Bradfield 1995:92–93
Plant	Corn	Squash	Cotton	Bean	Watermelon	All Plants	Bradfield 1995:92–93
Prey Animal	Deer	Antelope	Elk	Mountain Sheep	Jack Rabbit	Cottontail	Bradfield 1995:92–93
Predator Animal	Mountain Lion	Gray Wolf	Wild Cat (Bob cat?)	Black Bear	Eagle	Badger	Bradfield 1995:92–93
Bird of Prey	Cooper's Hawk	Sharp-shinned Hawk	Sowitoaya (unidentified)	Prairie Falcon	Eagle	Gray Hawk	Bradfield 1995:92–93
Aztec	Red (or Yellow or White)	White (or Black)	Yellow (or Red)	Blue/Green	Blue/Green		López Austin and López Luján 2000:72
Birds of each direction	Hawk	Parrot	Quetzal	Hummingbird			

(Cushing 1979; Ortiz 1969; Parsons 1996; Schaafsma and Taube 2006; Voth 1905). However, the combinations of colors and directions vary in each culture (Table 6.1).

Along with the association of color and direction, each set is often associated with a one or more particular plants and animals (Table 6.1). This plant could be a tree, agricultural crop, or some other symbolically and functionally important plant, or (often) a combination of multiple plants. The animals associated with each color and direction are usually a predator and a prey animal. The plants and animals have features that are usually related to the season that corresponded to the direction. For example, Cushing (1979:186–187) notes for the Zuni that the clan groups of the crane, grouse, and evergreen are associated with white, north, and winter. He notes that the grouse turns white in the winter and the evergreen stays as green in winter as it does in summer, which are important features for their association with the winter season. Among all Pueblo groups, the animals and plants associated with the colors and directions are also the animals or plants that represent different clan groups. Thus, different clans, each associated with an animal and plant, were also associated with particular seasons and directions. These seasonal associations, in turn, regulated which groups were responsible for different types of work in different seasons (planting versus harvesting, hunting, etc.). Although this notion of color/directional symbolism is a common principle among almost every Pueblo group, there is great variability in the details among the different Pueblo societies.

From Cushing (1979) to Parsons (1996) to Ortiz (1969), ethnographers in the Pueblo Southwest have discussed the importance of these color and direction associations. Ethnographers have also demonstrated how color and direction associations are not just abstract cosmological ideas; they organize village layout, social groups, and resource distribution (Cushing 1979:185–186; Ortiz 1969:35; Parsons 1996:366; Stevenson 1894).

In his ethnographic study at the Keresan pueblo of Santo Domingo, Leslie White (1935:41) notes that houses in the pueblo are divided into five groups according to the important directions: the four cardinal directions and the middle. The ten war-priest assistants (*Gowatcanyi*) are grouped into five pairs, also named according to the five directions, and each takes turns herding the pueblo horses. When a pair of men need help caring for the horses, they enlist help from people with houses in the same directional category. So if the Gowatcanyi from the north are herding and they need additional help, they enlist people who live in the part of the pueblo that is associated with north (White 1935:41).

Ford (1980) gives another example in his discussion of the environmental necessities for growing different colors of corn. The different colors of corn require diverse microenvironments (Ford 1980). This, in turn, ensures the survival of at least one crop. Thus ritual needs and subsistence practices were inextricably intertwined.

Color/directional symbolism is also present among the Aztecs and the Maya of central and southern Mexico. The five-part division (four quadrants plus the center) of the Aztec world is repeated at many levels (Ashmore 1991; Miller and Taube 1993; Van Zantwijk 1981). One clear example of the association of each direction with a specific color, flora, and fauna comes from the Codex Fejervary-Mayer. Not only do we see the color/directional scheme laid out in this piece, we also see that the scarlet macaw is an important deity. This system is mapped geographically across the regions conquered by the Aztec, and tribute brought into the Aztec capital city is organized by this directional scheme (Carrasco 2000). Here again, we see how color/directional symbolism is not just an intangible esoteric idea, but shapes society in many ways.

Color/directional symbolism is not a religious superstructure (Marx 1976), but, within the regions of Mesoamerica and the US Southwest, gives structure to social groups, subsistence practices, labor, and the distribution of goods. With the Tewa example we see how this principle structures everyday life, and with the Aztec example we see how this idea of color/directional symbolism can structure the tribute system of an entire empire. I argue that this cosmological structure was evident in northern Mexico as well.

COLOR SETS WITHIN COLOR/DIRECTIONAL SYMBOLISM

Within the larger schema of color/directional symbolism, there are often sets of colors that are associated with each other. These sets of colors are often used as markers of social identity. A good example of color sets and their relation to social organization can be seen at the Tewa pueblo of San Juan, as discussed by Ortiz (1969), who notes that in the Tewa community of San Juan the moiety organization is related to the seasons, with leadership alternating between the winter and summer moieties. Each moiety is also associated with a specific set of colors (winter with red and white, and summer with yellow, green, and black). Thus color sets identify particular moieties in this case.

Color sets and associations can be seen in the regalia worn at Pueblo dances and other rituals, such as masks, headdresses, and various forms of jewelry. Ortiz (1969:74–75) describes the masks worn by the *Towa é* (a group

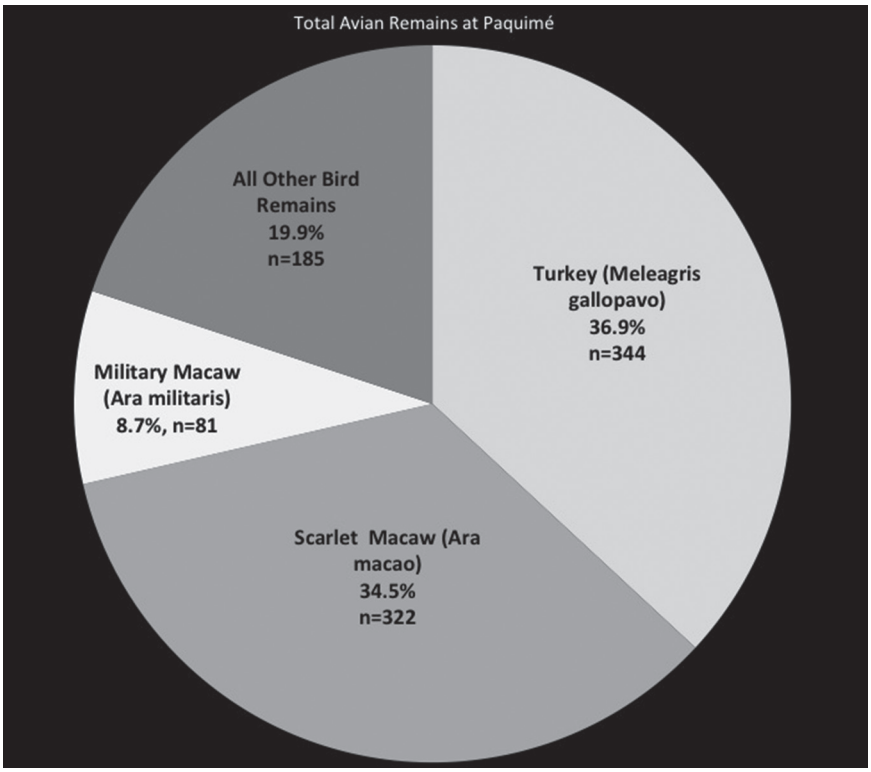

Figure 6.3: *Percentages and frequencies of avian remains found at Paquimé.*

of officials who act as intermediaries between the "Made People" and the rest of the pueblo population) in preparation for the Turtle dance. In describing how the *Towa é* act as a check on the power of the "Made People" (a politically powerful group responsible for all ritual activity), Ortiz describes their duties before the Turtle dance. A *Towa é* from each moiety (summer and winter) visits the kiva during preparations and disciplines the dancers as they practice for the ritual. The *Towa é* from the winter moiety wears a mask decorated with red and white paint, and the *Towa é* from the summer moiety wears a mask decorated with yellow and black paint. As noted above, these colors are associated with the different moieties. This is not to say that Paquimé had a clear moiety system as San Juan pueblo did, but rather to demonstrate how colors and color sets can be used as markers of social groups. The materialization of these group markers is identifiable by archaeologists if we take a contextual approach.

Table 6.2 Totals of scarlet and military macaws in prepared burials, both single and multiple. Includes only birds that could be identified to species. Excludes *Ara* sp., and burials where an *Ara macao* or *Ara militaris* was buried *only* with an *Ara* sp. Also includes only macaw remains from contexts identified as intentional burials, not bird/faunal remains in other contexts.

	Single Burials	*Associated with scarlet macaw*	*Associated with military macaw*	*Totals*
Scarlet macaw (*A. macao*)	33	60	135	228
Military macaw (*A. militaris*)	6	57	2	65
Totals	39	117	137	293

MACAWS AT PAQUIMÉ

The evidence for aviculture at Paquimé provides evidence for the central role of color/directional symbolism. The fact that the two most common species of macaw were repeatedly buried together is important and requires further examination. The prepared burials of scarlet macaws and turkeys made up 71 percent of the bird remains at Paquimé (Figure 6.3), with scarlet macaws making up 35 percent of the avian fauna (Di Peso et al. 1974, vol. 8:273). There were a total of 403 individual macaws found that could be identified to species. Of these, 322 were scarlet macaws and 81 were military macaws. A subset of these remains was found whole in prepared burials. There were 136 prepared bird burials that contained macaws, for a total of 293 macaws found in prepared burials (including both single and multiple burials). There were 81 multiple-bird burials that contained a total of 192 military and scarlet macaws found together (see Table 6.2). The overwhelming majority of these bird remains were found in Plaza 3-12 (Figure 6.4).

Most of the birdcages described earlier were located along the south wall in Plaza 3-12, where the bulk of the macaw remains were found. Plaza 3-12 was clearly a locus of scarlet macaw breeding, given the remains of macaws in all stages of development from eggshells to nestlings, to mature birds found in the cages and under the plaza floor (Di Peso et al. 1974, vol. 8; Minnis 1988; Minnis et al. 1993; Somerville et al. 2010).

Although the most of the macaw remains were found in plaza 3–12 (67 percent of macaws in prepared burials) (Figure 6.2), macaw burials were also found in a few other locations around the site. One large room (Room 19-8) contained an unusual concentration. Room 19-8 had forty-three (12 percent

Figure 6.4. *Distribution of macaw burials within the main room block at Paquimé.*

of the macaws in prepared burials) macaws, thirty-four of which were scarlet macaws, seven were military macaws, and two could not be typed to species. Out of the forty-three birds in this room, thirty-four were found in one group burial, and seven (five scarlet and two military) macaws were found with a human burial. There were very few human individuals found with birds; the case in Room 19-8 is unusual. There are only two other cases of humans buried with birds; in one case the individual was buried with a turkey, and in another case the individual was buried with two turkeys and two scarlet macaws. One bird burial (BB/8) in plaza 3-12 was found with 252 shell beads (catalog numbers CG/5509 and CG/5510). This burial included two scarlet macaws and one military macaw.

Both military and scarlet macaws were found in single burials, burials with multiples of the same species, and burials with both species. However, the overwhelming majority of both scarlet and military macaws were buried together in burials that contained at least one of each species (Table 6.2).

A chi-square test confirms that the distribution of the two species of macaw burials was not random (Table 6.2). With two degrees of freedom, the

chi-square value is 82.85, ($p < 0.0001$). A Cramer's V test of 0.531 suggests an extremely strong relationship between the military and scarlet macaws found at Paquimé.

CERAMIC HAND DRUMS: ADDITIONAL ASSOCIATIONS OF RED AND GREEN

In addition to the scarlet and military macaws, there is evidence for the intentional association of the colors red and green at Paquimé. In Unit 13, at the center of the site, excavators found a large number of ceramic hand drums. Twenty-two of these vessels had red and green paint around the base (Figure 6.5). These vessels have a wine-glass shape with perforations around the top edge for attaching, presumably, a skin of some sort across the top (Figure 6.5).

Most of the ceramic hand drums were concentrated in a few rooms in Unit 13. Within the ceramic assemblage of Paquimé, these vessels are unique not only for their form but also for their restricted distribution. They are found only in burial contexts, and only in eight rooms at the site, with concentrations of these vessels in Rooms 3-13 and 9-13. Unit 13 also contained an unusually high number of human burials. In addition to containing ten ceramic hand drums, Room 3-13 (see Figure 6.2) also had one of the most elaborate burials at Paquimé, Burial 44-13. Human Burial 44-13 was what the original excavators called a "tomb burial" (Di Peso et al. 1974:vol. 8). Tomb burials were large burial pits that often (but not always) had multiple individuals and a large number of grave goods. Only a few burials were constructed in such a way. The distribution of these hand drums therefore was restricted not only spatially to a few rooms, but also contextually to mortuary contexts.

All of the ceramic hand drums found were broken. Given the state of the vessels and the context, it is possible these vessels were intentionally broken, an interpretation suggested by the distribution of pieces from a single vessel across multiple, noncontiguous rooms. For example, sherds from one vessel (catalog number CG/8531) were found in Plazas 2-13 and 3-13, as well as Rooms 6-13, 1-13, and 3-13 (Di Peso et al. 1974, vol. 5:596). The distribution of vessel pieces may have happened during mortuary rituals.

Along with the burials of the two macaw species with their prominent red and green plumage, we also see a restricted distribution of the red and green ceramic hand drums. In particular, the ceramic hand drums are associated with mortuary contexts, and most likely mortuary rituals. These drums were then broken and distributed across multiple burial contexts.

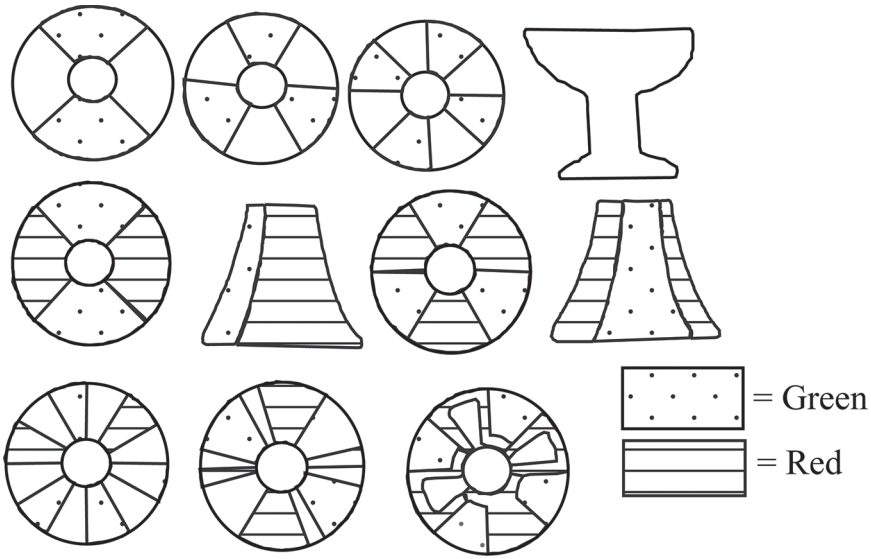

Figure 6.5: *Base design and profile shape of ceramic hand drums from Paquimé.*

DISCUSSION/CONCLUSIONS

Discussions of color symbolism in the prehistoric cultures of the US Southwest are becoming more common (DeBoer 2005). The importance of color and direction has long been noted in Mesoamerica (Ashmore 1991; Freidel et al. 1993; Taube 1998, 2005), but discussions of how this idea would manifest in material that is archaeologically recoverable are elusive. By re-contextualizing the macaw remains at Paquimé, we see that their importance as a trade item stems from their place within a larger symbolic system. The contextual analysis of the macaw burials at Paquimé highlights the previously ignored presence of military macaws, thus complicating the notion that it was only the scarlet macaws that conferred prestige on those who had access to them. The association of red and green is seen at Paquimé in the association of scarlet and military macaws and in paint designs on ceramic hand drums. These associations suggest that, like cultures to the north and south in the American Southwest and Mesoamerica, color/directional symbolism was operative at Paquimé, and gives some insight into the nature of the prestige bestowed by these goods.

The prestige gained from mobilizing these items in ritual contexts may have come in part from the value of the scarlet macaw as a long-distance trade item. However, the context of these items shows repeated associations

of red and green across different media, suggesting the scarlet macaw was folded into a local system of meaning. These items may have taken on significance mainly in reference to each other, or the red and green in combination. This suggests that red and green were part of a ritual complex that bestowed rank on those who were able to use these symbols and display their knowledge in rituals associated with both human and avian mortuary practices.

The limited distribution of both the birds and the ceramic hand drum suggest that access to these items was restricted (see also Minnis et al. 1993). There was clearly a limited group of people allowed to mobilize the red and green colors together, and therefore a limited number of people who could demonstrate their ritual knowledge in this particular way by linking themselves to the deities and/or powers associated with these colors.

Suggesting scarlet and military macaws had ritual importance due to their color is not new. McKusick (Di Peso et al. 1974, vol. 8:278, 290) suggested this in her faunal reports on the Paquimé excavations. However, in Di Peso's own discussions in the same volume, and in others over the years, this interpretation has gotten lost, given its presumed subsidiary importance to the economic value of the birds.

The contextual approach used here adds another dimension to the use of animals in prehistory. The context of the use of birds in this case shows a symbolic element that is lost when researchers focus only on economic factors such as long-distance trade. In addition to looking for quantitative patterns, I suggest that to gain a significant understanding of this site and by extension, its relationship to the surrounding area, we need to take a qualitative look at the context of this variation. Many interpretations of Paquimé discuss or mention the scarlet macaws, but few even mention the military macaws, most likely because of their small numbers and perceived local availability. A strictly quantitative analysis misses the importance of the military macaw, while a contextual qualitative analysis not only brings the military macaws back into the picture but provides further insight into the significance of the scarlet macaw. Both kinds of analysis are necessary to understand the role animals played in prehistoric societies. Evidence for color associations in avian remains along with other media such as the ceramic hand drums points to the mobilization of ritual knowledge in highly restricted contexts associated with human and avian burials. If ritual is the idiom of political action, then the association of red and green can be seen as a particular dialect within the ritual language of Paquimé. Ritual knowledge was an important source of power in prehistory. This power was at times mobilized through the use of animals beyond their use as a means of subsistence.

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7

Ritual, Cuisine, and Commensal Politics at Chaco Canyon, New Mexico

Adam S. Watson

INTRODUCTION

During the ninth century AD, a vast portion of the southern Colorado Plateau comprised the Ancestral Pueblo world and was home to sedentary villages whose inhabitants practiced a combination of rain-fed maize agriculture and hunting and gathering. In the tenth century, Chaco Canyon communities began to form a regional network of unprecedented size and scope that was sustained for nearly three hundred years. While rooted in preexisting Pueblo patterns, Chaco stands out from its contemporaries in many ways. Large, multistory, room-block structures or Great Houses, constructed meticulously with sandstone masonry and massive quantities of pine beams harvested from forests eighty kilometers distant required substantial planning, skill, and labor. Long-distance importation of exotic goods, such as turquoise, seashell, ceramics, chipped stone, cacao, and scarlet macaws, and ties to communities throughout the San Juan Basin, reflect the unparalleled magnitude of Chacoan influence. Explanation of the social, political, and economic developments in the rise and fall of the Chaco system is critical to understanding the long-term cultural evolution of social formations in the prehistoric American Southwest, and has great potential for resolving questions of societal evolution globally.

The Classic Bonito subphase (AD 1040–1100), during which Chacoan building efforts and exchange of exotic goods reached a crescendo, provides the best evidence for centralized decision-making. The late eleventh and early twelfth century transition to the Late Bonito subphase (AD 1100–1150) witnessed the proliferation of new and architecturally distinct Great House forms, an

DOI: 10.5876/9781607322863.c007

apparent expansion of Great House construction into regions north of Chaco, and a steady decline in the importation of exotics. In view of these periods of dynamic growth and structural change, what political strategies were brought to bear to mobilize labor, facilitate exchange, or integrate migrants?

The role of periodic pilgrimage fairs and large-scale communal events figures prominently in several influential models of eleventh-century Chacoan sociopolitical dynamics (Toll 1985:396, 400–404; Van Dyke 2007a, 2008; Windes 1987:561–667). One recent study cites evidence for the elaboration of ritual and feasting during the early twelfth century as a reflection of demographic change and ethnic heterogeneity in Chaco Canyon (Wills 2009:298–302). Such interpretations are based largely on the presence of distinctive architectural features such as public roasting pits or upon ceramic and material signatures that may indicate commensal feasting in Great House settings. However, the possibility of similar practices in non–Great House settings has not been systematically examined. This study presents the preliminary results of an analysis of the animal remains from two Chacoan small-house sites (Bc 57 and Bc 58) located near South Gap, in close proximity to the large ceremonial structure, Casa Rinconada.

The majority of previous faunal analyses completed on Chaco Canyon assemblages were conducted under the auspices of the Chaco Project and focused on two Great Houses and a cluster of small-house sites in the Fajada Gap area of the canyon five kilometers east of South Gap (see Figure 7.1) (Akins 1985; Gillespie 1991, 1993). The faunal remains from Bc 57 and Bc 58 afford, for the first time, a glimpse of faunal use spanning the Classic (AD 1040–1100) and Late Bonito (AD 1100–1140) subphases among the cluster of small sites commonly referred to as the "Bc Sites" that are nestled among the Great Houses of "Downtown Chaco."

BACKGROUND

How can we detect food sharing in the archaeological record? Feasts vary widely in form, purpose, and scale and these parameters in turn influence the patterns visible archaeologically (Adams 2004; Hayden 2001; Twiss 2008). For heuristic purposes, Hayden's (2001) typology of feasts can be distilled to two broad classes, hereafter referred to as *distinctive* and *solidarity* feasts. The former, encompassing competitive, tribute, and promotional/alliance/work feasts, are frequently large in scale and entail visible departures from domestic patterns of consumption both in terms of the species consumed and the display of "prestige items." In contrast, solidarity feasts are frequently "potluck" style

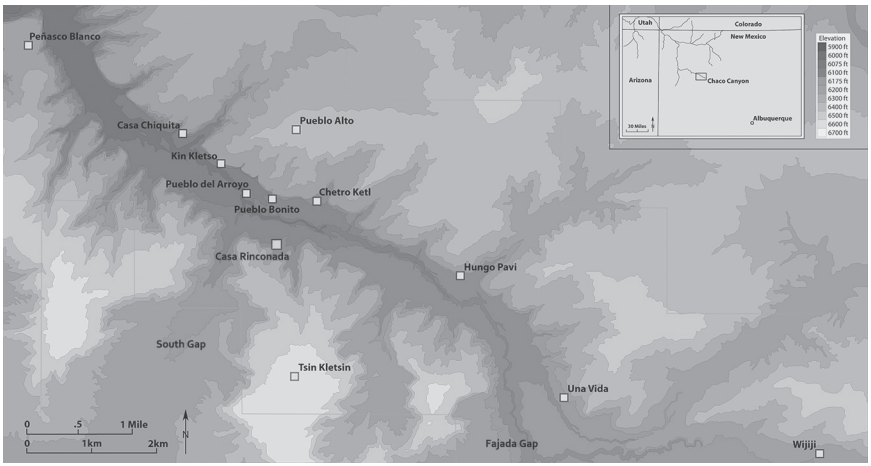

Figure 7.1. *Chaco Canyon with locations of several Great Houses and the Casa Rinconada study area; the inset depicts the location of Chaco Canyon within the greater American Southwest.*

and are events that advance unity at the household, village, or intervillage scale. The provisioning of food is communal and consistent with domestic consumption, akin to a family meal (Adams 2004:61; Hayden 2001:38, 55–58). Distinctive feasts may be more easily identified archaeologically, whereas behaviors associated with solidarity feasts are often difficult to differentiate from accretions of daily household refuse. I explore these correlates in more detail below.

Due in part to the large scale of distinctive feasts, preparation may require the use of public food-preparation facilities and specialized structures such as roasting pits. Material remains of feasts may be spatially associated with communal rather than household space (Hayden 2001:57–58; Muir 1999:113; Potter 2000:483). In this context, faunal remains often exhibit evidence of roasting, less-intensive breakage, an abundance of species conducive to communal procurement and consumption, and greater representation of meat-bearing skeletal elements, particularly among large mammals (Jackson and Scott 2003; Kelly 2001; Potter 2000:483). In addition, an abundance of large game and high rates of butchery waste such as articulated vertebral columns and intact axial remains including pelvises and scapulae have also been interpreted as indications of feasting (Grimstead and Bayham 2010:859; Jackson and Scott 2003; Kelly 2001).

Since the solidarity feast's material signature may closely resemble that of deposits generated through quotidian behavior, its presence or absence

is best determined through converging lines of evidence. These feasts, likely occurring at regular intervals, would be provisioned through the gradual accumulation of resources such as food staples and stored meat. Refuse generated by butchery and processing of animals would thus be indistinguishable from other domestic refuse. Such subsistence intensification on an ad hoc basis in support of smaller-scale feasts is well-documented ethnohistorically (Spielmann 2002:197).

This study addresses two central questions: (1) to what extent do patterns of faunal procurement and consumption reflect distinctive or solidarity feasting behavior at Bc 57 and Bc 58; and (2) what are the implications of feasting behavior for the late eleventh and early twelfth centuries at Chaco? The location of these two small sites amid the densest concentration of Great Houses in the San Juan Basin and their position directly adjacent to an isolated Great Kiva makes them ideal test cases for an investigation of the roles feasting may have played in the eleventh-century political centralization and twelfth-century cultural transition that ushered in the McElmo phase.

THE SITES

These two small house sites, excavated between 1942 and 1947 by the University of New Mexico and School of American Research field school under the direction of Paul Reiter, are located on the south side of Chaco Canyon, situated atop a narrow hill that stretches roughly 150 meters northeast from Casa Rinconada (Figures 7.1 and 7.2). Bc 57 consists of ten rooms and four kivas whereas Bc 58 consists of thirteen rooms and two kivas dating to the late eleventh through early twelfth centuries AD. Although archaeomagnetic dating points to the earliest kiva construction at Bc 57 in the mid- to late eleventh century (Doyel and Eighmy 1994; Truell 1986:479), radiocarbon dates and ceramic assemblages from the site's refuse-filled rooms suggest that activity at and around the site spans the late Basketmaker II through Pueblo III periods (AD 400–1200). Temporal control of the assemblages from these two sites relies on radiocarbon dates and mean ceramic dates based on a preliminary analysis of the ceramics.

The faunal assemblages derive primarily from room-fill contexts where refuse accumulation likely relates either to behavior by the sites' inhabitants or to activities occurring in the sites' immediate vicinities. The majority of radiocarbon dates and mean ceramic dates from room-fill deposits at Bc 57 are indicative of the Classic (AD 1040–1100) and Late Bonito (AD 1100–1140) subphases. Radiocarbon dates from room-fill contexts in Rooms 3 and 4 at Bc

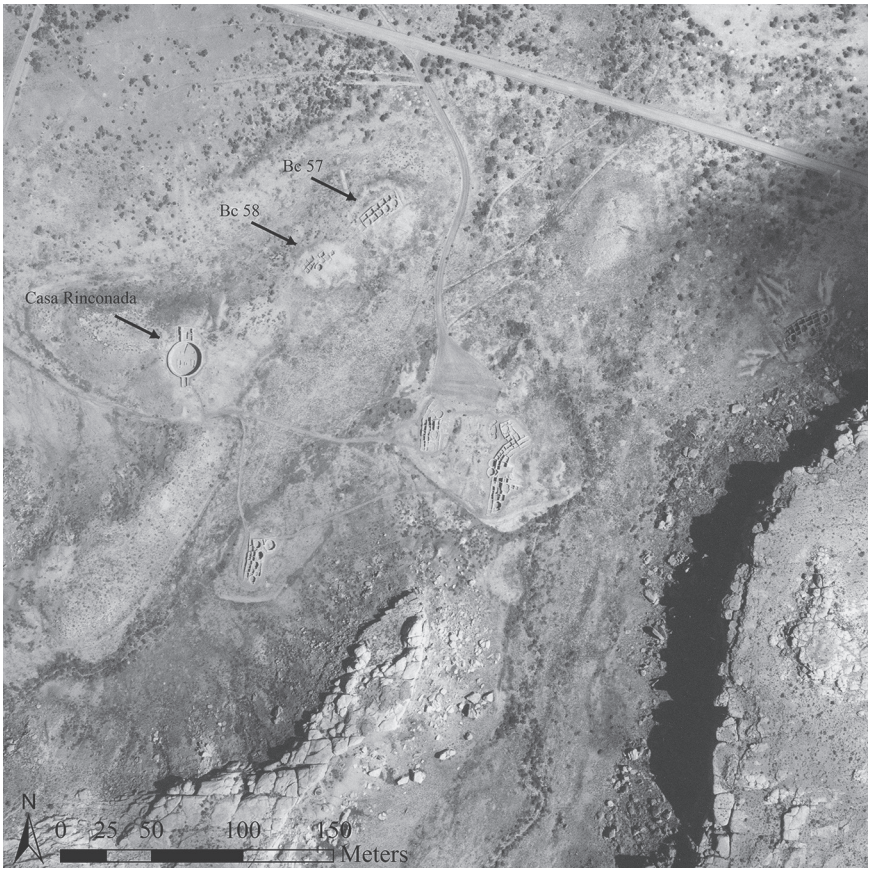

Figure 7.2. *Aerial photograph of the Casa Rinconada area indicating the locations of Bc 57 and Bc 58 in proximity to the Great Kiva. (Courtesy Chaco Culture NHP Museum Collection [1964], University of New Mexico and the Chaco Research Archive, University of Virginia.)*

57 also represent Early Bonito (AD 850–1040) deposits. Based on radiocarbon dates and mean ceramic dates, room-fill deposits at Bc 58 date to the latter half of the eleventh century, corresponding to the Classic Bonito subphase.

The nearby site of Casa Rinconada is an isolated Great Kiva that was constructed atop an elevated landform among the South Gap small-house site complex and also appears to have been constructed and used during the Classic, Late Bonito, and McElmo (AD 1040–1200) subphases (McLellan 1969:179; Vivian 1948; Vivian and Reiter 1960:7, 24–26). As with other isolated

Great Kivas and those found within Classic-style Great Houses, interior features of this semisubterranean structure include a wide low bench, paired floor vaults, a roof supported by four masonry columns, and a stepped antechamber entryway (Vivian 1990:294). Despite the large number of Great Kivas, little is actually known about their use. Based on ethnographic parallels, prehistoric kivas are often interpreted as having served, at least partly, a ritual and integrative role at the corporate (lineage, clan, or kiva group) or community scale (Eggan 1950:299–300; Ortiz 1969:37). Several scholars have suggested that Great Kivas may have served as community focal points for resource redistribution, feasting, ceremonial exchange, and ritual dances (Lightfoot 1984:73; Plog 1974:127). Great Kivas are often distinguished from the smaller and more common corporate-group kivas on the basis of their immense size, a general lack of domestic features, and the presence of likely ritual features such as lateral floor vaults (Adler and Wilshusen 1990:141–142; Lekson et al. 2006:87–89; Wilshusen 1989:95–98). Although at 19.5 meters in diameter Casa Rinconada was a comparatively large ritual structure, Van Dyke (2007b:119) observes that no more than seventy-five spectators could have fit comfortably within the confines of the structure. With direct access to secretive ceremonies likely limited to some subset of the resident or visiting population, other activities such as exchange and feasting may have occurred in close proximity to the structure.

The Bc 57 faunal assemblage contains 10,196 specimens, of which 57 percent were identified to the genus level (Table 7.1). Analysis of the Bc 58 assemblage yielded 1,266 specimens, of which 45 percent were identified to genus; the majority of the assemblage derives from the mid-eleventh century fill from Room 10 (Table 7.2). The excavation records from the 1940s excavations make no mention of recovery procedures but the presence of the remains of small rodents and reptiles as well as eggshell across multiple contexts at both sites is indicative of careful collection practices.

RESULTS

Turning now to the results of this analysis, I begin with an evaluation of the evidence for spatial patterning and cooking facilities. The rooms at Bc 57 and 58 that accumulated refuse are not public depositional contexts; they do not constitute open plaza or midden areas. However, these likely abandoned structures in proximity to Rinconada might nonetheless have held a place in the community's collective memory and might thereby have been regarded as shared or public space. Field notes for Bc 58 include a description of four "large" firepits in Room 11. One slab-lined firepit (38 × 28 cm) was built into an

Table 7.1. NISP and MNI of the fauna from Bc 57.

Class	*Order*	*Species*	*Common Name*	*NISP*	*NISP%*	*MNI*	*MNI%*
Actinopterygii (Ray-finned fishes)	Cypriniformes	*Ptychocheilus lucius*	Colorado pikeminnow	1	0.02	1	0.47
Aves	Falconiformes	*Accipiter cooperii*	Cooper's hawk	1	0.02	1	0.47
		Aquila chrysaetos	golden eagle	8	0.12	2	0.94
		Buteo jamaicensus	red-tailed hawk	4	0.06	1	0.47
		Buteo lagopus	rough-legged hawk	1	0.02	1	0.47
		Buteo regalis	ferruginous hawk	3	0.05	1	0.47
		Buteo sp.	hawk	6	0.09	2	0.94
		Falco mexicanus	prairie falcon	1	0.02	1	0.47
	Galliformes	*Callipepla squamata*	scaled quail	2	0.03	1	0.47
		Meleagris gallopavo	turkey	473	7.15	15	7.04
	Passeriformes	*Corvus corax*	common raven	70	1.06	3	1.41
	Strigiformes	*Bubo virginianus*	great horned owl	1	0.02	1	0.47
		Megascops kannicotti	western screech owl	1	0.02	1	0.47
Mammalia	Artiodactyla	*Antilocapra americana*	pronghorn antelope	383	5.79	5	2.35
		Cervidae sp.	deer	6	0.09	-	-
		Odocoileus hemionus	mule deer	280	4.23	7	3.29
		Ovis aries	domestic sheep	2	0.03	1	0.47
		Ovis canadensis	bighorn sheep	47	0.71	3	1.41
	Carnivora	*Canis latrans*	coyote	1	0.02	1	0.47

continued on next page

Table 7.1—*continued*

Class	*Order*	*Species*	*Common Name*	*NISP*	*NISP%*	*MNI*	*MNI%*
Mammalia	Carnivora	*Canis lupus*	gray wolf	1	0.02	1	0.47
		Canis sp.	coyote, dog, and wolf	20	0.30	2	0.94
		Lynx rufus	bobcat	27	0.41	1	0.47
		Taxidea taxus	American badger	2	0.03	1	0.47
		Urocyon cinereoargenteus	gray fox	1	0.02	1	0.47
		cf. *Urocyon cinereoargenteus*	probable gray fox	1	0.02	1	0.47
	Lagomorpha	*Leporidae* sp.	hares and rabbits	291	4.40	-	-
		Lepus californicus	black-tailed jackrabbit	1729	26.15	37	17.37
		Sylvilagus audubonii	desert cottontail	29	0.44	22	10.33
		Sylvilagus sp.	cottontail	2562	38.74	53	24.88
	Rodentia	*Cynomys gunnisoni*	Gunnison's prairie dog	116	1.75	37	17.37
		Dipodomys ordii	Ord's kangaroo rat	8	0.12	2	0.94
		Geomyidae sp.	pocket gopher	17	0.26	-	-
		Neotoma cinerea	bushy-tailed woodrat	4	0.06	2	0.94
		Neotoma sp.	woodrat	6	0.09	1	0.47
		Perognathus flavus	silky pocket mouse	2	0.03	1	0.47
		Peromyscus sp.	mouse	14	0.21	3	1.41
		Sciuridae sp.	squirrels, chipmunks, marmots, and prarie dogs	492	7.44	-	-
			Total	6613	100.00	213	100.00

Table 7.2 NISP and MNI of the fauna from Bc 58.

Class	*Order*	*Species*	*Common Name*	*NISP*	*NISP%*	*MNI*	*MNI%*
Amphibia	Anura	*Spea* sp.	western or plains spadefoot	9	1.32	1	2.44
Aves	Falconiformes	*Aquila chrysaetos*	golden eagle	1	0.15	1	2.44
		Buteo jamicansis	red-tailed hawk	2	0.29	1	2.44
	Galliformes	*Meleagris gallopavo*	turkey	10	1.46	1	2.44
	Passeriformes	cf. *Gymnorhinus cyanocephalus*	probable piñon jay	1	0.15	1	2.44
Mammalia	Artiodactyla	*Antilocapra americana*	pronhorn antelope	6	0.88	1	2.44
		Cervidae sp.	deer	25	3.65	-	-
		Odocoileus hemionus	mule deer	79	11.55	2	4.88
		Ovis canadensis	bighorn sheep	12	1.75	1	2.44
	Lagomorpha	*Leporidae* sp.	hares and rabbits	12	1.75	-	-
		Lepus californicus	black-tailed jackrabbit	279	40.79	11	26.83
		Sylvilagus audubonii	desert cottontail	2	0.29	1	2.44
		Sylvilagus sp.	cottontail	106	15.50	9	21.95
	Carnivora	*Canis* sp.	dog, wolf, coyote	48	7.02	2	4.88
		Lynx rufus	bobcat	1	0.15	1	2.44
		Vulpes macrotis	kit fox	1	0.15	1	2.44
		cf. *Vulpes macrotis*	probably kit fox	1	0.15	1	2.44
	Rodentia	*Cynomys gunnisoni*	Gunnison's prairie dog	15	2.19	6	14.63
		Sciuridae sp.	squirrels, chipmunks, marmots and prairie dogs	74	10.82	-	-
			Total	684	100.00	41	100.00

earlier kiva pilaster and was apparently used during the site's occupation. The other three firepits (roughly 40 × 50 cm) were found in post-abandonment fill (Cornett n.d.; Reiter n.d.). Although these firepits do not approach the size of the roasting pits found at the Great House of Pueblo Alto (100–130 cm × 71–99 cm), the repeated use and formality of at least one pit and the possibility that these sites constituted public space implies some degree of public food preparation and is thus consistent with feasting behavior (Windes 1987:410–436, 410–436).

Another potential correlate of distinctive feasts is an emphasis on species unlikely to be consumed on a daily basis and that are capable of feeding a large number of people. This test criterion presumes an understanding of what constitutes daily consumption. The local availability of leporids, prairie dogs, and turkey, and their relative frequency in the faunal record, indicates the principal sources of animal protein. (These species consistently account for more than 40 percent, at times approaching 90 percent, of the Chacoan faunal consumption.)

When compared with faunal trends within Chaco and across the broader Southwest, the patterns at Bc 57 and Bc 58 are noteworthy for their heavy reliance on artiodactyls, in particular pronghorn antelope, and jackrabbits. The Artiodactyl Index (AI) (Szuter and Bayham 1989), calculated as the sum of artiodactyls and large mammals divided by the sum of artiodactyls, large mammals, and lagomorphs, measures the importance of large game (deer, pronghorn, and bighorn) relative to small game (jackrabbit and cottontail). High AI values signify greater reliance on artiodactyls. Figure 7.3 depicts the results of recent research by Badenhorst and Driver (2009) in which they observed a general trend toward decreasing artiodactyl exploitation through the tenth, eleventh, and twelfth centuries as indicated by the AI. Artiodactyl Index values for Bc 57 and Bc 58 conform to the prevailing Pueblo II and Pueblo III temporal trend, as artiodactyl consumption decreases at Bc 57 from AD 1040–1150, from an AI value of 0.49 to 0.33.

Chacoan faunal procurement during the late eleventh and early twelfth centuries reflects a heavy emphasis on hunting artiodactyls, suggesting that Pueblo II and Pueblo III hunting practices at Chacoan sites were somewhat atypical of the pattern seen elsewhere in the Southwest (Figure 7.4) (see also Vivian et al. 2006:455). AI values at Bc 57 and Bc 58 are among the highest in Chaco, comparable to those of the Alto Great House and the twelfth-century component at the contemporaneous small site 29SJ627. Thus the levels of artiodactyl consumption at Bc 57 and Bc 58, high even by Chacoan standards, were sustained throughout the Classic and Late Bonito subphases.

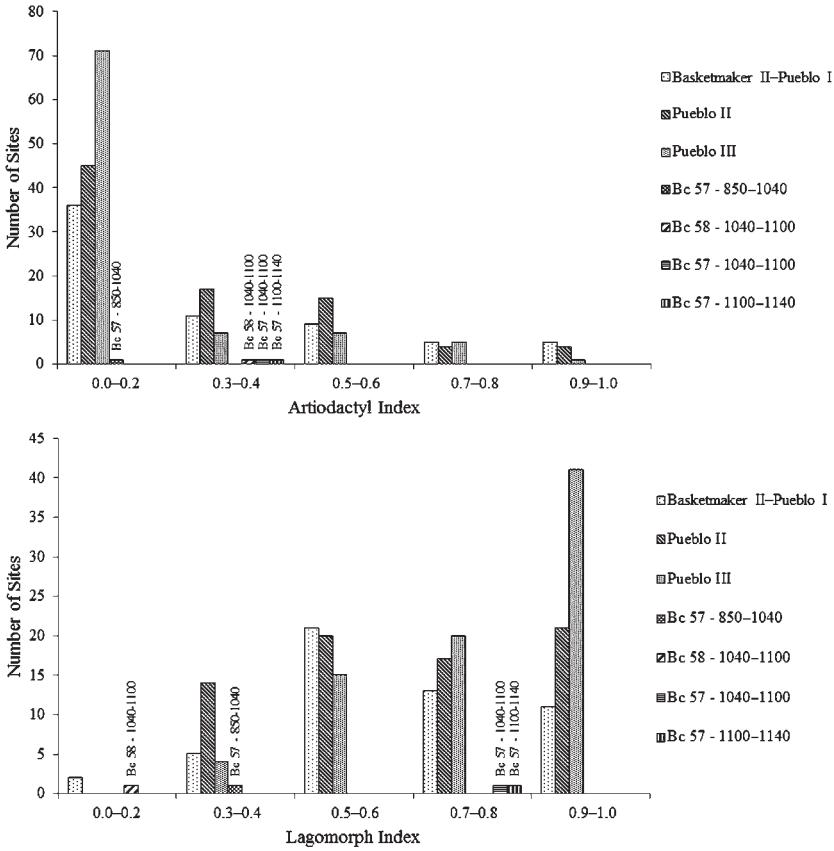

Figure 7.3. *Artiodactyl Index over time in the American Southwest with Bc 57 and Bc 58 values shown for comparison (top); Lagomorph Index over time in the American Southwest with Bc 57 and Bc 58 values shown for comparison (bottom). (Partially based on Badenhorst and Driver 2009.)*

Closer examination of artiodactyl procurement among sites within Chaco Canyon reveals that early-twelfth-century hunting strategies differed measurably between the Fajada Gap site cluster, Pueblo Alto, and Bc 58 on one hand and Bc 57 on the other (Figure 7.5). Although the Late Pueblo I–Pueblo II occupation at Site 1360 in Fajada Gap exhibits a pronounced emphasis on pronghorn antelope (13 percent of the identified assemblage), subsequent levels of pronghorn among the neighboring sites (627, 629, and 633) remain low (3 percent or less). Thus the upsurge in pronghorn at Bc 57 during the Classic and

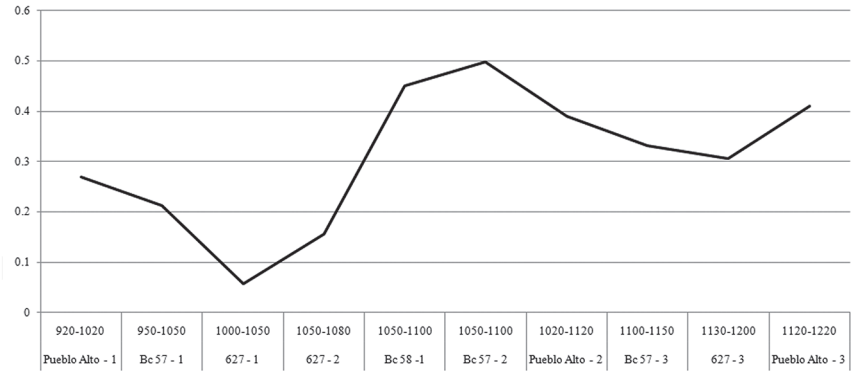

Figure 7.4. *Artiodactyl Index by site over time for Bc 57, Bc 58, 29SJ627, and Pueblo Alto. (Pueblo Alto data are based on Durand and Durand 2008:100.)*

Late Bonito subphases (approaching 9 percent) contrasts with the broader canyonwide trend. Deer consumption at these three Fajada Gap sites hovers around 10 percent for the Late Pueblo II–Pueblo III periods. Although Bc 58 (AD 1040–1100) exhibits a similar dependence on deer, Bc 57 has a relatively low emphasis on deer.

The overall pattern at Bc 57 is therefore consistent with the broader canyon trend of increasing artiodactyl procurement but differs in the apparent focus on pronghorn. The presence of species such as pronghorn that are best procured through cooperative hunting can be indicative of large-scale provisioning. The question remains whether hunting of other species reflects communal hunting.

Several species in the Chaco region are well-suited for procurement through large-scale collaborative hunting. According to ethnohistoric accounts, pronghorn were frequently hunted using cooperative corral-drive tactics (Hill 1982; Parsons 1936:277–278). Communal hunting of local jackrabbit, cottontail, and coyote populations was often organized in conjunction with communal ritual and has been observed at several pueblos including Hopi, Santa Clara, and Jemez (Hill 1982; Parsons 1925:94–95, 1936:277–278; Titiev 1944:144, 185, 188–192).

Shifting focus to the hunting of leporids (cottontail and jackrabbit), use of the Lagomorph Index (LI) offers another valuable means of assessing intersite variability in faunal procurement. The LI is calculated by dividing the number of cottontail specimens by the sum of all cottontail and jackrabbit specimens; following Driver and Woiderski (2008:6–7), loose teeth were excluded from NISP counts. Research has shown that environment, specifically the amount

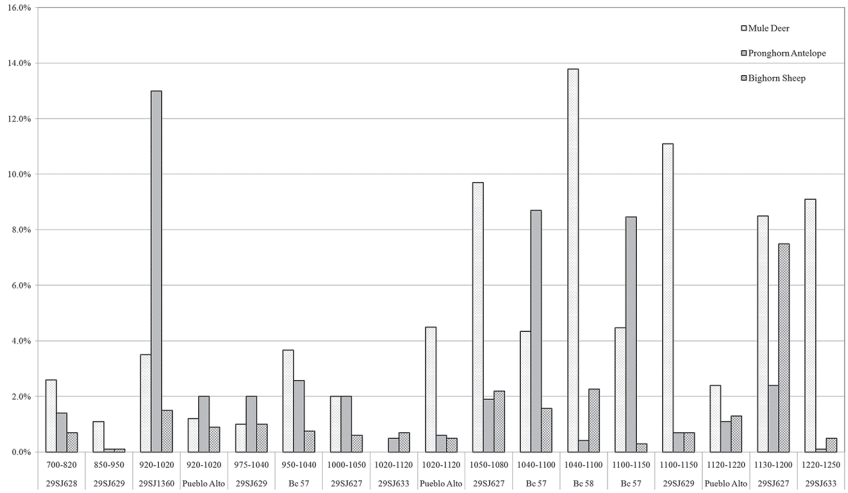

Figure 7.5. *Artiodactyl Percent NISP over time for Chaco Canyon sites. (Data for Chaco Project excavated sites based on Akins 1985.)*

of vegetative cover, impacts natural ratios of cottontail and jackrabbit (Szuter and Gillespie 1994). As a result, the ratios observed archaeologically in the southern Southwest tend to be biased toward jackrabbits, whereas cottontail tends to predominate among assemblages from Chaco and other sites on the Colorado Plateau (Szuter and Gillespie 1994:70–71).

Although Szuter and Bayham (1989) have argued convincingly that increasing density and duration of human occupation results in lower cottontail:jackrabbit ratios at sites in the southern Southwest, the reverse has been found for Pueblo sites of the northern Southwest (Driver 2002:157; Driver and Woiderski 2008:8–9). Data from the Colorado Plateau indicate that cottontail:jackrabbit ratios vary in direct relationship with the density of human settlement and intensity of agriculture: cottontail frequencies increase with population growth and greater area under cultivation. Driver and Woiderski (2008) suggest several possible reasons for this pattern during the Pueblo III period, principal among them being possible anthropogenic changes to the local landscape around villages and agricultural fields that may promote cottontail survival while diminishing jackrabbit reproductive success. Further complicating interpretations, high rates of jackrabbit procurement found archaeologically have been linked to communal hunting (Driver and Woiderski 2008:8; Schmidt 1999).

Leporid hunting likely took place within the canyon bottom and adjacent areas such as the Gallo Wash, Fajada Gap, and South Gap. In contrast to the northern San Juan areas examined by Driver (2002), the canyon generally lacks piñon-juniper woodland vegetation outside of the higher elevation areas of Chacra Mesa (Cully and Cully 1985:53) and is more akin to the southern Arizona desert scrub biomes studied by Szuter and Bayham (1989) that support a range of grasses, forbs, and shrubs. Within Chaco canyon, the areas around villages and farmsteads and swathes cleared for farming would have encouraged the growth of jackrabbit populations. Following land clearing or field abandonment, the slow rate of recovery of perennial shrubs on which cottontails rely for cover would have favored jackrabbit survival (Driver and Woiderski 2008:8–9). If the anthropogenic environment–leporid dynamic in Chaco can be expected to follow the southern Arizona pattern, increases in cottontail:jackrabbit ratios are expected to indicate lower population densities and decreasing amounts of land under cultivation.

The greater Southwest pattern is characterized by an upward trend in LI values over time, indicating increasing reliance on cottontail (Badenhorst and Driver 2009:1835), and Bc 57 conforms to this trend (Figure 7.3). Classic–Late Bonito LI values for Bc 57 (0.74) are by far the highest observed for Chaco, with the next closest being Pueblo Alto at 0.49. However, deposits from Bc 58 dating to the Classic Bonito subphase exhibit one of the lowest LI values recorded (0.20) but are quite comparable to that seen at the contemporaneous site 29SJ 627 (0.22).

Unlike the high frequency of pronghorn observed for Bc 57, the high cottontail frequency is not consistent with communal hunts. Instead, the Fajada Gap sites and Bc 58 appear as the more likely candidates for communal hunting of jackrabbit. That the Bc 57 LI stands in such contrast to that of other contemporaneous sites including Great Houses implies an alternative procurement strategy. If rabbit hunts by the inhabitants of these other sites occurred in more disturbed areas such as agricultural fields, one would expect other indications of hunting forays in and around agricultural areas. Prairie dogs, ground squirrels, and pocket gophers, likely trapped as field pests, are one useful proxy measure of "garden hunting" behavior (Neusius 2008:305–306). In fact, the combined percent NISP for these species is low for Bc 57 (9.5 percent) compared with contemporaneous assemblages from Pueblo Alto (12.8 percent), 629 (21.3 percent), 627 (31.2 percent), and Bc 58 (13 percent). Thus garden hunting is unlikely to have resulted in the patterns observed in the Bc 57 deposits. Although the low LI value for Bc 58 is congruous with mass procurement, the high frequency of cottontails at Bc 57 highlights yet another anomalous attribute of the Bc 57 assemblage.

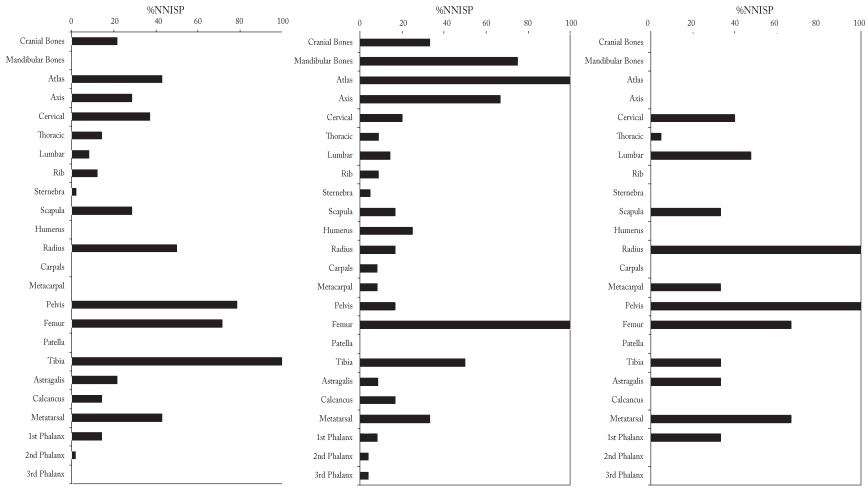

Figure 7.6. *Skeletal-element representation (percent MAU) for Room 4, Bc 57: pronghorn antelope (left), mule deer (middle), bighorn sheep (right).*

The relative distance of hunting forays appears to have had little impact on artiodactyl skeletal-part representation, as the whole range of skeletal elements is represented for each species of artiodactyl at both sites (Figure 7.6). Presumably pronghorn would have been procured on a local basis on nearby grasslands while deer and bighorn would have required greater travel to upland areas along the margins of the San Juan Basin (a distance of 50 to 80 km). While prey captured at greater distances might be expected to be more heavily butchered at the kill-site if transport costs were a consideration (Perkins and Daly 1968), this does not appear to have been the case for the Bc 57 and Bc 58 fauna. Although future analysis will be directed at more detailed application of transport indices, whole carcasses of deer, pronghorn, and at times bighorn, appear to have been returned to the site for processing.

The intensity of butchery at Bc 57 is several orders of magnitude greater than that observed at Pueblo Alto and the Fajada Gap small site 627. The frequency of butchery marks is markedly higher for Bc 57: approximately 19 percent of pronghorn, mule deer, and bighorn remains exhibited some form of butchery, compared to 4 percent at Pueblo Alto and 2 percent at 627. Further, I suggest that these butchery patterns, particularly multiple partial strings of articulating artiodactyl thoracic and lumbar vertebrae with evidence of filleting cutmarks, coupled with splitting at regular intervals, reflects the apportionment of carcasses into smaller parts that were then processed for meat removal.

Such intensive butchery is indicative of on-site processing and, potentially, food distribution and consumption. Finally, the presence of the whole range of skeletal elements is not consistent with the existence of socially prescribed rules governing differential access to meat-rich body portions.

CONCLUSIONS

The patterns that have emerged provide tantalizing evidence for distinctive feasting in Chaco. Although the Bc 57 and Bc 58 test cases yielded only equivocal spatial evidence for communal deposition or on-site cooking, the faunal data reveal a strategy directed at procurement of high-ranked fauna throughout the late eleventh and early twelfth centuries. This pattern contrasts with that seen in much of the greater Southwest and signals that the Classic and Late Bonito subphases in Chaco entailed patterns of faunal resource utilization that differed from surrounding regions. The increase in pronghorn consumption at Bc 57 is uncharacteristic of other contemporaneous Chacoan faunal assemblages and, coupled with the low Lagomorph Index at Bc 58, points to the importance of communal hunting at both sites.

For comparison, an example from the Mississippian region provides a useful perspective on the implications of the Bc 57 and Bc 58 assemblages. Although conspicuously lacking in the densities of exotic, sumptuary material remains recovered from the sub-Mound 51 borrow pit at Cahokia, the faunal remains from Bc 57 and Bc 58 exhibit a few notable parallels to the Cahokian assemblage that Kelly (2001:347–348) interpreted as indicative of elite feasting. Specifically, the regular co-occurrence of unfused artiodactyl long bones and their epiphyses, the relative completeness of elements of lower structural density such as vertebrae, pelvises, and scapulae, the low degree of long-bone fragmentation, and strings of articulating vertebrae, are qualities common to both assemblages. Carnivores, raptors, an unusually high frequency of raven remains, and even fish are represented in the Bc 57 assemblage, suggesting access to and in some cases ritual use of more "exotic" and "dangerous" species (Jackson and Scott 2003:554).

The Bc 57 and Bc 58 assemblages have thus far yielded no clear evidence of the kinds of preferential access to body parts seen at Cahokia and elsewhere in the Mississippian area where the presence of primary butchery waste is often associated with non-elite contexts (Jackson and Scott 1995:107). Whereas provisioning of elites by attached hunters or non-elites may have been a characteristic of prehistoric political dynamics in the fertile American Bottom, sustained access to large, calorie-rich game may have been a privilege of the

elite and could have served to reaffirm existing political inequalities in Chaco (Helms 1993:74, 162–163, 1998:129). The presence of such dense concentrations of artiodactyls may speak to the status and prestige of those provisioning, distributing, and consuming food, and the energy invested in hauling complete carcasses back to Chaco from hunting grounds near and far may have served as an important social display.

Saitta (2000:16) writes that the deterioration of environments and disruption of trade routes in the late-eleventh and early-twelfth centuries may have precipitated "elite experimentation with new strategies of control but also countervailing strategies of producer resistance" (Saitta 2000:161). It seems plausible that the sharing and consumption of larger game as seen at Bc 57 and Bc 58 in the shadow of the adjacent Great Kiva may have served such a purpose. Redistribution of food would have engendered solidarity at the village or intervillage scale and perhaps illustrated the repeated success of a select few in orchestrating communal pronghorn hunts or securing access to distant hunting grounds. These patterns of faunal use denote a perceptible shift in food production and distribution visible throughout Chaco during the Classic and Late Bonito subphases, and the area around Casa Rinconada may represent one of the principal foci of this reorganization.

Acknowledgments. I am especially grateful to Benjamin Arbuckle and Sue Ann McCarty for the opportunity to participate in the symposium from which this volume developed. Special thanks to Melinda Zeder of the Smithsonian Institution National Museum of Natural History, David Phillips of the Maxwell Museum of Anthropology, and Wendy Bustard of the Chaco Canyon National Historical Park Museum Collections for facilitating this analysis, and to Edward Triplett for drafting Figure 7.1. This study benefitted greatly from discussions with Charlotte Sunseri and an anonymous reviewer who provided valuable feedback on an earlier version of this chapter.

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8

Pelts and Provisions

Faunal Remains and the Emergence of Social Inequality in Central Coastal California

Charlotte K. Sunseri

INTRODUCTION

The use of animals for food and byproducts in the Monterey Bay area of California is one axis along which social difference and inequality may be visible archaeologically. In this chapter zooarchaeological data from multiple assemblages are investigated along with beads, obsidian, and other artifacts to understand the role that animal resources played in the emergence of wealth-based social differentiation. Although wealth accumulation and exchange systems that are focused on shell beads and obsidian tools have been understood through previous investigations of burials and residential areas, faunal remains have contributed little to the story. This chapter explores evidence for social inequality as reflected in subsistence choices, animal processing, and exchange relationships among hunter-gatherer communities.

Zooarchaeology provides one lens through which inequalities of wealth or status may be visible materially, yet this ideally forms part of a strategy involving analysis of multiple material categories and techniques (Ashby 2002). The conjunctive approach ideally correlates household-associated faunal assemblages with other indicators of status or wealth to more convincingly infer inequalities (Ashby 2002; Crabtree 1990:171; deFrance 2009; Schmitt and Lupo 2008; Taylor 1983). The multiple, independent lines of evidence that build such arguments may include faunal remains, botanicals, other artifacts, use of space, architecture, bioarchaeological data, and documentary history (Ashby 2002:51; deFrance 2009:122). Social inference using a conjunctive approach helps the analyst minimize problems of inferential confidence (Gifford-Gonzalez

DOI: 10.5876/9781607322863.c008

1991:215) while alleviating problems of sampling and measurement inherent in any archaeological data source (Crabtree 1990:188). Zooarchaeologists routinely address difficult social questions, yet we must collaborate with other specialists because it remains the case that "bones themselves are not enough" (Gifford-Gonzalez 1991:246) to get at social difference, inequalities, wealth, and status adequately.

Any discussion of the difficulty of using *only* animal remains to make inferences of social difference must also balance this with consideration for how the inclusion of animals is constructive. Although social inequalities are often reflected in foodways (Gumerman 1997; Reitz and Wing 1999:273), the ways that animal remains are used to symbolize these dynamics may be different from other material remains. Singer (1987:98) argues that food has little status visibility, particularly outside performative contexts such as feasting. However, the advantage of investigating inequality through food remains is that on a daily basis "people are less likely to exhibit . . . social pretension through the medium of food" although they may "occasionally procure food that is normally unavailable to them" (Ashby 2002:38–39). It is much easier to express status aspirations through a few, big-ticket items like ceramics or ornamentation than to eat outside of one's means repeatedly.

Beyond food, investigating uses of animals for accumulation of capital and wealth and ideological or ritual uses may provide equally important avenues for understanding inequality (deFrance 2009). Wealth disparities may be manifested in differential access to secondary products and crafts (Ashby 2002) rather than in the use of an animal primarily for meat. Whether edible or unpalatable, animal products were encountered in all aspects of hunter-gatherer life and their material signatures may elucidate social differences signaled by this likely marker of status.

APPROACHES TO ZOOARCHAEOLOGICAL INVESTIGATIONS OF INEQUALITY

Although research indicates there is great variability in how animals were mobilized in the past to signal social differentiation or create symbolic meaning (deFrance 2009:105), there are some commonly used zooarchaeological correlates of inequality. Analysis often centers on the identity and diversity of exploited species, proportions of species, element distributions, butchering marks related to culinary practices, and inferred quality of meat cuts (Ashby 2002:39; Crabtree 1990:171; deFrance 2009:125–126; Jackson, chapter 5, this volume; Reitz 1987). Common indicators of high status or wealth include

more meat, fatty or greasy foods, species diversity, younger animals (especially domesticates), and preparation-heavy foods. Proportions of species may also include greater use of domesticates, wild fauna, marine foods, or exotic or imported animals (deFrance 2009:125–126). In some cases historical documentation may be used to reconstruct the relative market value of cuts of meat and to infer status based on those cuts (Huelsbeck 1989; Lyman 1987; Reitz 1987).

These common correlates of inequality will not hold in all cases. For example, although in many case studies species diversity is used as a marker of status, this "luxury of variety" (deFrance 2009:127) leaves a diversity signature similar to low-status opportunistic hunting. Further, high status or wealth may not be associated with foods of luxury (deFrance 2009; Ervynck et al. 2003) or delicacies, and instead may simply be expressed by higher quantities of lower-status foods (Ashby 2002:42; Singer 1987).

It is clear that interpretations of status, identity, and inequalities are impacted by analytical and taphonomic biases (Ashby 2002; Reitz 1987). Considerations include the biases created from small sample sizes (particularly assemblages of less than two hundred specimens) on measures of species diversity (Grayson 1984; Reitz et al. 1985). Reitz (1987) points out that some of the characteristics used to determine socioeconomic status may instead reflect nonhuman taphonomic factors, as faunal status markers are not independent from the site-formation processes and biases that influence other data classes.

Many studies (Carlson 2010; McGovern 1984 cited in Crabtree 1990:177; Schmitt and Lupo 2008) link zooarchaeology to other material reflections of social difference, including prestige items, ornamentation, exotic goods, and access to high-quality pastures or raw materials. These studies illustrate how the use of zooarchaeological analyses in conjunction with other lines of material evidence for social difference bring us much closer to identifying these dynamics archaeologically. The following discussion similarly investigates inequalities among hunter-gathers by analyzing high-resolution zooarchaeological analyses in conjunction with other material and spatial data.

CASE STUDY: MONTEREY BAY AREA OF CALIFORNIA

In central coastal California (Figure 8.1) wealth accumulation and exchange systems have been understood through previous investigations of beads and lithic artifacts, but faunal remains have scarcely been used to contribute to the story. My approach investigates social inequality associated with foodways and animal byproducts from the Middle Period (600 BC–AD 1000) and Middle-Late Transition (MLT; AD 1000–1250). Three residential bases in the Monterey

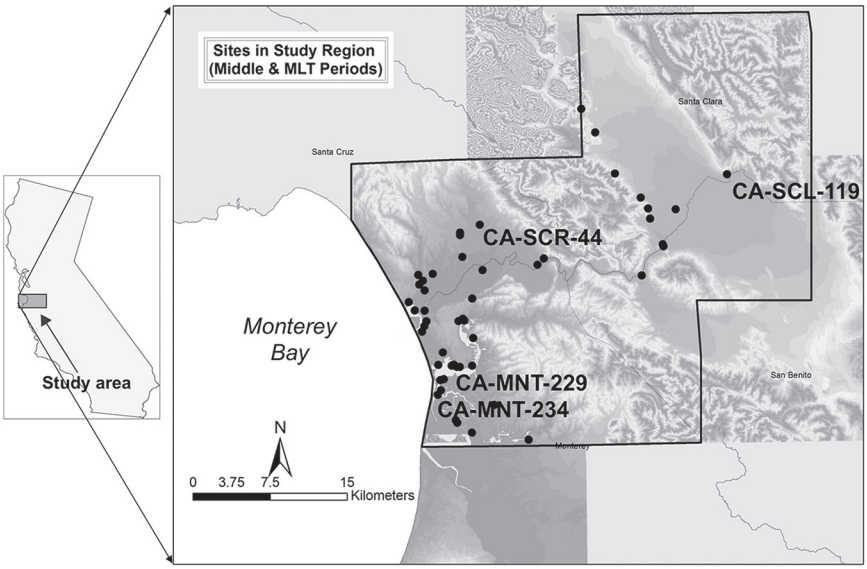

Figure 8.1. *Study area around Monterey Bay, California.*

Bay area—sites CA-MNT-229, CA-SCR-44, and CA-SCL-119—are characterized by long-term occupation, hearths, middens, cemeteries, and artifacts that reflect a diversity of residential activities. CA-MNT-234 is considered part of the residential complex of nearby CA-MNT-229, and contained hearths, middens, and four burials. CA-MNT-234 dates to as early as the Middle Holocene, but the primary midden associated with this analysis dates to AD 400–600 of the Middle Period (Gifford-Gonzalez and Sunseri 2009). CA-SCL-119 generally dates from 3050 BC to AD 1225, but a series of living surfaces at the site emphasize Middle and MLT period habitation in this locale (Hildebrandt and Mikkelsen 1993:104–108). CA-SCR-44 dates to approximately 700 BC–AD 1300 of the Middle and MLT periods (Sunseri 2009:269).

The vegetative and animal communities around the sites are varied. CA-SCL-119 lies along San Felipe Lake in the Santa Clara Valley and is near both hardwood and pine forests and valley oak savanna communities. Coastal site CA-MNT-234 lies at the apex of Monterey Bay near the mouth of the Salinas River and Elkhorn Slough. This area is characterized by coastal saltmarsh and sagebrush and is associated with both marine and estuarine environments. CA-SCR-44 lies between these sites and is surrounded by coastal saltmarsh, prairie-scrub, and hardwood forest resources.

Sites in the Monterey Bay region generally suggest that growing population levels, mild climate, and territorial circumscription characterized the Middle Period, and subsistence was based on acorns, fish and terrestrial game, and few shellfish. Hildebrandt and McGuire (2002) interpret an increase in big game hunting during the Middle Period as prestige-hunting by men, or costly signaling, rather than purely a subsistence strategy. Material patterns until about AD 1000 have been associated with increased storage, higher degrees of sedentism, gender-specific work, and exploitation of areas more distant from the villages (Hildebrandt and McGuire 2002). Burials of this period commonly have individuals interred with funerary goods of bone tubes and saucer beads (Jones et al. 2007).

In contrast to the environmental and climatic stability of the Middle Period, the MLT is currently thought to coincide with the warm, dry Medieval Climatic Anomaly (AD 950–1150; Jackson and Ericson 1994; Jones et al. 1999; Malamud-Roam et al. 2006). The MLT is associated with an increased reliance on deer and other terrestrial game, the appearance of the bow and arrow, and new shell-bead forms (Jones et al. 2007:139). These material shifts may be related to reorganization of economic relationships and an adaptive response to simultaneously shifting resource availability. In both the Middle Period and MLT, long-distance exchange of shell beads and obsidian was common (Ericson 1982; Jones et al. 2007), yet there may be some local production of shell beads as well (Bennyhoff and Hughes 1987).

Faunal data from these periods are investigated along with beads, obsidian, and other artifacts to understand the role that exchange and community interactions, subsistence, and pelt production played in the emergence of social differentiation. The conjunctive approach ideally integrates faunal data with other material or spatial data sets at a temporal and spatial scale that represents interpersonal differences. That is, relatively small units of analysis such as households or farmsteads may be compared to identify differential wealth, status, and materiality. While the Monterey Bay assemblages in this study are associated with site-wide archaeological data from particular components, there are no household-level data available upon which to build comparisons. Funerary assemblages provide the most comparable units of analysis from which we may see interpersonal differences of wealth or status. Burials at coastal site CA-MNT-229 were dichotomous with respect to funerary assemblages, as a few contained large numbers of shell beads while the majority had little to no associated goods (Dietz et al. 1986, 1988). One of these elaborate funerary assemblages is associated with an adult male interred with over 3,000 shell beads.

The funerary assemblages do suggest there was differential access to nonutilitarian items, which may be a material expression of intracommunity social differentiation even if there was not a hierarchical organization of power. Interpersonal differences in funerary assemblages may represent an individual's or family's access to goods (e.g., beads, obsidian, steatite), particularly exotic or long-distance trade goods. The means and relationships to acquire these nonfood items would have similarly impacted negotiations for access to foods by hunting or trade, and would have affected access to local and nonlocal species, small- or large-bodied prey, and essential nutrients (including lean meat, fatty meat, and within-bone fats). The diachronic pattern of shell beads and obsidian exchange suggests that in this region these items were exchanged and mobilized from the Middle Period through the MLT to signal social differences through wealth, and possibly to help deal with environmental and nutritional stresses (Sunseri 2009). This transition from the Middle to Late Periods is also evidenced by species choice, animal processing, and exchange relationships; the resulting zooarchaeological patterns of these behaviors are the focus of this investigation.

ZOOARCHAEOLOGICAL SAMPLE AND METHODS

The assemblages of interest in this study were excavated over thirty years in cultural resource management contexts (e.g., Breschini and Haversat 1989, 1995, 2000; Hildebrandt and Mikkelsen 1993; Milliken et al. 1999). Mammals comprise the majority of assemblages from CA-SCL-119 (75 percent of total) and CA-SCR-44 (84 percent of total), and a fraction of the CA-MNT-234 assemblage (2.2 percent are mammals, 97.6 percent are fishes). A sampling of identified mammal species is presented in Table 8.1 (for full species lists see Sunseri 2009:284–317). Data collected include species, element, portion, symmetry, taphonomic modifications, metric data, bone-mineral density (Lam et al. 1999), sex, and age estimates. Northern fur seal ages were estimated using Etnier's (2002) age-calibration method and epiphyseal fusion rates in known-age comparative skeletons (see Sunseri 2009:75). Because the northern fur seal is sexually dimorphic, elements are identifiable to sex, based upon size and age criteria.

Taxonomic diversity is measured with both species richness and evenness calculations. Richness is a straightforward count of the number of taxa represented, whereas evenness is a more complex quantification of how evenly taxa are represented across the assemblage. These consider the number of nonoverlapping taxonomic categories, usually at least at the genus level, and the

Table 8.1 Mammals identified at Monterey Bay area sites. Counts exclude mammals identified to higher order categories (e.g., large artiodactyls).

	SCL-119 (MLT)		*SCL-119 (Middle)*		*MNT-234 (Middle)*		*SCR-44 (Middle/MLT)*	
Taxon	*NISP*	*MNI*	*NISP*	*MNI*	*NISP*	*MNI*	*NISP*	*MNI*
Cervus canadensis	75	2	216	5	14	1	53	2
Odocoileus hemionus	94	2	213	3	64	2	190	6
Antilocapra americana			1	1	10	2	1	1
Otariids			1		350		1	
Arctocephalus sp.					41	6		
Callorhinus ursinus			3	1	1552	65	6	1
Phoca vitulina					9	1	3	1
Eumetopias jubatus					6	1		
Z. californianus					100	4		
Delphinids					7	2		
Enhydra lutris	1	1			63	2	4	1
Other mustelids	0	0	2	2	8	4	16	3
Canids	12	1	34	4	117	5	34	3
Ursus sp.			2	1			1	1
Procyon lotor			2	1	16	2	7	1
Felids	1	1	3	1	14	3	8	3
Sylvilagus sp.	21	3	42	3	178	1	33	5
Lepus californicus	3	1	28	1	4	1	14	1
Leporidae	16		22		3		7	
Thomomys talpoides	24	7	50	8	533	13	90	4
Sciurids	15	3	29	1	1	1	20	1
S. beecheyi	8	2	27	3	14	2	12	2
Other rodents	6	4	9	5	632	11	14	5
Totals	777		1557		4262		1231	

NISP identified to these categories (after Fisher 2010:75; Grayson 1991:490). The evenness calculation is made with the reciprocal of the Simpson's index of evenness (Fisher 2010:75; Magurran 1988; Schmitt and Lupo 1995, 2008). Because richness is closely related to sample size (Grayson 1984), this analysis of the data does not consider birds, fish, reptiles, or amphibians due to the small and varying sample sizes of these classes of vertebrate remains.

ZOOARCHAEOLOGICAL EXPECTATIONS

Compared to large mammals, small-bodied ones (e.g., rabbits and squirrels) are more likely to be hunted upon encounter and are often fast-moving prey with low return rates and high capture costs regardless of snares or other technology available (Munro 2004:S11). Large mammals are expected to have higher caloric values and return rates (Munro 2004:S7) and hence were preferred by communities with the means to access them. Long-bone cavities of these mammals (especially ruminants) may have been processed for marrow or grease extraction, and thus are likely to have higher NISP values resulting from these activities. Alternatively, ruminants and fur seal byproducts—such as hides and pelts—may have provided another incentive for their exploitation. Overall, the meat, within-bone fats (i.e., marrow, grease), and inedible byproducts of these large mammals were likely of relatively high value.

It is expected that resource stress may prompt increases in diet breadth as available resources are captured (Broughton and Grayson 1993; Stiner and Munro 2002; Stiner et al. 2000), through intensification of harvest (Broughton 1994), and/or through intensification of processing in which added labor is meant to increase the net gains from a single carcass (Munro 2004). These responses to nutritional stress may be identifiable by low species evenness, because intensification of marrow extraction or bone-grease production would inflate the NISP of particular taxa, or by high species richness associated with increased diet breadth. Low richness and evenness may also reflect the targeting of particular taxa for meat, fat, or byproducts, either for local use or export to other communities. Thus, communities with diminished means may be associated with diets high in species richness due to attempts to increase diet breadth and yet have low evenness from additional processing intensification during marrow extraction and grease rendering.

It is expected that communities containing individuals of higher status and means will consume a range of species, having the luxury of dietary diversity (deFrance, chapter 3, this volume; Schmitt and Lupo 2008:321), and have access to many species through trade or an ability to negotiate movement

Table 8.2 Sample size, taxonomic diversity, and large mammals (ruminants, bears, pinnipeds, and cetaceans) associated with each of the assemblages.

	Total Mammals		*Evenness*			*Richness*		*% Large Mammal*		*Overall*
Assemblage	*N*	*Rank*	*ΣNISP*	*Evenness*	*Rank*	*N*	*Rank*	*%*	*Rank*	*Rank*
MNT-234 Middle	4633	1	3276	3.604	4	33	1	53.0	1	1
SCR-44 Mid/MLT	1230	3	485	4.786	1	23	2	46.2	2	2
SCL-119 Middle	1562	2	630	4.055	2	21	3	43.5	4	3
SCL-119 MLT	777	4	251	4.053	3	13	4	44.8	3	4

across the landscape. If there are enough animals available, each carcass does not require added labor for intense processing to extract all available nutrients. In this case, an even representation of species and taxonomic richness may reflect a high-status diet.

These expectations suggest that diversity measures alone are not reliable status markers—taphonomy provides a necessary line of evidence to identify these conditions. It is expected that the remains from intensive marrow- or grease-extraction processes would exhibit high rates of fragmentation as well as numerous percussive impact marks, and would result in high NISP values but low evenness. High NISP values from targeting particular species for pelt or hide removal may also be associated with low evenness, along with additional processing tools, patterned cut marks, and selectivity of species or individuals to optimize size and quality of hides. Thus, taphonomy contributes to understanding whether low evenness values reflect the inflation of the NISP that results from processing bones for marrow and grease extraction, or reflect the exploitation of more individual animals of a particular species.

RESULTS: SPECIES CHOICE AND TAXONOMIC DIVERSITY

The faunal assemblages by site and component are characterized in Table 8.2 by total mammal specimens, evenness (high values represent the most evenness across species), richness, and proportion of large mammals. After Schmitt and Lupo (2008:321) each assemblage is ranked by high- to low-status diets,

and the overall rankings in this table reflect averages per site of all ranking methods. The rankings represent preferences for high-status diets dominated by an abundance of large mammals and high species richness, as laid out in the expectations described in the previous section.

There does not appear to be a significant relationship between sample size and the number of taxa ($r^2 = 0.837$, $\rho = 0.085$) or species evenness ($r^2 = 0.47$, $\rho = 0.315$), suggesting that assemblage characteristics are not primarily a function of sample size. Evenness in Table 8.2 is derived from NISP, but the ranking remains the same for MNI-derived evenness. These calculations derived from NISP and MNI are highly correlated ($rs = 1.0$, $\rho < 0.01$). Inland CA-SCL-119's MLT component is low ranked by both evenness and richness. CA-MNT-234 has the richest diversity but least evenness, as much of this assemblage consists of the northern fur seal.

RESULTS: TAPHONOMY AND CARCASS PROCESSING FOR FOOD AND PELTS

The low evenness of the assemblages from CA-MNT-234 and CA-SCL-119 prompt further inspection of the taphonomic processes or selection pressures that may be responsible for inflating NISP values of particular taxa. The faunal assemblages suggest that northern fur seals were heavily exploited at CA-MNT-234 while ruminants were the focus at CA-SCL-119.

According to expectations for pelt production (Lapham 2005), animals targeted for their pelts contribute a high proportion of protein to the overall diet. These animals are selected and processed to optimize hide quantity and quality, and processing for maximum pelt size results in distinct patterns in cut-mark location. An assemblage resulting from pelt production is also expected to contain many hide-processing tools. Meeting these expectations, the fur seals are the majority (by NISP, MNI) of the faunal assemblage for CA-MNT-234. All age groups are represented in the assemblage (Figure 8.2). Adult females and young adults are represented by all skeletal elements and only a few, select adult-male elements are present (Table 8.3). Females are expected to have higher-quality pelts, as these animals engage in less aggressive intraspecific competition than males (Gentry 1998) and as a result have fewer imperfections in their pelts. Taphonomic modifications include carnivore modifications ($n = 278$), cuts and chops ($n = 423$), and burning ($n = 338$). Due to the lack of medullary cavities in fur seal long bones, it makes sense that there are very few impact marks on fur seal specimens. Most modifications are cut marks, which appear primarily in the locations expected for pelt processing:

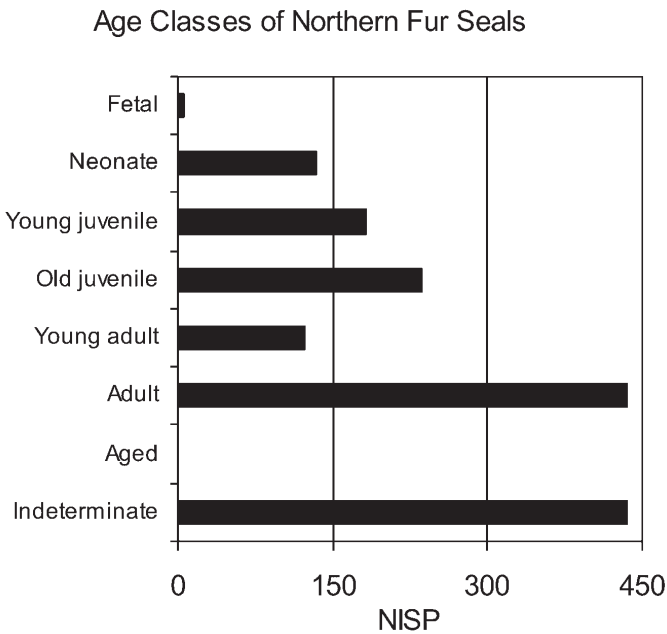

Figure 8.2. *Fur seal age classes at CA-MNT-234 (NISP = 1552).*

mandibles, anterior cervicals, distal forelimbs (radii, carpals, metacarpals), and distal hindlimbs (tibiae, tarsals, metatarsals).

Ruminants at CA-SCL-119 include deer, elk, and antelope. Deer specimen counts, modifications, fragmentation (NISP:MNE, after Wolverton 2002), and size are presented in Table 8.4. From the Middle Period to the MLT, the proportion of deer bones with percussive-impact marks increases (3.7 percent to 8.5 percent) and incidences of fracture on ruminant fresh bone increase (3.2 percent to 16.7 percent). Fresh-bone fracturing with hammerstones and anvils may explain the higher NISP of ruminants in the MLT assemblage, rather than more intense hunting of the species. Poor preservation does not account for ruminant patterns, since a negative correlation exists between element abundances (NISP and standardized minimum animal units, or %MAU) and bone-mineral densities (Lam et al. 1999:351–353) for CA-SCL-119 (Middle: $rs = -0.35$, $\rho = 0.13$; MLT: $rs = -0.63$, $\rho < 0.01$) and CA-SCR-44 ($rs = -0.31$, $\rho = 0.2$).

Correlations between %MAU and nutritional utility (Binford 1978; Madrigal and Holt 2002; Metcalfe and Jones 1988) suggest ruminant portions were selected for meat, grease, and marrow in the Middle Period and

Table 8.3 Northern fur seal element frequency (NISP) by age and sex.

	Fur Seal Age Categories Represented					
Element	*Fetal / Neonate*	*Juvenile*	*Young Adult: Female*	*Young Adult: Male*	*Adult: Female*	*Adult: Male*
Maxilla		3	3	1	5	
Mandible	18	24			19	1
Atlas	10	5			12	
Axis		0	1		4	
Cervicals 3–7	13	23	3	1	38	
Thoracics	17	47	17		28	
Ribs	1	13			24	
Lumbars	2	15	3		17	
Sacrum	1	5	1		6	
Scapula	4	13	1	2	31	1
Humerus	24	37	8	1	10	1
Radius	8	24	7		6	
Ulna	6	16	6		16	
Carpals	1	16			14	
Metacarpals	7	27	10	1	23	
Innominate	8	27	2		19	6
Femur	7	18	4		22	
Tibia	2	31	15	2	13	1
Tarsals	6	10	1	1	14	
Metatarsals	1	25	12		12	2
Phalanges	1	13	9		21	
Totals	137	392	103	9	354	12

marrow and grease in the MLT (see Sunseri 2009:185–186 for statistics). Because long bones must be broken open to extract marrow and fragmented for bone-grease preparation, a negative relationship can exist between high rates of these activities and the identification of elements with these utilities in an assemblage (Brink 1997). However, the overall high fragmentation rates, uniformly small specimen sizes, and percussive-impact marks suggest inland communities processed marrow and rendered grease to meet nutritional needs.

Table 8.4 Proportion of deer elements for sites showing taphonomic modifications. (%Carn = percent of specimens modified by carnivores; Size = average specimen size in cm; Wt = average specimen weight in grams.)

Assemblage	*NISP*	*% Burned*	*% Impacts*	*% Cuts*	*% Carn*	*Total % Modified*	*NISP: MNE*	*Size (cm)*	*Wt (g)*
SCL-119 Middle	213	55.9	1.9	25.4	9.9	93	3.27	2.73	4.65
SCL-119 MLT	94	38.3	5.3	29.8	10.6	84	1.93	2.32	2.32
SCR-44 Mid/MLT	190	40	5.2	37.3	4.7	87	3.37	2.56	3.15
MNT-234 Middle	64	25	3.1	7.8	7.8	44	1.07	n/a	n/a

Table 8.5 Artifacts associated with the assemblages. (Vol. excav. = volume excavated [m^3]; Misc. artifacts = beads, ornamentation, whistles, steatite, and crystal; Overall Rank = average ranking of assemblages by artifact counts [Count] or volumetrics [Vol., calculated by count per m^3].)

		Bone tools		*Projectile points*		*Obsidian tools*		*Misc. artifacts*		*Overall Rank*	
Assemblage	*Vol. excav.*	*N*	*Rank*	*N*	*Rank*	*N*	*Rank*	*N*	*Rank*	*Count*	*Vol.*
MNT-234 Middle	47.4	37	1	12	1	11	1	55	1	1	2.5
SCR-44 Mid/MLT	41.4	5	4	6	2	10	2	31	2	2	4
SCL-119 Middle	7.5	17	2	0	3.5	1	3.5	14	3	3	2.5
SCL-119 MLT	2	7	3	0	3.5	1	3.5	3	4	4	1

INTEGRATING FAUNA WITH OTHER ARCHAEOLOGICAL MATERIALS

To apply the conjunctive approach, the zooarchaeological results must be integrated with other materials that may reflect status or wealth. These materials include obsidian tools, projectile points, shell and steatite ornamentation, quartz crystals, and bone whistles and tools (Table 8.5). Although site CA-MNT-229 is not discussed in this zooarchaeological analysis, the impressive quantity of artifacts recovered from 101.9 cubic meters of excavated

volume at this site include: 23 bone tools, 15 projectile points, 17 obsidian tools, 3,642 beads, 10 bone whistles, and 1 crystal.

Sites CA-MNT-234 and CA-SCR-44 had comparable volumes excavated, whereas much lower volumes were excavated from the other two assemblages from CA-SCL-119. All zooarchaeological quantities were based on counts of faunal material recovered, rather than counts scaled by volume excavated. However, in Table 8.5, artifact-wealth rankings by count as well as artifact volumetrics are included. Although all samples are not directly comparable in terms of total sampling area or volume, count-based comparisons do take into account full samples recovered from components at each site. For this reason the following discussion is based on rankings of material wealth by overall counts rather than volumetrics.

DISCUSSION

The question remains: how can we draw inferences about social inequality from Monterey Bay area assemblages? Our understanding of material wealth is based on types and abundances of artifacts, including ornamentation and beads, modified obsidian, bone, and steatite, and types and frequency of animal remains. Faunal results (Table 8.2) mirror rankings of material-rich assemblages by artifact counts (Table 8.5). The comparison between rank order of sites with "wealthy" artifact counts and faunal assemblage characteristics is positive and significantly correlated ($rs = 1$, $\rho < 0.01$).

Site rankings are an attempt to isolate intercommunity differences in subsistence and animal byproduct production by characterizing assemblages by taxonomic diversity, specimen counts, and reliance on large mammals. The highest ranked faunal assemblages are comprised of high overall specimen counts, high proportion of large mammals, and high species richness. The highest-ranked assemblage, CA-MNT-234, contains many fur seal remains and has relatively low evenness and high richness. The low-ranked MLT component at CA-SCL-119 has few specimens and low richness and evenness, associated with intense ruminant processing and many small-bodied mammals. Most broadly, these assemblages highlight dietary diversity and inland-coastal economic relationships during the Middle Period and nutritional stresses of the MLT.

Communities likely increased diet breadth in the Middle Period by exchanging food, increasing mobility, or accessing animals across territorial boundaries from a variety of environments. Nutritional pressures of the MLT were likely mitigated with these strategies along with added labor in ruminant carcass

processing. In the Middle Period CA-SCL-119 and CA-SCR-44 reflect inland access to rare marine mammal elements, shellfish, otters, coastal birds, and marine and estuarine fishes. Coastal fauna were likely directly accessed by inland groups or acquired through food exchange, until inferred shifts in territoriality and subsistence economies of the MLT restricted access to coastal resources (Hildebrandt 1997). Subsistence patterns shifted in the MLT as diet breadth decreased and processing of ruminant elements intensified. Added labor to process marrow or render grease provided an alternative to added investment in hunting, particularly during spans of decreased foraging efficiency, population packing, or territorial circumscription.

Taphonomic processes are critical for the interpretation of site rankings. Fur seals would have been an important fatty-meat contribution to lean-meat diets (Speth and Spielmann 1983) as well as a source of pelts that could be processed locally and easily transported long distances for trade (Gifford-Gonzalez and Sunseri 2009:98). Cut-mark patterns and selection of adult female seals reflect optimization for pelt size and quality, and bifaces (n = 29) and bone tools (n = 37) suggest intense processing of pelts. These pelts represent a commodity that had a significant labor investment in its production. Not all communities would have had access to the seal colonies, yet pelts provided coastal groups with something to trade for inland products, including obsidian and carbohydrate-rich foods.

Overall, results suggest that taxonomic richness and artifact wealth (quantified by total artifacts per site in Table 8.5) are highly correlated (rs = 1.0, $\rho < 0.01$), as are site rankings for artifact wealth and proportions of large-bodied mammals (rs = 0.9, $\rho < 0.05$). The association of artifact wealth, high frequencies of exchange items, and high frequencies of large-mammal bones together suggest that faunal remains reflect emerging patterns of wealth-based inequalities. The same people with access to prestige economies also had access to large mammals, particularly during periods of territoriality or environmental stress that would have limited the abundance of or access to some resources. For example, access to northern fur seals by coastal groups during the Middle Period provided a means to produce large quantities of seal pelts for export to groups that would not have had direct access to these animals, and thereby to specialize in a resource that would allow them to trade for other goods not available on the coast. It is possible that these items—obsidian tools, shell beads and ornaments, and large mammals—may have all been aligned along similar axes of value. In this way, social differences that are signaled through wealth items were also signaled through access to foods and animal byproducts.

CONCLUSIONS: TOWARDS A CONJUNCTIVE APPROACH

This analysis applies a conjunctive approach to faunal remains and other artifacts to elucidate social inequalities among hunter-gatherer communities. Although households are often the optimal unit of analysis for comparing status and wealth among individuals, the lowest unit of analysis in this study is the site within a particular temporal context. Thus, the faunal remains and other recovered materials are compared across communities rather than households. Because wealth inequalities appear to be reified through funerary-assemblage richness, it is assumed they may be visible through other material assemblages, despite the resolution of the data to the site level. Still, the methods to build inferences about social difference employed here compare community access to and use of animal resources. Construction of inferential arguments regarding social inequalities following this approach ideally builds on such analyses and comparisons among households or other intracommunity groups to elaborate interpersonal scales of difference.

Overall, site rankings based on artifact wealth correlate strongly with rankings based on taxonomic richness and the exploitation of large-bodied mammals relative to smaller prey. Taxonomic richness is most likely associated with differences among communities regarding access to a broad range of habitats for accessing prey or to exchange systems that would provide exotic, nonlocal species. Communities with access to diverse exchange goods and tools (Table 8.5) also had access to meats, fats (marrow and grease), or pelts from large ruminants or marine mammals. Disparities among communities regarding access to foods and animal byproducts provide a comparison to scales of interpersonal difference in funerary goods at coastal site CA-MNT-229. In this way, tracking individual and community access to long-distance exchange items like obsidian and shell beads—along with differential access to large mammals, essential nutrients and fats, and the luxury of dietary diversity—provides insight into social difference experienced by hunter-gatherers in this region during the Middle and MLT Periods.

Acknowledgments. Investigations of CA-SCL-119 and CA-SCR-44 fauna were supported by a NSF Dissertation Improvement Grant (BCS-0840356) to the author. CA-MNT-234 zooarchaeological analysis by D. Gifford-Gonzalez, C. Sunseri, B. Curry, P. O'Meara, K. Gobalet (fish), J. Geary (birds). Special thanks to J. Fisher, J. Sunseri, and A. Watson for insightful discussions during the preparation of this chapter and to an anonymous reviewer for valuable comments on an earlier draft.

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9

Animals and Social Change

A Case of the Middle Neolithic in the North European Plain

Arkadiusz Marciniak

INTRODUCTION

The Neolithic brought with it the creation of new worlds (Whittle 1996). It was achieved through varied mechanisms and processes and with various media and resources. Domesticated and wild animals were integral and central elements of these social worlds. The keeping, maintaining, and controlling of major domesticates such as cattle, pigs, sheep, and goats, and eating their flesh, were exercised as integral parts of the process of making a living. Animals contributed to creating and maintaining social relations, in particular construction of individual and communal identity through different kinds of engagements such as sacrifice, feasting, and exchange. Although animals have traditionally been investigated in terms of their place within subsistence practices, diet, and strategies of environmental adaptation, recent studies of the European Neolithic clearly reveal their social, ontological, symbolic, and cosmological status during the period (e.g., Marciniak 2005, 2011b; Marciniak and Pollard 2014; Pollard 2006; Tilley 1996; Whittle 2003).

This chapter explores changes in social, symbolic, and ontological relations between people and animals during the Middle Neolithic in the Polish part of the North European Plain. It seeks to investigate how domestic animals were embedded in the process of change of significant social variables following the demise of early farming communities. This period is marked by a transition from largely homogeneous communal arrangements of local groups in the Early Neolithic to autonomous household organization in the following period (Marciniak 2005). In this vein, the chapter explores how animals and their associated products

DOI: 10.5876/9781607322863.c009

constitute sources of wealth and status in dynamically developing farming groups in the lowlands.

The chapter examines these changes in the areas settled for the first time following the demise of the Early Neolithic occupation of the North European Plain, as exemplified by the Wielkopolska region in the western part of today's Poland (Figure 9.1). Early Neolithic lifeways comprised a point of departure and a point of reference for local developments across the lowlands in this period—that is, the second half of the fifth millennium BC. Accordingly, special attention is focused on diachronic interrelations in order to outline the manner in which the fabric of Neolithic societies was transformed over time. Insights into details of these transformations are provided by looking at the Racot settlement near Kościan in the south of the Wielkopolska region (Czerniak 1989). This is a spatially diverse site with numerous faunal remains. These have been investigated in terms of taphonomy, meat- and marrow-utility indices, body-part representation, and species composition, as well as horizontal distribution of faunal remains in relation to other categories of archaeological data. All these variables were studied in different contexts across the settlement.

ANIMAL EXPLOITATION AND SOCIAL DEVELOPMENTS IN THE EARLY NEOLITHIC NORTH EUROPEAN PLAIN

The Early Neolithic communities in the North European Plain are represented by the Linear Band Pottery Culture (*Linearbandkeramik* – LBK). They emerged from the loess uplands around the middle of the sixth millennium BC (calibrated) and continued their steady and uninterrupted development for around 400 to 500 years through the beginnings of the fifth millennium BC (Czerniak 1998:23; Milisauskas and Kruk 1989:404). The lowland LBK comprised a distinct element of a large complex stretching from the Paris Basin in the west to the Dnestr River in the east and from the Drava River in the south to northern Poland in the north (e.g., Barker 1985; Kruk and Milisauskas 1999). The immigrant groups brought with them a whole array of new material culture, in particular longhouses along with a simple-style pottery with curvilinear and rectilinear motifs, and stone technology in the form of symmetrical axes and heavy adzes with a planoconvex cross section. They were characterized by a communal organization and practiced mixed-farming subsistence technology (e.g., Keeley 1992; Kulczycka-Leciejewiczowa 1993; Milisauskas and Kruk 1989; Price, Gebauer, and Keeley 1996; Starling 1985).

The external origin of early farming is even more convincing, considering that none of the characteristic features of the material culture associated with

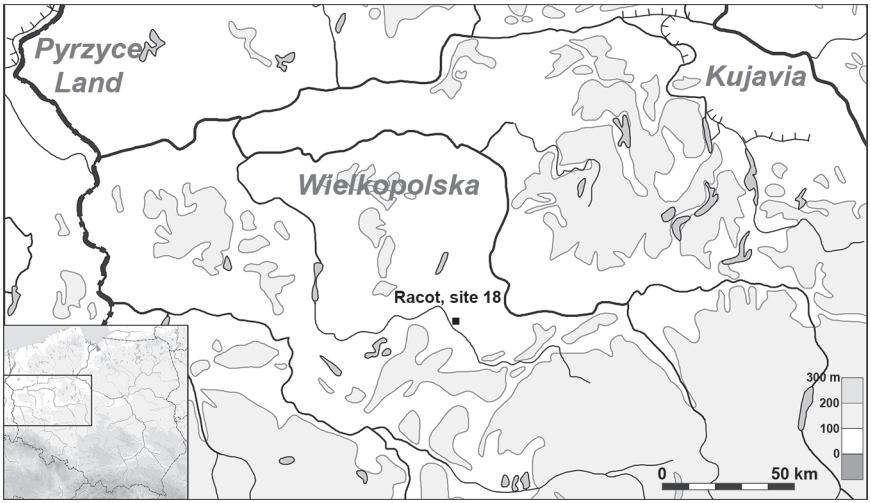

Figure 9.1. *Location of Racot, site 18 in the Polish lowlands.*

it were found in the Mesolithic communities preceding their farming successors. The same applies to domesticates, as there is no straightforward evidence of localized, indigenous domestication of ungulates in the region (e.g., Bollongino et al. 2006; Glass 1991:30; Götherström et al. 2005). Early farmers and hunter-gatherers certainly coexisted but they inhabited and exploited different, mutually exclusive ecological zones (Kruk and Milisauskas 1999:29; Marciniak 2008a).

Early LBK sites were scattered throughout the Polish lowland on fertile rich brown and black soil, similar in quality to the loess soil of the uplands. These comprise Kujavia, the Chełmno Land, and the Pyrzyce Land along the lower Oder area (Figure 9.1). Longhouses dominated the landscape. These were significantly elaborated structures, far larger than needed for permanent dwellings. During the region's historical trajectory, longhouses grew in significance, becoming a focal point for the farming groups (Marciniak 2000:343–344).

Cattle were the most important animals of the Early Neolithic farmers of the North European Plain (e.g., Bogucki 2008; Marciniak 2005, 2013). Cattle bones significantly outnumbered other species (e.g., Grygiel 2004:546; Sobociński 1985:87). The importance of cattle certainly went beyond a contribution to the diet of local groups (Bogucki 1988, 1993; Ray and Thomas 2003). Cattle were probably an important source of mobile and inheritable wealth, and on special occasions, of meat, probably due to qualities such as their size,

strength, vitality, and mobility (Whittle et al. 1999:385). This special treatment afforded to cattle is widely discernible across Europe and the Near East and they may have achieved this position long before domestication altered their anatomy, as documented in the Near Eastern Neolithic (e.g., Akkermans and Schwartz 2003:75; Edmonds 1999:28).

The ceremonial character of cattle exploitation in the Early Neolithic of the North European Plain is indicated by a range of variables. Body-part representation is often characterized by a deliberate selection of certain anatomical segments, in particular skulls, scapulae, and axial segments, and is marked as well by avoidance of limbs (Grygiel 2004:549, Marciniak 2005:140–142). Cattle marrow was commonly consumed in a characteristic manner. The bones were first roasted and then broken and then the cooked marrow was eaten. This appears as a common, deliberate, and quite peculiar culinary practice of the early lowland farmers (Grygiel 2004:559, Figure 435; Marciniak 2005:131–132). Juvenile and adult animals were slaughtered, as revealed by recent studies of age profiles in the Brześć Kujawski region (Grygiel 2004:555).

The slaughtering of cattle in the Early Neolithic was a distinct and symbolically significant social practice linked to the communal sharing of meat in the form of feasting. Animals aged three to five years were used for this purpose. This practice was clearly regarded as appropriate in one social context and inappropriate in another, as indicated by the deliberate deposition of the resulting bones in specific settlement locales, in particular in the open space between longhouses referred to as *loam pits* (Marciniak 2005:188–190). The ceremonial food was probably cooked in hearths or ovens located outside of longhouses. The presence of feasting debris in loam pits, earlier used to extract raw material for longhouse construction, may suggest that feasting was linked with house building.

Cattle, in addition to elaborate longhouses, formed the very fabric of Early Neolithic lifeways. They marked new ideas and principles for the farming groups moving into previously uninhabited areas, and their significance remained unchanged for centuries of occupation of early farming centers in the lowlands in the second half of the sixth millennium BC.

Sheep and goats are the second most common species in the Early Neolithic in the North European Plain; however, they were treated in a completely different manner than were cattle. Generally, ovicaprids exhibit a fairly even body-part distribution, implying that entire carcasses were eaten on a regular basis. Ovicaprids were exploited for primary products in an apparently non-ritual fashion. This is indicated by a dominance of juveniles (ca. nine months of age) with a smaller percentage of subadults and adults also present,

as recognized in the Brześć Kujawski group (Grygiel 2004:555). Marrow was eaten but not roasted. Consumption of sheep and goats took place in the house and/or directly around it and bone remains were dumped in pits flanking entrances of the houses (Marciniak 2005:188–190).

The pattern for pigs is much more difficult to discern due to the low frequencies of their remains in Early Neolithic sites. However, fragmentary evidence implies that pigs might have also been a component of feasting events and that pork was not consumed on a daily basis. This is indicated by a pattern of anatomical body-part distribution dominated by heads and axial elements, very similar to the pattern for cattle, and their deposition in loam pits. The kill-off pattern is dominated by individuals from subadult and adult age categories (Grygiel 2004:555), mostly between two and three years (Sobociński 1985:103).

THE MIDDLE NEOLITHIC IN THE NORTH EUROPEAN PLAIN: THE RACOT SETTLEMENT

The world of early LBK farmers became a point of departure and a point of reference for further developments in the region, involving transformation and modification of their original constituent principles. The period between about 5000 and 4800 BC (calibrated) marks the beginning of the second important phase in the development of farming communities in the North European Plain, which became more pronounced in the second half of the fifth millennium BC. The previously homogeneous society was replaced by numerous dispersed and varied groups associated with the late phases of the Danubian tradition, such as the Late Band Pottery (LBPC), Stroke Ornamented Pottery, and Lengyel cultures (Kruk and Milisauskas 1999).

The first genuinely local farmers inhabiting the great valley zone of the Polish part of the North European Plain, known as the Brześć Kujawski group of the Lengyel culture, emerged around the middle of the fifth millennium BC. This community was formed as a convergence and synthesis of various elements from different areas, including those of local foragers (Czerniak 1994:123). It retained numerous regional traits but remained embedded in the Danubian Neolithic tradition.

The Lengyel settlement at Racot (site 18) from the Wielkopolska region (Figure 9.1) has been dated to the period between 4400 and 4000 BC and encompasses phases IIA, IIB, and IIIA in a conventional chronological scheme of this culture (Czerniak 1989). As indicated by technology and style of pottery, the founders of the site arrived from the early farming center in

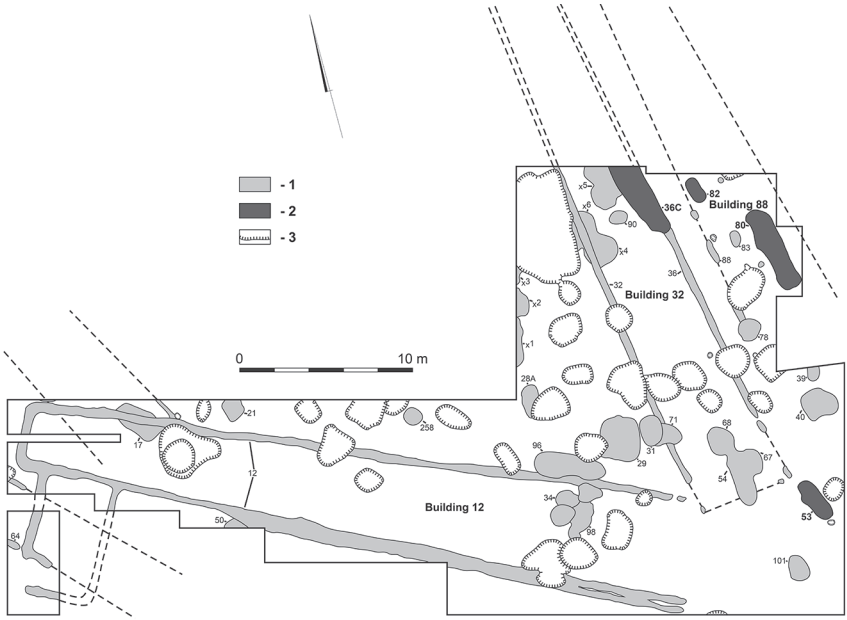

Figure 9.2. *Plan map of a portion of Racot, site 18: (1) internal pit, (2) external pit, and (3) loam pit.*

Kujavia. For quite some time, it remained the only setting of its kind in the region. Only later, in phase IIIA, did similar settlements come into existence in this part of Wielkopolska, and the settlement became an element of a new communication network in the lowlands.

It is estimated that the Racot settlement covered an area of about seven hectares (Figure 9.2). In all, sixteen trapezoidal longhouses along with numerous pits have been revealed, mainly in the northern part of the site. The settlement was occupied in three and possibly four phases. It is estimated that no more than six longhouses were in use at the same time. Longhouses were more than thirty meters long, which makes them the longest constructions of this type in the Lengyel culture. They were carefully designed and very similar to each other in terms of their length and size. This may indicate that they retained their significance and referential meaning known from their LBK predecessors.

However, they were not identical to their Early Neolithic counterparts, as indicated by departures from previously existing spatial arrangements and details of construction. In the early phase of the Racot settlement occupation,

longhouses were built in pairs (Buildings 133 and 134; Buildings 32 and 88), parallel to each other (Czerniak 1989). This appears to be a typical pattern at the beginning of the Lengyel culture, as indicated by settlements at Březno in Bohemia (Pleinerová 1984) and Bielawki and Barłożno in northern Poland (Czerniak 2006). In the final phase, some of the houses had different alignments than the older ones and more importantly they had small rooms attached to the longhouse in the course of their rebuilding (Building 12 and 106), indicating a departure from the previously standardized mode of their construction and maintenance.

Significant social changes in the Middle Neolithic are also manifested in other domains. Highly standardized burial rites, numerous rich grave foods, and other formal rituals of the preceding period were replaced by haphazard patterns with almost no grave goods (Gabałówna 1966:87). This is clearly seen in the case of the only burial (feature 82) from the Racot settlement. It was dug inside a longhouse (Building 88), but is dated to phase IIIA, about 200 years later (Czerniak 1989). A woman in a crouched position was buried on her right side rather than on her left. Previously, this position had been reserved in the Early Neolithic for men. This does not imply that all elements of these rites were changed. The position of the skeleton and its alignment remained in accordance with general rules from the preceding period. Contrary to burials from the Early Neolithic, the Racot grave has a number of grave goods, including copper. It is dated to the period of the emergence of megalithic burials in the region that arguably replaced Early Neolithic longhouses and acquired referential meaning in the process (e.g., Hodder 1990). This can be seen as a local manifestation of the idea of replacing the domestic domain by the burial sphere, which played a major role in constructing and maintaining communal identity in the European Copper Age (Biehl and Marciniak 1999).

The oldest pair of longhouses (Buildings 133 and 134) dates to phase IIA. It is associated with a complex of internal and external pits (Features 135, 203, and 220) as well as two loam pits (Features 138 and 174). The oldest phase is also represented by an adjacent longhouse (Building 64) and an accompanying external pit (Feature 17). The following phase (IIB) is represented by another pair of longhouses (Buildings 32 and 88) with an associated complex of internal and external pits (Features 40, 53, 54, 67, 68, 80, and 101). The last phase (IIIA) is represented by yet another longhouse (Building 106) with accompanying pits (Features 107 and 210) as well as the two youngest longhouses (Buildings 12 and 211).

Internal and external pits are arguably remains of some kind of dwellings used for daily activities and are labeled domestic pits by the site excavator

(Czerniak 1989). External pits might have had some kind of roofing. Loam pits appear in clusters comprising a number of smaller features. Interestingly, the largest loam pits were associated with the earliest pair of longhouses (Buildings 133 and 134). Longhouses from the earliest phase had internal pits and were flanked by loam pits, a pattern known from the Early Neolithic, where they contained residues of ceremonial consumption (Marciniak 2005). The latest longhouse (Building 12) at the settlement marks a departure from the existing pattern as it was devoid of internal pits.

FAUNA FROM RACOT

The faunal assemblage from the Racot settlement consists of 5,229 bones. Out of this total, 4596 specimens (87.9 percent) were identified while 633 specimens (12.1 percent) remain unidentified. The dominant species is cattle (33.9 percent), followed by sheep/goats (31.1) and pigs (12.2). The most common wild animal was roe deer (2.6 percent), followed by red deer (1.3), beaver (1.1), and wild horse (0.8). The faunal material at the Racot settlement originates almost exclusively from three categories of features: (1) internal pits inside longhouses, (2) external pits associated with longhouses but located outside, and (3) loam pits. Because publication of this site has not yet been completed, relationships between some pits and houses as well as the chronological position of them, in particular loam pits, are not clear at this point. Hence, only pits with a securely defined chronological position are used for the comparative analysis.

There is a significant discrepancy in species composition between loam and domestic pits. Altogether, only 343 bones were deposited in two large loam pits from phase IIA. Out of this number, 42.3 percent of specimens were so fragmented that they remain unidentified. The assemblage was dominated by sheep/goats (26 percent) and cattle (18 percent). A considerable number of red-deer bones (7.9 percent) were also found. Pigs were only represented by 4.4 percent of bones.

The faunal assemblage from domestic pits in phase IIA consists of 568 bones. They were in an excellent stage of preservation, thus only 0.7 percent were not identified. The assemblage was dominated by sheep/goats (56.5 percent), followed by pig (23.1), with cattle represented by only 11.4 percent of bones. Wild species were represented by less than 1 percent of a total number of bones. In the following phase (IIB), the assemblage was composed of 1,054 bones. They were also well preserved: only 10.1 percent of them remained unidentified. Similarly as in the preceding period, the fauna was dominated by sheep/goats (47.7 percent), followed by pigs (14.0 percent), cattle (11.4 percent) and

roe deer (8.3 percent). Other species were present in low numbers. In the final phase (IIIA), we have a small assemblage of only 165 specimens. All of them were identified. Species composition changed considerably. It was dominated by cattle (43 percent) and sheep/goats (40 percent). There is a dramatic decrease in the number of pigs (5.5 percent). We also encounter roe deer (5.5 per cent) and red deer (4.2 per cent).

Depositional practices can be revealed by bone fragmentation. In loam pits from phase IIA, a vast majority of specimens (74.8 percent) had less than a quarter of the complete element represented (Figure 9.3). The same pattern is characteristic for the three major domesticated animals in this context. This is indicative of heavy fragmentation due to intense bone processing. The bones in domestic pits in subsequent phases are significantly less fragmented. In phases IIA and IIB, specimens representing less than a quarter of the complete element are within a range of 51 to 55 percent. An overall percentage of bones from this category increased slightly in the final phase (Figure 9.4). There are a considerable number of bones (17.9 to 23 percent) between a quarter and a half complete, while the number of bones between three-quarters or more complete is much lower (around 10 percent). Interestingly, in all three complexes of domestic pits, the fragmentation of cattle bones is significantly higher than that of sheep/goats, as indicated by the frequency of specimens representing less than a quarter of the bone (73.4–76.3 percent for cattle in comparison to 46.1–67.9 percent for sheep/goats).

The number of bones with carnivore gnawing is very low in loam pits. It was recorded on only two specimens, which comprised 0.6 percent of bones from this context. The frequency of carnivore gnawing is considerably higher in domestic pits. It varied in different periods, ranging between 4.9 and 7.2 percent of the total number of bones.

A similar pattern was revealed for bone weathering. In loam pits from phase IIA, 6.4 percent of bones were recorded as weathered, mainly type 2 and 3 according to Behrensmeyer (1978:151). The frequency of weathered bones from domestic pits was higher and varied from 22.2 percent in phase IIA through 10 percent in phase IIB to 20.6 percent in phase IIIA.

While looking at the frequency distribution of cut-marked specimens of the three major domesticated species, an interesting pattern has been detected. Altogether fifteen cut and thirty chop marks were found on cattle bones. A vast majority of them appeared on joints, mainly on distal ends of metatarsals and humeri, ribs, proximal ends of the radii and metacarpals, calcanei, astragali, and phalanges (Figure 9.5). Only a single cut mark was found on a long-bone shaft.

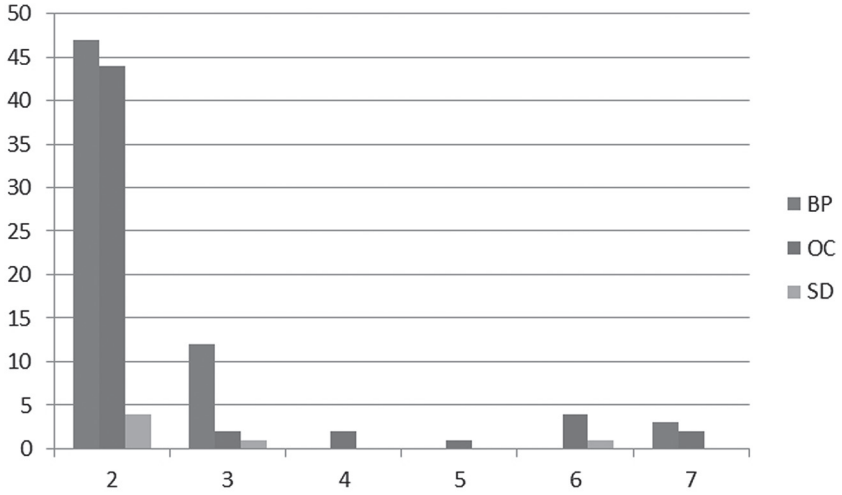

Figure 9.3. *Bone fragmentation of cattle, sheep/goat, and pigs from loam pits, phase IIA. (x-axis represents completeness: 2 = < ¼ complete; 3 = ¼–½ complete; 4 = ½–¾ complete; 5 = >¾ complete; 6 = almost complete; 7 = complete. BP, cattle; OC, domestic sheep and goats; SD, domestic pig.)*

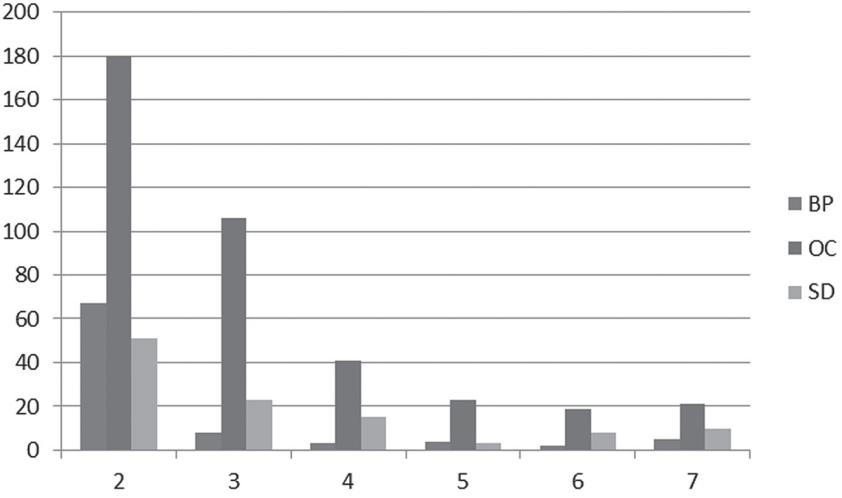

Figure 9.4. *Bone fragmentation of cattle, sheep/goat, and pigs from internal and external pits, phase IIB. (x-axis represents completeness: 2 = < ¼ complete; 3 = ¼–½ complete; 4 = ½–¾ complete; 5 = >¾ complete; 6 = almost complete; 7 = complete. BP, cattle; OC, domestic sheep and goats; SD, domestic pig.)*

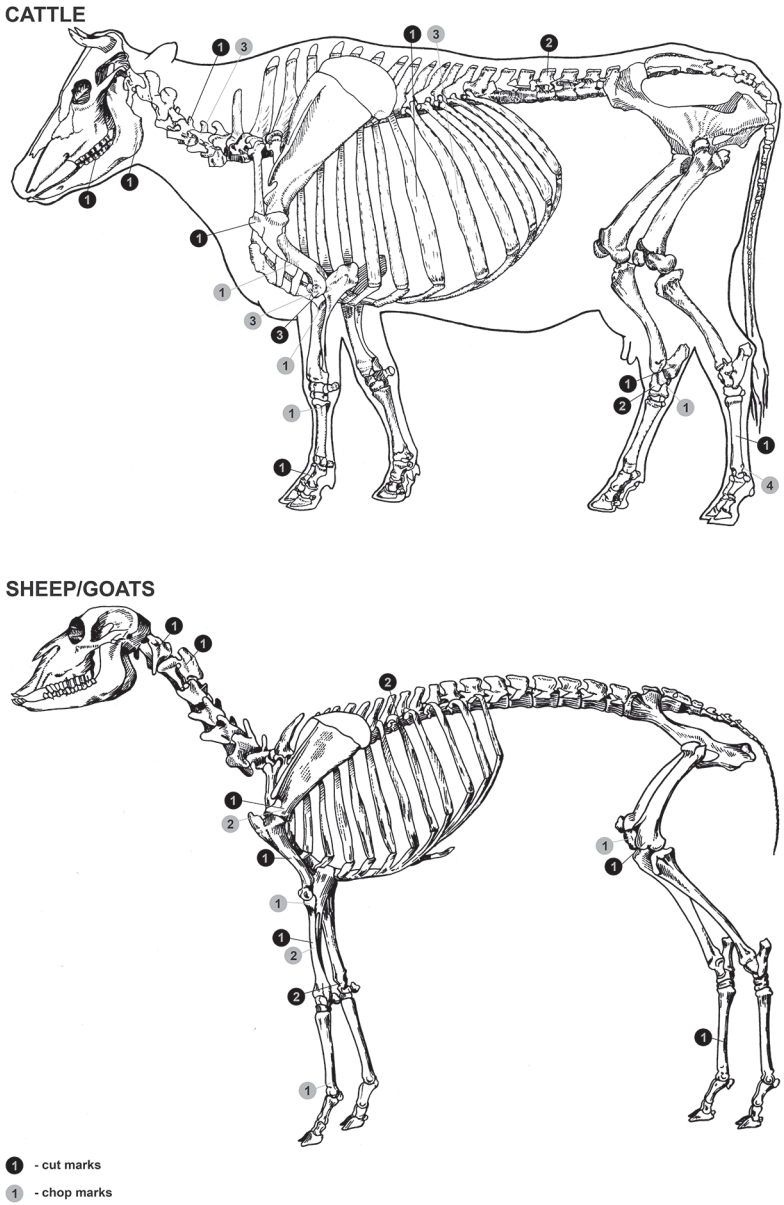

Figure 9.5. *Distribution of cut and chop marks on skeletons of cattle (top) and sheep/goats (bottom). Black circles represent cut marks; gray circles represent chop marks.*

The proportion of cut-marked bones of sheep/goats differed from that of cattle (Figure 9.5). Out of only twelve cut marks and seven chop marks, a majority of them were chopped in the mid-shaft (mainly radii and humeri). However, there are also some bones with cut and chop marks on joints. A slightly different pattern was revealed for pigs. The pattern also needs to be referred to very carefully, as only fourteen cut and chop marks were discerned. Interestingly, a majority of them were found on cranium and ribs. The remaining marks were located on both ends and shafts of long bones (radius, humerus, femur).

Breakage patterns for long bones are again considerably different between domestic and loam pits. In loam pits from phase IIA, the most common breakage pattern is a longitudinal fracture. It is especially evident in the case of cattle, where it represents 58.5 percent of all cattle long bones with fractures. The second most common are stepped fractures (17 percent). This pattern differs slightly from that of sheep and goats in this context. Longitudinal breakage is also dominant (50 percent) but is followed by perpendicular-irregular and oblique-irregular fractures (15.4 percent each). Other categories of breakage are significantly less common. No pattern can be revealed for pigs, as they are only represented by three specimens with breakage (Figure 9.6).

The breakage pattern is significantly different in domestic pits, especially in phases IIA and IIB (Figure 9.7). In general, the number of cattle and pig bones with recorded breakage is lower than that of sheep/goats. In the case of cattle, except for longitudinal breakage representing between 21.6 and 32 percent, the most dominant are stepped (17.8–20.8 percent), followed by perpendicular-irregular (12.5–27 percent), oblique-irregular, and spiral-irregular fractures. A different pattern is discerned for sheep/goats. The most common is longitudinal breakage (21.6–36.8 percent), followed by perpendicular-irregular (16.6–27 percent), and stepped (11.8–23 percent) fractures. A breakage pattern for pigs from domestic pits is again completely different. The far most common is perpendicular-regular breakage (29.5–34.2 percent), followed by spiral-irregular, perpendicular-irregular, and jagged fractures.

The number of bones with signs of heating and burning is low. Altogether, fifty-three burned cattle bones were found. A majority of them (twenty-six specimens) were brown and dark brown, indicative of burning; the vast majority of them appeared on long bones. The most common burning was on the mid-shafts of long bones. A small number of specimens were also burned on their proximal and distal ends. A considerable number of burned cattle bones originate from loam pits. In a single case, they come from domestic pits from the oldest phase (IIA) as well as pits of unknown function.

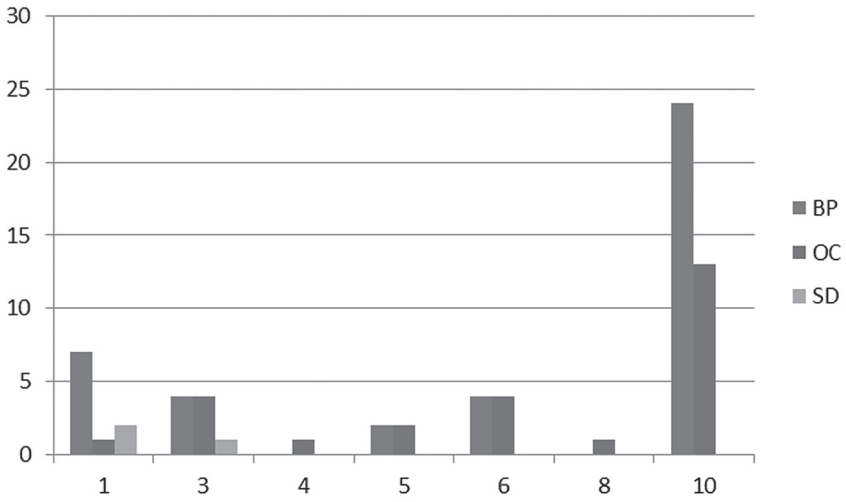

Figure 9.6. *Frequency of fracture types for cattle, sheep/goat, and pigs from loam pits, phase IIA. (1 = stepped; 2 = jagged; 3 = perpendicular irregular; 4 = oblique irregular; 5 = perpendicular regular; 6 = oblique irregular; 7 = spiral irregular; 8 = spiral regular; 9 = channeled; 10 = longitudinal. Note: categories 2, 7, and 9 are not represented in this figure.)*

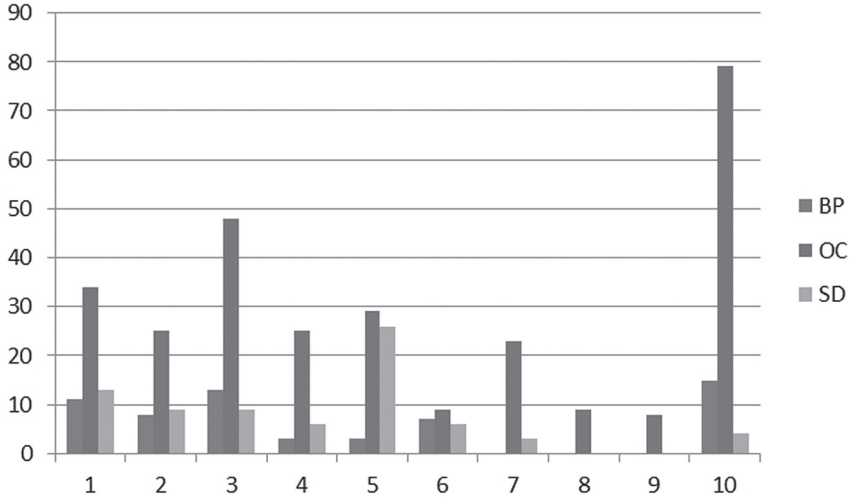

Figure 9.7. *Frequency of fracture types for cattle, sheep/goat, and pigs from internal and external pits, phase IIB. (1 = stepped; 2 = jagged; 3 = perpendicular irregular; 4 = oblique irregular; 5 = perpendicular regular; 6 = oblique irregular; 7 = spiral irregular; 8 = spiral regular; 9 = channeled; 10 = longitudinal.)*

A similar number (N = 49) of specimens with burning was also reported for sheep/goats. The pattern of burning, however, is different than for cattle. The largest number of burned bones represents skulls and teeth (sixteen specimens), followed by metapodia. Long bones with burning marks are less numerous. Interestingly, as many as forty-one specimens (83.7 percent) are charred or partly charred. The vast majority of burned sheep/goats bones come from domestic pits; none of them was found in loam pits.

HUMAN-ANIMALS RELATIONS IN THE MIDDLE NEOLITHIC ON THE NORTH EUROPEAN PLAIN: THE RACOT SETTLEMENT

Bone fragmentation is a byproduct of animal butchering and marrow processing (Greenfield 2000:94) and its degree of intensity is related to differential treatment of major domestic animals and their products. Bone preservation at the Racot settlement varied depending upon the context of deposition. The material from both internal and external pits from all phases of the site occupation showed greater integrity than from loam pits. This interfeature disparity is particularly well reflected by the percentage of identifiable bones. Only 57.7 percent of the material from loam pits was diagnostic compared to more than 90 percent from domestic pits. Cattle bones from loam pits are particularly fragmented, often to the point in which they cannot be identified. This is indicative of intense bone processing, arguably for marrow extraction. At the same time, bones of the major domesticated species, including cattle, in internal and external pits are significantly less processed. However, fragmentation of cattle bone remains higher, compared with other species.

In all categories of pits, bone-surface condition was moderate to good as indicated by the low incidence of modified bones. Gnawed material was not frequently encountered, indicating that dogs had limited access to the bones prior to their deposition. However, there is a disparity in carnivore modification of the materials in loam pits and domestic pits. In the former, it has hardly existed, which is indicative of immediate deposition after meat and/or marrow consumption. A low incidence of gnawed bones in loam pits further implies that their fragmentation is not due to carnivore action but to intense processing by humans. This pattern is also corroborated by analysis of bone weathering.

Available evidence implies that cattle and sheep/goat carcasses were processed and dismembered differently. As near-joint cut marks usually represent disarticulation, the pattern for cattle in loam pits indicates that tools were used to chop bones through joints and break them into smaller sizes. We encounter here, almost exclusively, the remains of carcass disarticulation; the

lack of evidence for skinning or filleting marks implies a lack of domestic consumption practices.

The distribution of bone breakage and burning across the settlement provides insights into cooking practices at the settlement. Fracture classification is based on several criteria, such as overall shape of the break in relation to the long-bone axis, the angle of the break surface, and its texture. Cattle bones from loam pits are characterized by longitudinal fractures of long break surfaces, parallel to the long-bone axis. These were followed by various kinds of transverse fractures characterized by breaks at right angles to the long axis of the bone, implying that bones were heated and cooled. This process led to the bones being fractured obliquely and longitudinally, with break surfaces usually jagged and rough. This pattern implies roasting bones encased in meat, as well as boiling (Johnson 1985). A high number of longitudinal fractures is also caused by postdepositional processes. There is a conspicuous lack of spiral fractures, which indicates that the bones were not fresh when broken (Lyman 1994:320). This kind of consumption, however, was not associated with pigs. The number of spiral fractures identified on pig remains implies that bones were broken while they were fresh, which is indicative of different culinary practices, not present elsewhere, as indicated by debris in loam pits. The breakage pattern for sheep/goats is characterized by perpendicular and oblique fractures, implying that bones were being broken while dry, after meat was consumed.

The breakage pattern is significantly different in domestic pits. The composition of fractures of sheep/goats bones in some of them is reminiscent of the pattern from loam pits and is characterized by a high frequency of stepped and perpendicular fractures indicative of roasted-marrow consumption. At the same time, cattle bones reveal a considerable frequency of oblique and spiral fractures, implying a different consumption pattern.

The few fragments of burnt bone that were present displayed a range of colors from brown through black to whitish, implying an exposure to temperatures of between 200 and 600 Celsius (Lyman 1994). Cattle bones, mainly from loam pits, were burned on the mid-shaft, indicating the extraction of the marrow and its consumption in a roasted form (Binford 1981). A different pattern of burning was revealed for domestic pits. Sheep/goat bones were mostly charred, implying bones were defleshed or partly defleshed while exposed to fire (Lyman 1994:387). This kind of burning is not present in loam pits. This again corroborates different cooking and eating habits across the settlement.

The significance of marrow consumption is additionally supported by a correlation between marrow indices and body-part representation (see Marciniak

2005:Figure 6.22). Both loam and domestic pits from the early phase (IIA) contained remains of marrow consumption for both cattle and sheep/goats. In later phases, the predominant species consumed for marrow was almost exclusively sheep/goats, and the remains of sheep/goat marrow consumption were dumped in domestic pits. This may indicate that sheep/goat marrow consumption was moved from the communal domain into the domestic sphere. It should be stressed, however, that internal and external pits securely associated with longhouses are few in number, making it difficult to discern consumption and deposition practices in greater detail.

In addition to differentiated consumption of the major domestic animals across the settlement, there are also clear discrepancies in the depositional histories in loam versus domestic pits. Cattle bones, characterized by high fragmentation that implies intensive processing for marrow consumption, were deposited exclusively in loam pits in all phases (e.g., feature 138 from phase IIA or feature 129 from phase IIIA).

Cattle-marrow consumption was clearly a spatially distinct practice and might have taken place outside longhouses in the form of ceremonial and possibly communal feasting. It is striking to note that cattle-marrow-consumption remains were never placed in internal and external domestic pits, although cattle bones were present there. At the same time, sheep/goat bones indicative of marrow consumption were not deposited in loam pits but exclusively in internal and external pits. This is further supported by the diverse body-part representation of these species. Due to a high degree of fragmentation caused by marrow consumption, sheep and goats were characterized by a predominance of head/neck bones and bones of the vertebral column. The pattern was discernible exclusively in internal pits from all three phases of the site occupation. However, the majority of domestic pit assemblages are dominated by anatomical segments representing sheep/goats, implying ordinary consumption practices by individual households.

A distinct depositional pattern of three major domestic species is additionally corroborated by their association with different categories of artifacts in all three categories of features. As compared with internal and external pits, loam pits were generally poor in faunal remains, which is typical of these features at other Lengyel settlements (Czerniak 1989). At the same time, external pits held more animal bones than the internal ones. Pottery clearly outnumbered animal bones in almost all internal pits. There is no indication of any association between the deposition of such archaeological material as antlers and stone and bone tools on one hand and the composition of animal remains in any of the features on the other.

Human-animal relations, consumption of meat and marrow, as well as distinctive depositional practices at the site of Racot are clearly embedded in the Early Neolithic tradition in the lowlands, although some significant departures are discernible. This direct reference to the LBK predecessors is particularly evident in the early phase of the Racot settlement in the form of the practice of roasted-marrow consumption, probably of communal character, and depositing the resulting debris in loam pits flanking monumental longhouses. This implies that earlier traditions, practiced to a limited degree, were remembered for a very long time. It is difficult to reckon the extent to which the original value attached to these practices was still recollected or whether it had survived in the form of conventionalized and formalized activity.

Important shifts in human-animal relations took place in the second phase of occupation at Racot. Sheep/goats—and in particular their marrow—appear to have been used in a ceremonial manner similar to cattle in the Early Neolithic. Interestingly, this consumption was arguably performed at the level of individual houses rather than communally, reflecting a significant shift in social arrangements at the settlement. Hence, sheep/goats, whose numbers increased dramatically as compared with the LBK, seemed to replace cattle as a means of creating and providing social stability and security of the group. This is particularly vital in the context of a frontier settlement such as Racot, where the inhabitants were establishing an agricultural community in a remote place. Interestingly, this may mark the beginnings of a broader tendency in this period, particularly visible in the following millennium, in which sheep/goats acquired symbolic and ceremonial significance (e.g., Kruk and Milisauskas 1999:151). Hence, one would expect them to become a more valuable resource in fulfilling this role in the domestic domain than cattle, which began to be shifted to separate ceremonial and ritual settings outside the realm of the Early Neolithic longhouses (e.g., Marciniak 2008b). It has been stressed, however, that caprines were not exclusively consumed in this ceremonial way and were also the focus of "regular" domestic consumption practices, as indicated by faunal remains from about half of the features.

Treatment of pigs and their products strongly resembles the Early Neolithic pattern for ceremonial treatment of cattle in the form of communal feasting. This was the dominant form of pig exploitation at Racot. Moreover, pig bones were deposited in the same way during all phases of the settlement occupation, reflecting a considerable uniformity in their economically nonutilitarian use over time.

SOCIAL CHANGE AND ANIMAL EXPLOITATION IN THE MIDDLE NEOLITHIC: FINAL REMARKS

The Racot settlement is an exemplary case that makes it possible to capture the changing nature of human-animals relations following abandonment of the stable world of early farmers in the North European Plain in the second half of the sixth millennium BC. Animals were integral components of the significant social and economic transformations that occurred in this period. The most important transformation, with far-reaching consequences, was the demise of the communal organization in early farming groups that was focused upon monumental longhouses (e.g., Milisauskas 1986:215–218). Instead, in the fifth millennium BC a number of small coexisting communities emerged within intense communication networks.

Social changes in this period were characterized by small-scale modifications and transformations of the early farming tradition. The changes were uneven and highly localized, and their dynamics varied. References to the tradition of early farmers remained strong and were exercised in many domains. Some of these practices were identical to the LBK, but in the majority of cases they appeared in a transformed and modified form.

These new Lengyel communities were marked by strongly articulated individual and kinship identities, and their mutual relations were less closely tied than in the preceding period. Household organization began to dominate (e.g., Grygiel 1986; Marciniak 2000, 2005, 2008a). The gradual increase in household autonomy challenged the social, ceremonial, and economic foundations of the early Neolithic communities. It developed in the domain of longhouses but eventually contributed to their demise. A longhouse was no longer a monumental structure but began to serve as an ordinary domestic dwelling. Its referential and metaphoric meaning, as in the Early Neolithic, was no longer important to maintain local farming groups.

Food-related practices in the Middle Neolithic also changed. A reference to the Early Neolithic food traditions was certainly more pronounced in newly occupied regions than in the early farming centers, where change was less distinct. As revealed at the Racot settlement, some food traditions remained identical to those in the preceding period but in the course of time began to be transformed and modified. Cattle remained reserved for "special" and public consumption events. The practice of cattle-marrow consumption outside the longhouse in the form of communal feasting hardly changed and was particularly common in the early stage of the Middle Neolithic. As in the Early Neolithic, the debris from these activities was deposited in loam pits not directly associated with the house. Interestingly, pork was eaten in

a similarly public way. Towards the end of the Middle Neolithic, consumption of sheep/goats began to dominate. They were prepared for small groups of people inhabiting subsequent buildings but also involved ceremonial consumption, albeit performed in a smaller scale, in the manner similar to that of cattle in earlier phases.

More generally, the Middle Neolithic brought about considerable changes in relations between people and domestic animals. In accord with social changes of the time, Middle Neolithic peoples such as those at Racot began to separate the economic and subsistence practices from the social and symbolic domains so prevalent in the Early Neolithic. The disassociation of animals from these realms had far-reaching consequences for the whole economy and enabled local groups to settle a range of ecological zones (Marciniak 2011a). In the long run, that dissociation strengthened individual households, which had begun to differentiate by incorporating elements of the transformed tradition of their ancestors. Acquisition of wealth and status became particularly pronounced in the following millennia. The social and ceremonial importance of animals remained significant but eventually became executed in specific settings such as enclosures, ditches, ceremonial centers, and the like (e.g., Marciniak 2008b), far distanced from the domestic domain of the Early Neolithic settlements.

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10

Inequality and the Origins of Wool Production in Central Anatolia

Benjamin S. Arbuckle

INTRODUCTION

In the ancient Near East the rise of complex societies characterized by significant, stable, and, in many cases, oppressive inequalities, is closely linked with the reorganization of economic systems through increasing specialization and intensification in the production and exchange of many products and services (Algaze 2008; Wattenmaker 1998; Wright and Johnson 1975; Zeder 1991). With an emphasis on exchange and surplus, commodity production and even product branding became central considerations of Late Chalcolithic and Bronze Age elites as they sought to reify and even expand the material and symbolic foundations of their ascendancy (Rothman 2000; Wengrow 2008, 2010). Although studies of the dramatic economic changes associated with the rise of complex societies have tended to focus on features such as agricultural surplus, external trade, and prestige goods, animals also played an important role in these processes.

Research into the role of animals in the prehistoric Near East, however, has overwhelmingly focused on questions of paleoeconomy (e.g., Uerpmann 1973), particularly on issues surrounding the process of animal domestication. Comparatively little attention has been paid to the role of animals in the development of increasingly hierarchical, prestate societies of the Chalcolithic (6000–3000 BC)—the period that witnessed the rise of the first complex societies in the greater Mesopotamian world. Part of this problem lies in the widespread notion that systems of animal management are fundamentally conservative, ecologically adapted, and focused on risk reduction, and were therefore fundamentally peripheral to the processes

DOI: 10.5876/9781607322863.c010

involved in the emergence of social differentiation in the late prehistoric Near East (Esin 1998; Frangipane and Siracusano 1998; Redding 1984; Stein 1989). Moreover, turning to a large body of ethnographic work focusing mostly on egalitarian, pastoral nomads in Iran and central Asia (Bates 1973; Irons 1975; Salzman 2002; Tapper 1979), archaeologists have tended to accept the model that herds are not a good basis for long-term wealth and power differences because of the fickle nature of the growth and decline of herds (although see Borgerhoff Mulder 1999). As Irons (1994:192) comments, among the Yomut, "there were vast differences in wealth, but the wealth of individual families could be expected to change. For the wealthy to become poor or the poor to become wealthy was not unusual" (also see Bates 1973:134).

However, recent trends in zooarchaeology have focused attention on the social rather than strictly subsistence uses of animals, and the chapters in this volume attest to the wide range of nonsubsistence roles played by wild and domestic taxa alike. With the rise of increasing inequality in the Chalcolithic Near East there is evidence for the increasing use of animals outside of the traditional subsistence economy for social gain, wealth acquisition, and commodity production (Arbuckle 2012b; Ben-Shlomo, Hill, and Garfinkel 2009; Helwing 2003; Kansa and Campbell 2004).

In the ancient Near East caprines (i.e., sheep and goats) were the dominant livestock and sheep, with their ability to produce high-quality meat, milk, and most importantly wool, quickly became an important focus within growing commodity economies in the Late Chalcolithic and Early Bronze Age. Although third and even late fourth millennium BC texts from Mesopotamia reveal an early interest in the production and administration of woolen textiles (Algaze 2008; Green 1980; Nissen 1986), we know little about the development of wool production in Anatolia, despite the fact that this region was likely the earliest center of sheep domestication and has a rich history of wool production in the Bronze Age (Michel and Veenhof 2010; Veenhof 1972; Zeder 2008).

In this chapter, I explore evidence for the rise of intensive wool production in central Anatolia during the Chalcolithic, the period that witnessed the rise of increasingly complex, prestate societies. The primary aim is to address the context in which sheep management was transformed from a "Neolithic" system of household production of primary (e.g., meat, hides, bone, etc.) and secondary (e.g., milk) products (Sherratt 1983) into a "Bronze Age" system of commodity production focused on wool. Although I review multiple types of evidence for the use of wool, I focus on zooarchaeological data from five sites in central Anatolia spanning the period from the Neolithic to the Bronze

Age in order to reconstruct trends in sheep management consistent with the development of intensive wool production.

ARCHAEOLOGICAL EVIDENCE FOR WOOL

Wool and woolen textiles were critically important commodities in early Near Eastern states, a fact amply documented in ancient texts (Waetzoldt 1972). But as textiles are perishable materials, both the origins and extent of their use remain difficult to assess in prehistoric and early historic periods (Good 2001). The term *wool* refers to the fine fibers, which, along with coarser hairs and kemps, make up the coat of domestic sheep (*Ovis ammon*) (Ryder 2007). Wild sheep (*Ovis orientalis*) have a coat consisting mostly of the very coarse outer kemps and hair fibers with the fine "wooly" fibers limited to a short undercoat (Barber 1991; Ryder 1960, 1983). This undercoat is molted each spring and cannot be spun, although it can be collected or plucked and used to produce felt (Barber 1991). However, at some point following the initial domestication of sheep, somewhere in the southern and eastern regions of Anatolia in the early ninth millennium BC (Zeder 2008), the short, fine fibers of the undercoat of domesticates became more developed and eventually became the dominant component of the outer coat, which could then be spun into thread and thence woven into textiles (Barber 1991). The techniques for spinning and weaving wool required virtually no technological innovations, as they were identical to those involved in the spinning of flax, which has been used in textiles since the late Pleistocene (Kvavadze et al. 2009). The transition from wild-type coat to wooly fleece is important, because woolen textiles were not possible before this innovation, but the precise timing of the transition has been the subject of some speculation (see Ryder 2007).

Evidence for early wool comes from multiple sources. Direct evidence for wool is rare, but the earliest woolen textiles have been identified on the northern margin of the Near East, dating to the mid-fourth millennium BC Maikop culture (Shishlina, Orfinskaya, and Golikov 2003). Wool and goat hair were used to make textiles in eastern Iran by the late fourth millennium at Shahr-i Sokhta (Good 1999) and both wool and goat-hair textile fragments have been found in Bronze Age contexts at Arslantepe in Anatolia (Frangipane et al. 2009).

Iconography depicting either sheep with a wooly fleece or the manufacture of textiles is another useful source of information, and Algaze (2008) has summarized much of the evidence for the Late Uruk period (late fourth millennium) in Mesopotamia. Furthermore, the third millennium "Standard of Ur"

clearly depicts sheep with wooly staples (as well as "hairy" goats) (Roaf 1990). Characteristics of spindle whorls (pierced weights used in the process of spinning fibers into thread) have also been used to identify the spinning of wool, which as a very light fiber requires light-weight spindle whorls. Multiple studies have suggested that spindle whorls appropriate for spinning wool thread were present by at least the mid-fourth millennium BC in the Near East and eastern Europe (Chmielewski and Gardynski 2010; Keith 1998; Kimbrough 2006), and Sudo (2010) has pushed this back into the fifth millennium (Ubaid period) in northern Mesopotamia. Furthermore, a peculiar figurine from the late sixth millennium site of Sarab, in Iran, may depict a sheep with wooly "staples" (Bökönyi 1977) (although see Good 1999:59).

However, the European mouflon, a feral sheep thought to be descended from primitive Neolithic domesticates, exhibits a wild-type coat, indicating that Neolithic sheep could not have been exploited for wool (Barber 1991:24; Chessa et al. 2009). Moreover, wool seems not to have been part of the Neolithic agropastoral economies that moved from the Near East into Europe in the late seventh millennium; for example, even by the late fourth millennium, the clothing of "Oetzi the Iceman," a mummy preserved by glacial ice in the Italian Alps, included no woolen textiles (Hollemeyer et al. 2008; Ryder 1983).

Although Neolithic domestic sheep did not possess spinnable wool, the seasonally molted fine undercoat could have been plucked and felted. Although there are no archaeological remains of felted textiles from the Near East prior to the Bronze Age (Barber 1991:217), a controversial method of dating the origins of the Indo-European language family, which contains a common root perhaps referring to felt, suggests that its use may have a Neolithic origin (Anthony 2007; Gray and Atkinson 2003).

Finally, faunal evidence has been brought to bear on the origins of wool production in a variety of ways. Perhaps the most frequently cited method for identifying the management of sheep for wool was devised by Payne (1973), who developed models relating the age at which sheep are slaughtered to the goals of herd production. Accordingly, when the preferred goal of herd management is wool, herders will delay slaughter of females and, especially, males to maximize the off-take of fiber before culling. This creates a unique demographic profile dominated by the remains of adult rams and ewes.

Building on Payne's model, Helmer (Helmer, Gourichon, and Vila 2007; Vigne and Helmer 2007) has interpreted an unusually high frequency of mature caprines at the late Neolithic sites of Tell Soto and El Kowm 2 in Syria as representing management intensively focused on fiber production. Other

evidence for the use of wool in the late Neolithic, however, is sparse. The initial spread and then steady increase in sheep in assemblages in the Zagros and southern Levant in the seventh and sixth millennia BC, well after systems of goat management had developed in these regions (Zeder 2008), suggests a specific interest in the products of sheep (perhaps wool?) despite the superior biological adaptations of goats to the climate and geography of these regions. The Neolithic "wooly" sheep figurine from Tepe Sarab, mentioned above, is also significant in this context.

However, most faunal studies point broadly to the Chalcolithic for the initiation of widespread management of herds for wool. For example, high frequencies of adult sheep suggest that wool production was practiced at Late Chalcolithic Hacınebi (Southeast Anatolia) and Rubeidheh (Iraq) (Gil Stein personal communication, 2010; Payne 1988). In western Iran, Davis (1984) has identified a general increase in the age at which caprines were slaughtered, suggesting increased use of wool in the Chalcolithic and Bronze Age.

Pollack has summarized faunal evidence for wool production in Chalcolithic Mesopotamia, where she interprets the high frequency of sheep at northern Uruk sites and colonies (e.g., Hacınebi, Hassek, Zeytinlibahçe) as evidence for wool production (for similar arguments see Anthony 2007). She cites biometric evidence for the appearance of a new "breed" of large-bodied, presumably wool-bearing, sheep in the region in the fourth millennium (also see Bökönyi 1974; Buitenhuis 1985; Chmielewski and Gardynski 2010; McCorriston 1997). In an impressive review of sheep biometrics in northern Mesopotamia, Vila (2002) suggests that important increases in the size of sheep took place in the Ubaid and Uruk periods. Although these increases in size may be related to the development of new "breeds," they may also be caused by the increase in adult males to be expected with widespread management of sheep for wool.

This brief summary shows that although indirect evidence may suggest the use of sheep fiber by the seventh or sixth millennia BC, evidence for the widespread and intensive production of wool and woolen textiles increases dramatically in the Near East and surrounding areas by the mid-fourth millennium (Payne 1988:114), corresponding to the rise of complex societies whose economies and elites were invested in the production of commodities such as woolen textiles for both internal use and external trade (Algaze 2008).

That wool production should be linked to the appearance of complex societies and inequality should not come as a surprise. Adams (1981:11) has stated that Bronze Age Mesopotamian civilization would not have been possible without the production of woolen textiles, and Algaze (2008) has argued that the centrality of the wool industry was also present in the earliest states in the

fourth millennium (also see Anthony 2007; Keith 1998; McCorriston 1997; Pollack 1999:109), when the earliest texts refer specifically to "wool sheep" (Green 1980; Nissen 1986; Szarzynska 2002).

It is well documented that in the Middle Bronze Age wool and woolen textiles were a central component of the Old Assyrian Colony system operating between central Anatolia and the northern Mesopotamian city of Assur (see Atici, chapter 11, this volume; Michel and Veenhof 2010; Veenhof 2010). Texts recovered from the houses of traders in the Karum, or trading "port," of the city of Kanesh in central Anatolia, describe the importation of high-quality woolen textiles from Assur and other parts of Mesopotamia as well as a brisk business in local Anatolian woolen textiles, particularly one called *pirikannum* (Atici, chapter 11, this volume; Michel and Veenhof 2010).

Although largely invisible archaeologically, the local trade in Anatolian wool was a major economic enterprise with contracts mentioning Anatolian palaces and Assyrian traders who moved quantities of wool in the tens of tons (Atici, chapter 11, this volume; Michel and Veenhof 2010), indicating just how large the fulling industry was by the Middle Bronze Age. The fact that Anatolian palaces were involved in controlling and taxing the movement of large amounts of wool again supports the intimate connection between commodity production and elites and the central role of wool within Near Eastern complex societies. Clearly the individual, institutional, and class-based systems of status, prestige, and wealth acquisition that developed in Chalcolithic and Bronze Age societies, including both states and complex prestate societies alike, were structured around controlling the production, distribution, and/or marketing of textiles and raw wool (Algaze 2008).

METHODS

Although a variety of methods have been employed to identify the production of wool from faunal remains (see above), the most influential has been Payne's (1973) modeling of the relationship between production goals and age of slaughter. These models show how maximization of wool production results in extreme delays in the age of slaughter of both rams and ewes, as visible through the aging of mandibular teeth. However, demographic patterns by themselves have limitations (Halstead 1998). Ethnographic work by Makarewicz (2011) with Mongolian pastoralists has shown that the delayed culling of adult caprines corresponds to the availability of winter graze rather than intensive wool production. In addition, Halstead (1998) has shown that sheep management that relies on traditional methods, such as the kill-off

of young males, produces enough wool, of good-enough quality, to meet household and local needs among subsistence pastoralists in rural Greece. In addition, Ur III texts studied by van Driel (1993) show that wool was certainly taken from sheep (shearing dates being a major calendrical referent) but recorded husbandry methods show no special emphasis on keeping adult males or especially aged animals. Thus Payne's model for identifying intensive wool production, or at least its typical application to faunal assemblages, is useful for identifying only a small portion of management systems that likely exploited wool and hair.

Because of the problems inherent in looking at only one zooarchaeological variable (e.g., frequency of sheep, survivorship, etc.), multicomponent analyses are needed to address faunal evidence for wool management. In this case, I focus on a combination of species-specific survivorship curves and biometric data. The importance of survivorship curves for identifying the delayed culling of sheep associated with wool production has already been described. In addition, analysis of the distal breadth of fused and unfused metacarpals, measurements that can be used to differentiate males and females (even among young sheep), can help us to identify the sex composition of those individuals slaughtered at younger (unfused) and older (fused) ages (Zeder and Hesse 2000). This use of both age and sex data is critical because it is the combination of elevated survivorship *plus* the presence of large numbers of adult males that Payne (1973) has shown is the key to identifying intensive wool production.

WOOL PRODUCTION IN CENTRAL ANATOLIA: THE FAUNAL DATA

Both survivorship curves and biometric data are presented for five sites in central Anatolia including Neolithic Çatalhöyük, Köşk Höyük (which includes both Early Chalcolithic [EC] and Middle Chalcolithic [MC] phases), MC Güvercinkayası, Late Chalcolithic (LC) Çadır Höyük, and the Middle Bronze Age levels of Acemhöyük (Figure 10.1; Table 10.1). These sites span a period from about 7400 to 1750 BC and reflect the transition from Neolithic and EC household-based societies, to increasingly complex and hierarchical cultures in the MC and LC, to the appearance of urban states in the Bronze Age.

At Neolithic Çatalhöyük, located on the Konya Plain, sheep were the most abundant domesticate. Survivorship values are low, with only 36 percent of sheep surviving past two years, indicating an interest in the primary products

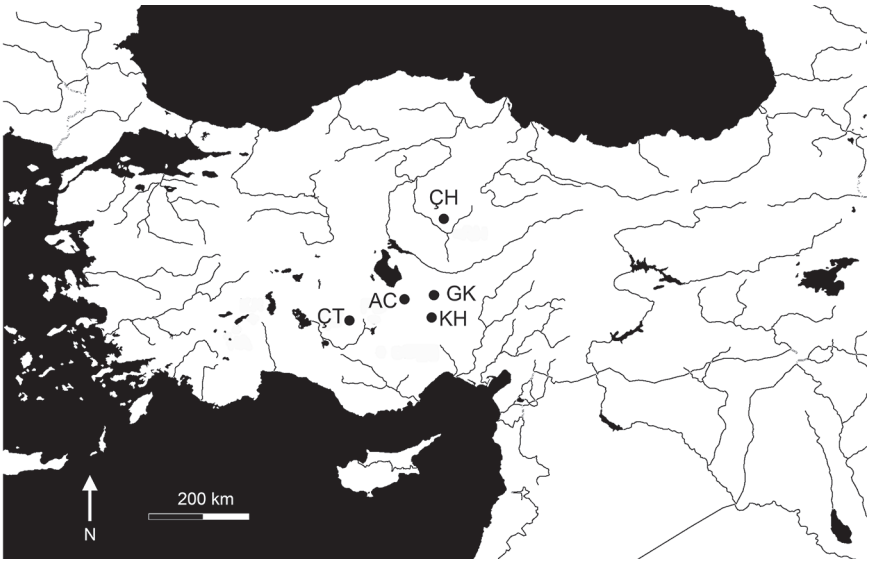

Figure 10.1. *Location of sites mentioned in the text. (AC = Acemhöyük, ÇH = Çadır Höyük, CT = Çatalhöyük, GK = Güvercinkayası, KH = Köşk Höyük.)*

Table 10.1 Chronological and cultural periods represented by the sites mentioned in the text.

Period	*Site*	*approx dates (cal BC)*
Neolithic	Çatalhöyük	7400–6000
Early Chalcolithic (EC)	Köşk Höyük V-II	6000–5500
Middle Chalcolithic (MC)	Köşk Höyük I	5500–4700
Middle Chalcolithic (MC)	Güvercinkayası	5500–4700
Late Chalcolithic	Çadır Höyük	4000–3000
Middle Bronze Age	Acemhöyük	2000–1750

of lambs as well as perhaps some milk (Evershed et al. 2008) (Figure 10.2). In addition, biometric data show a moderate imbalance between adult (fused) males and females with relatively few large males surviving to adulthood (Figure 10.3).

At EC Köşk, located on the eastern side of the Konya Plain, and where sheep were also the focal point of the pastoral economy, the culling of young sheep is even more intensive, with only 21 percent surviving past two years

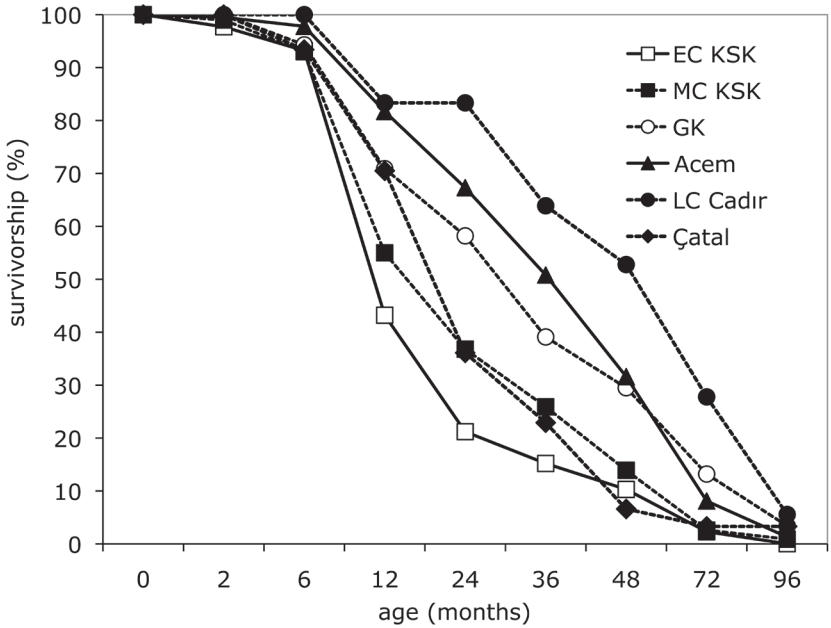

Figure 10.2. *Survivorship for sheep (all caprines for Çadır Höyük), based on mandibular-wear stages. EC KSK = Early Chalcolithic Köşk Höyük, MC KSK = Middle Chalcolithic Köşk Höyük, GK = Güvercinkayası, Acem = Acemhöyük, LC Cadir = Late Chalcolithic Çadır Höyük, and Catal = Çatalhöyük. (After Payne 1973.)*

(Figure 10.2). Biometric data indicate that adult males are strongly underrepresented, whereas the culling of young males is further supported by the large size of most unfused (young) specimens. Data from both the Çatalhöyük and EC Köşk reflect sheep-herding economies focused on household-level production of a combination of products, including meat and (probably) milk for local consumption.

The MC of central Anatolia is characterized by significant changes in the organization of the pastoral economy, as well as more broadly in the organization of society as a whole. Archaeologically, new settlement patterns emerge, with villages showing more centralized internal planning and variability in house size (Gülçur 1997; Öztan 2010). A portion of Güvercinkayası, a small MC site located just north of Köşk, functioned as a specialized storage facility complete with an enormous wall separating it from the rest of the settlement. Çaylı (2009) has suggested that the site functioned as a small, chiefly estate, and

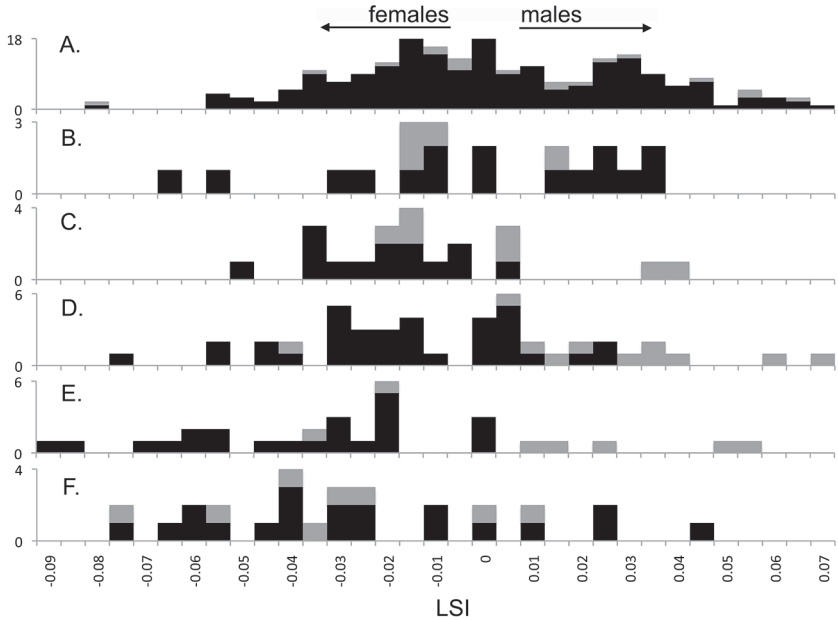

Figure 10.3. *Biometric data showing distal breadth (Bd) measurements for sheep metacarpals for both fused (black) and unfused (gray) specimens. A, Acemhöyük (all Log Size Index [LSI] values); B, LC Çadır Höyük (all LSI values); C, MC Güvercinkayası (metacarpal Bd); D, MC Köşk (metacarpal Bd), E, EC Köşk (metacarpal Bd); and F, Neolithic Çatalhöyük (metacarpal Bd).*

the storage complex, along with the presence of Ubaid-like stamp seals, copper, and imported painted ceramics, suggests the presence of a surprisingly complex and hierarchical political economy with elites capable of controlling significant agricultural, and perhaps pastoral, surpluses (Kiper and Gülçur 2008).

These changes in the MC social system are paralleled by changes in the organization of the animal economy. At MC Köşk and Güvercinkayası, sheep (and secondarily goats) increase in importance, dominating the animal economies at both sites (Table 10.2). Detailed analysis of the fauna suggests that the pastoral system became more specialized and mobile in the MC with herding activities increasingly taking place away from the settlement (Arbuckle 2012a; Arbuckle, Öztan, Gulçur 2009).

At MC Köşk, sheep survivorship was comparable to that at Çatalhöyük (Figure 10.2) and the size of unfused specimens indicates that males were

Table 10.2 Frequencies of the main mammalian taxa at five sites in central Anatolia. (Data for Çatalhöyük from Russel and Martin 2005.)

	sheep:goat ratio	*sheep / goat*	*cattle*	*pigs*	*equids*	*deer*	*other*	*total N*
Çatalhöyük	7.0: 1	61	17	4	12	< 1.0	5	–
EC Köşk Höyük	3.5: 1	59.9	11.1	0.6	23.2	1.4	3.8	1938
MC Köşk Höyük	3.3: 1	83	6.2	0.2	4.8	1.4	4.4	2444
MC Güvercinkayası	4.3: 1	81.4	6.3	1.6	2.6	1.7	6.4	1783
LC Çadır	1.3: 1	48.2	12	10.7	1.9	1	26.2	693
MBA Acemhöyük	1.9: 1	68	13.5	9.9	1.6	0.8	6.2	4771

disproportionately targeted for slaughter (Figure 10.3). However, biometrics for fused specimens show that, for the first time, a significant number of large, adult males were allowed to survive to adulthood, indicating an increased interest in the products of mature rams. Although it is possible that impressive, large-bodied rams were preferred for gift-giving or public sacrifices, it is equally possible that this change in management is related to an increased interest in harvesting wool.

Interestingly, at contemporary MC Güvercinkayası we see slightly different patterns. Survivorship data indicate a dramatic and significant (Kolmogorov–Smirnov, $p < 0.05$) increase in the age at which sheep were slaughtered, with 58 percent surviving past two years (Figure 10.2). Biometrics show that young males were again the target of the cull, but adult rams are not as well represented as at MC Köşk (although differences in the biometrics from MC Köşk and Güvercinkayası are not statistically significant, *t*-test, $p > 0.05$). Although this pattern may reflect biases related to the smaller sample size from Güvercinkayası, it may also reflect the fact that, given the extended survivorship of both ewes and rams, herders had sufficient opportunity to pluck the relatively small quantities of wool that they needed from their herds. Therefore, although wool was likely a product of increasing interest to MC herders at both Köşk and Güvercinkayası, it was certainly not a focal point of the pastoral economy. This is supported by the presence of modest, but not overwhelming, numbers of spindle whorls at both MC sites.

Data representing the LC of central Anatolia derive from the site of Çadır Höyük. Located in the Kanak Su basin of the Yozgat region of north central Turkey, LC Çadır represents a small emerging political and/or ritual center with evidence for public architecture, an enclosure wall, domestic and non-domestic structures, and a rich artifact inventory that suggests residents were involved in bead, lithic, and textile production (Branting 1996; Steadman, McMahon, and Ross 2007).

At Çadır we see evidence for changes in both types of faunal evidence relating to sheep management. Although the survivorship curve includes both sheep and goat mandibles, a result of small sample size, the data indicate a dramatic increase in the culling age, with 83 percent of both sheep and goats slaughtered after two years—the highest value sampled in this study. In addition, biometric data, in this case generated from a range of skeletal elements (as a result of the small number of metacarpals), indicate the presence of a significant number of adult rams, which account for approximately 40 percent of the adult specimens.

These patterns of extended survivorship, combined with the abundance of adult males, fit Payne's predictions for intensive wool production. They are also virtually identical to the patterns seen at MBA Acemhöyük, an urban settlement located just west of Güvercinkayası, where involvement in the wool economy is documented by both texts and a large sample of faunal data, which similarly fit the predictions of Payne's model (Arbuckle 2012b; Michel and Veenhof 2010:233) (Figures 10.2, 10.3). This suggests that in the fourth millennium BC, herders at Çadır organized their management strategies first and foremost around the intensive production of wool.

DISCUSSION AND CONCLUSION

Although the initial use of animal fibers may extend back to the Neolithic, the data presented in this chapter suggest that it was the fifth and fourth millennia BC that witnessed an increasing emphasis on the production of wool, with truly intensive production schemes evident in central Anatolia by the Late Chalcolithic. Thus in central Anatolia, as elsewhere, the emergence of wool-exploiting economies seems to be intimately linked with the rise of persistent and significant social inequalities.

In the Middle Chalcolithic the first hints of interest in wool are represented by increases in survivorship of adult-male sheep as well as an increase in the frequency of sheep at both MC Köşk and Güvercinkayası. These changes have been interpreted as reflecting the development of an increasingly intensive

and large-scale caprine pastoral system, and plausibly reflect a new interest in the production of wool, although there is no evidence to suggest fiber was a primary goal of herd management (Arbuckle 2012a; Arbuckle, Öztan, Gulçur 2009).

These changes also coincide with the replacement of the Neolithic-style, household-based system of the EC, as represented at Köşk II–IV, with a new social system characterized by the appearance of centralized planning, social differentiation, and emergent managerial elites. Although the scale of MC settlements remained small, they possess architectural and artifactual representations of hierarchy and inequality, and clearly represent an increase in organizational complexity that had not previously been seen on the central plateau. In particular, the specialized storage area at Güvercinkayası suggests that a new class of MC elites, possessing exotic artifacts such as metals and stamp seals, were able to control a significant amount of surplus agricultural production (see Çaylı 2009). In this context, it can be suggested that sheep, the dominant domestic animal in Chalcolithic central Anatolia, were also mobilized and controlled as symbols of prestige and status, and were actively used to produce wealth, including storable and easily transportable commodities such as wool (Algaze 2008).

If the fifth millennium marks the subtle emergence of a wool-exploiting economy in central Anatolia, it is likely that this transition did not occur in isolation. Data presented by both Vila (2002) and Sudo (2010) suggest that increased wool production may have been a feature of contemporaneous Ubaid-period economies in northern Mesopotamia. The fact that the few faunal samples from southern Mesopotamia dating to this period do not exhibit the dominance of sheep seen in northern sites suggests that the initial development of wooly sheep may have taken place in neighboring highland regions, perhaps in Anatolia (Algaze 2008; Anthony 2007; Davis 1984; Desse 1983).

Moreover, the fact that central Anatolian Chalcolithic sites share stylistic elements with both the northern Ubaid and the preceding Halaf traditions (Özkan 2001) suggests that the first stage of the emergence of wool production in the fifth millennium extended over a wide geographic area and was characterized by regular interaction between societies with increasingly complex social systems. This pattern of association between wool production and the rise of new social institutions across multiple regions foreshadows the emergence of intensive wool production in the fourth millennium.

The fourth millennium BC was a time of dramatic social and economic changes characterized by the rise of increasing inequality and interregional connectivity (Algaze 2008; Anthony 2007; Wengrow 2008). These social

changes, which include the appearance of the first state-level societies in Mesopotamia as well as hierarchical but less-centralized political systems in neighboring highland regions, seem to have had at least one broad feature in common. From eastern Europe to the Pontic region to central Anatolia and Mesopotamia there arose an increased interest in the production of wool. This "wool horizon" indicates that the production of wool and woolen textiles quickly became a central part of complex and hierarchical social systems characterized increasingly by emergent elites and inequality.

In Mesopotamia the spectacular rise of state-level societies on the southern alluvium is accompanied by the development of a specialized wool-textile industry (Algaze 2008; Pollack 1999). Wright (1989) has even suggested that the expansion of Uruk culture into northern Mesopotamia may have been at least partially stimulated by a desire for increasing access to wool. In the Pontic region, where the earliest direct evidence of woolen textiles has been found, the Maikop culture reflects the emergence of chiefly elites laid to rest in richly ornamented burials (Anthony 2007; Shishlina, Orfinskaya, and Golikov 2003).

Despite the less-spectacular evidence for social complexity on the central Anatolian plateau, the appearance of three tiered settlement hierarchies, the rise of small centers with public architecture, and the development of local manufacturing industries in the fourth millennium is also associated with a major reorganization of the pastoral economy toward the production of commodities, especially wool. The faunal pattern at Çadır Höyük, characterized by the slaughter of adult sheep and an abundance of adult rams—which both fits the predictions of Payne's (1973) model for intensive wool production and parallels the patterns seen at the Bronze Age center of Acemhöyük, with its documented links to the textile industry—suggests that wool production was a major goal of herd management in LC central Anatolia. This suggests the presence of sophisticated economies in this "peripheral" region and shows that the dynamic and competitive social contexts necessary for intensive wool production (i.e., intensive exchange networks and markets for wool and woolen textiles) were not limited to the urban sites or colonial enclaves in Greater Mesopotamia but were also present deep in the Anatolian heartland.

Perhaps surprisingly, this suggests that societies on the Anatolian plateau, a region long considered to be a cultural backwater in the Chalcolithic (Steadman, McMahon, and Ross 2007), were in the vanguard of some of the most consequential economic and political transformations taking place in the Near East in the Late Chalcolithic. It also suggests that sheep, with their unique combination of valuable primary and secondary products, played a unique and prominent role in the restructuring of inequalities that occurred

during the rise of complex societies in Anatolia and elsewhere in the Near East in this dynamic period.

Acknowledgments. I would like to thank Aliye Öztan, Sevil Gülçur, Sharon Steadman, Greg McMahon, and Ron Gorny for their support for the analysis of faunal remains from Köşk Höyük, Güvercinkayası, and Çadır Höyük. Pinar Çayli, Gil Stein, Emanuelle Vila, and Giovanni Siracusano kindly provided copies of papers and shared unpublished data. Richard Meadow, Levent Atici, Hitomi Hongo, Cheryl Makarewicz, David Meiggs, and the Niğde and Aksaray Museums also supported the research that this chapter is based on. Financial support was provided by National Science Foundation Grant BCS-0530699, the American Research Institute in Turkey, and the Vice Provost for Research at Baylor University.

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11

Tracing Inequality from Assur to Kültepe/Kanesh

Merchants, Donkeys, and Clay Tablets

Levent Atici

INTRODUCTION

Archaeologists often classify ancient societies using a set of criteria to determine whether the social organization of that society warrants the label "complex." Complex societies are usually stratified with differential and unequal access to positions of power, prestige, high status, and economic resources. The most characteristic aspect of a complex society is permanent and institutionalized inequality with vertical differentiation (Ames 2007:24). Identification of social complexity and inequality in the archaeological record, however, is not an easy task because of our vague understanding of the meaning of and relationships between diverse social, ideological, economic, and spiritual concepts and their reflections in material culture (Ames 2007; Stein 2008). Even so, researchers have conventionally used architectural, mortuary, and artifactual findings as material correlates reflecting social complexity and inequality in the spatial, spiritual, administrative, and technological organization of ancient societies in prehistoric times (e.g., Cohen 1998; Kuijt 2000; Plourde 2009; Trigger 1990).

The invention of writing in Mesopotamia during the last quarter of the fourth millennium BC enabled archaeologists to develop a picture of ancient societies and their patterns of social, political, and economic organization. With textual evidence added to their arsenal, archaeologists have been able to expand their ability to conduct research on the relationships between inequality and status, gender, and ethnicity.

In the Near East, the earliest archaeological evidence of social inequality and the interaction of various economic, social, and political units can be traced during

DOI: 10.5876/9781607322863.c011

the Pre-Pottery Neolithic B (PPNB; ca. eighth millennium BC; all dates calibrated) (e.g., Bar-Yosef 2001; Cauvin 2000; Kuijt and Goring-Morris 2002; Richerson and Boyd 2001). Institutionalized permanent inequality, however, emerged later during the Chalcolithic period (fourth millennium BC), when precursors of cities also first developed. Pronounced social stratification, centralized leadership, administrative bureaucracies, institutionalized decision-making systems, and specialized economies characterize forms of profound institutionalized inequality (e.g., Algaze 2008; Cowgill 2004; Frangipane 2010; Rothman 2001, 2004; Stein 1998).

Borgerhoff Mulder et al. (2009) show that economic systems and societies that attach more value to material wealth and that transmit wealth across generations have more pronounced inequality. Along the same lines, Acemoglu and Robinson (2009) argue that the nature of material wealth and the socioeconomic and political infrastructure determine and govern transmission of wealth. Material wealth such as land and livestock, institutions regulating property rights and security, and technology facilitating inheritability of wealth play a significant role in the establishment of permanent inequality (Acemoglu and Robinson 2009:679).

Zooarchaeological research engages with similar theoretical and methodological agendas and faces similar limitations and challenges as those outlined above. For the most part, zooarchaeologists adopt a paradigm that focuses on subsistence economy and consider animals as sources of both food and secondary products such as traction, milk, and wool. In addition to subsistence-oriented research, new zooarchaeological paradigms that consider the use of animals in social and political domains to infer status and power and to study ideologies, identities, religions, and ethnicity have emerged during the last two decades (e.g., Albarella and Serjeantson 2002; Bray 2003; deFrance 2009; Grottanelli and Milano 2004; Nelson 2007). In the Near East, researchers have archaeologically documented that food production, acquisition, redistribution, preparation, consumption, and discard patterns may be associated with socioeconomic and political status or rank, ethnicity, and religion (e.g., De Martino 2004; Hesse 1990; Hesse and Wapnish 1998; Kansa et al. 2006; Lev-Tov 2000; Sasson 2004). Such an endeavor, however, requires integrating multiple and independent lines of evidence such as artifacts, ecofacts, and the textual record.

This chapter reviews a large corpus of texts from Kültepe/Kanesh to establish relationships between patterns of animal exploitation and socioeconomic status, gender, and ethnicity at Kültepe/Kanesh during the Middle Bronze Age (MBA hereafter; ca. 2000–1750 BC) in central Anatolia (comprising

much of modern-day Turkey). More than 23,500 clay tablets from Kültepe provide us with a unique opportunity to test whether status-, gender-, and ethnicity-based inequalities correlate with animal exploitation during the MBA. Evaluating the textual evidence from Kültepe/Kanesh from an anthropological perspective can inform us on various aspects of human-animal interactions in the central Anatolian and Mesopotamian MBA and can help us to integrate multiple lines of zooarchaeological, archaeological, and historical data.

THE SITE

The archaeological site of Kültepe ("ash-mound" in Turkish), the ancient city of Kanesh, is located near the foothills of Mount Erciyes in the center of a fertile plain near Kayseri in central Anatolia (Özgüç 2003) (Figures 11.1 and 11.2). When the so-called "Cappadocian tablets" ended up on the antiquities market over a century ago, information consistently pointed to the Kayseri area and Kültepe as their source, leading to the first excavation campaign in 1893 and 1894 by Ernst Chantre, followed by intermittent excavations by Hugo Winckler and Hugo Grothe in 1906, by Bedrich Hrozný in 1925, and finally by Tahsin Özgüç of Ankara University between 1948 and 2005 (Özgüç 2003). Since 2006, new scientific excavations have been undertaken by Fikri Kulakoğlu.

Kültepe/Kanesh consists of a 21-meter-high city mound and fortified administrative quarter with palaces and temples, known as Kanesh, and a 2.5-meter-high lower city and commercial district, known as the *kārum* ("harbor") of Kanesh (Özgüç 2003) (Figure 11.3). The administrative quarter yielded a long cultural sequence with eighteen building levels from the Early Bronze Age to Roman and Hellenistic periods, whereas the lower city revealed four well-defined strata (Özgüç 2003). The most spectacular era of the *kārum* of Kanesh is represented by Level II and is referred to as the "Assyrian Trading Colonies Period," which dates between 1945 and 1835 BC (Özgüç 2003). One generation after the destruction of Level II as a result of conflict among Anatolian states, the *kārum* (layer IB) was reestablished and existed from 1800 to 1730 BC (Bryce 1985; Veenhof 2008).

KÜLTEPE/KANESH DURING THE MIDDLE BRONZE AGE

The Mesopotamian city of Assur (in present-day Iraq) established a sophisticated network of trading colonies in Anatolia during the MBA. Anatolia was

Figure 11.1. *Location of Kültepe/Kanesh.*

Figure 11.2. *Old Assyrian trade network in Anatolia.*

rich in copper but lacked tin, which was the main additive element used to make bronze; Assyrians monopolized the supply of tin from Mesopotamia to Anatolia via donkey caravans (Özgüç 2003). Because tin was most likely obtained from central Afghanistan, the overland trade network was international, extending from Afghanistan to Anatolia via Mesopotamia (Dercksen 1996; Veenhof 1995).

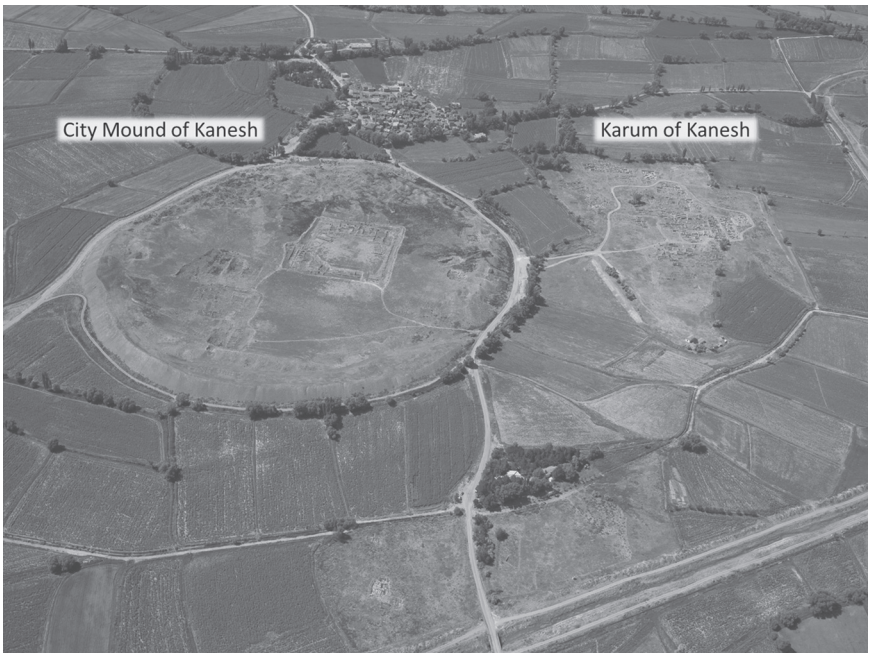

Figure 11.3. *City mound and kārum of Kanesh.*

In Larsen's (1987:52) words, "the Old Assyrian trade was quite simple: tin and textiles were sent from Assur to Kanesh to be sold for silver; this was sent back to Assur to be invested in new consignments of tin and textiles." Copper, silver, gold, precious metals, wool, and grain were other profitable commodities traded according to regional differences in supply and demand (Dercksen 1996; Gledhill and Larsen 1982; Veenhof 2010). A successful merchant could reap a gross profit of one hundred percent and could generate a net annual profit of nearly one hundred percent if two successful trips were completed, making the business lucrative for many Assyrians (Veenhof 1988:249).

Cuneiform tablets unearthed at Kültepe/Kanesh reveal that the central Anatolian plateau was politically divided into various independent city-states (Özgüç 2003; Veenhof 2003). There is clear and ample textual evidence for the presence of a hierarchy of settlements and sociopolitical organizations in Anatolia, as Assyrians explicitly referred to two types of commercial settlements, *kārum* and *wabartum,* the latter being subordinate to a neighboring *kārum* (Veenhof 1995:866). *Kārum* Kanesh was the oldest Assyrian colony and the administrative center and capital of the fifteen *kārū* (plural of

kārum) established by the Assyrians in Anatolia (Veenhof 2003). According to Veenhof (1995), the absence of political unity and of a shared economic policy in Anatolia empowered Assyrian merchants to negotiate with local rulers based on local political and economic interests. The political institutions of the Old Assyrian city-state included the city assembly, the house of the city, and the royal palace, whereas the *kārum* organization in Anatolia also included a bicameral structure with small and big men and the *bīt kārim* (the "house of the *kārum*" or the "city hall") (Dercksen 2000; Veenhof 1995, 2000, 2003).

The long-distance trade involved the city assembly and the house of the city (*bīt ālim*) from Assur, heads of the Anatolian branches of the Assyrian firms, wives and relatives of merchants in Assur and in Kanesh, Anatolian rulers and elite, and assemblies in Kanesh (Dercksen 2000; Günbattı 1992; Larsen 1977; Lewy 1958; Veenhof 1988, 1997, 2000). Despite the strong institutional involvement of the two city-states, Assur and Kanesh, and their bureaucracies, the trade was carried out by profit-driven private entrepreneurs and often financed by private investors and occasionally by such Assyrian institutions as *naruqqum*-partnerships, temple loans (*ikribū*), and credit (*be'ūlātum*) (Dercksen 1999, 2000; Larsen 1987, 2002; Veenhof 1987).

The rich textual record clearly and explicitly identifies the population of Anatolia as belonging to different linguistic and ethnic groups—Hattians, Assyrians, Amorites, and Hurrians—and provides evidence for emerging multiethnic interaction (Dercksen 1996; Veenhof 1995). The involvement of the Syria and Palestinian regions in this large-scale international trade system can be inferred by references to men coming from or going to places such as Tadmur, Ebla, Mari, and Tell-Leilan (Beitzel 1992; Bilgiç 1994; Gledhill and Larsen 1982; Günbattı 2004). Thus, a very complex picture of interaction among different populations with different ethnic groups, economies, polities, and patterns of social organization emerged during the MBA in Anatolia. Cross-cultural interaction between Assyrian merchants and native Anatolians was peaceful and amicable, since the trading network was not based on military expansion or coercive persuasion. Furthermore, a notable number of workshops spread across the *kārum* and well-documented mixed marriages suggest that Assyrians did not live in distinctly Assyrian neighborhoods or "community enclaves" in an unwelcoming society (Michel and Garelli 1996; Veenhof 1982).

INEQUALITY AT KÜLTEPE/KANESH

Even though the presence of multiethnic cities and towns, mixed marriages, and overall amicable relationships between Assyrians, Anatolians, and other

ethnic groups depicts a rosy picture of MBA communities, numerous Kültepe tablets allude to inequality, conflict, and very intricate relationships among different social, political, and economic units at Kanesh during the MBA. The presence of prisons and the incarceration and punishment of Assyrian merchants for smuggling goods to avoid taxes and fees owed to Anatolian rulers and palaces are well documented in the textual record (Riemschneider 1977). Letters between Assyrian merchants show that Anatolian rulers arrested Assyrian merchants, searched their houses, and confiscated their goods until redemption money had been paid (Balkan 1974; Riemschneider 1977). Çeçen (1990:142) noted that despite violating official agreements and smuggling goods, Assyrian merchants often requested an appeal process and demanded direct negotiation with the *kārum* of Kanesh.

In contrast, Anatolian kings and rulers attempted to avoid engaging with merchants directly and preferred to refer them to public institutions such as the *bīt kārim* (Günbattı 1996). The commercial involvement of Anatolian rulers and elites in formal capacities, however, blended public and private or individual and institution, and did not prevent powerful and influential Assyrian merchants from anticipating reciprocity, because they usually gave gifts and luxury items to local elites (Dercksen 2000). Moreover, the trade network was based on mutual interests, official agreements, treaties, and oaths sworn between powerful and wealthy Anatolians and Assyrians and their institutions. Thus, Anatolian supremacy in the military domain was balanced by Assyrian brilliance in the economic sphere (Veenhof 1982). As such, Assyrian merchants at times refused to accept the money offered by conciliatory Anatolian kings who satisfied merchants by offering additional incentives or extra money (Günbattı 1996).

Çeçen (1990:146) wrote that Assyrians merchants at times recruited men from *Mama*—an Anatolian town—to intimidate, threaten, and coerce other Assyrian merchants into resolving business-related disputes. This shows that the relationships between different social, political, and economic groups were chiefly governed by economic interests, and ethnicity was not the primary factor, since compatriot merchants often ganged up against each other to ensure higher business profits. Sever (1995:12) noted a functionary title, "chief of intelligence," indicating the presence of an organization that oversaw political affairs, coordinated activities, formulated new policies, and responded to shifting balances of power among independent city-states in Anatolia.

Despite the equality between Assyrians and Anatolian institutions and elites, many commercial contracts between Assyrians and non-elite Anatolians allude to vast economic disparities. Anatolians owned agricultural land and

produced the staple foods controlled by the palace of Kanesh and its tremendous administrative bureaucracy with more than forty official functionaries (Bilgiç 1963; Dercksen 2000; Donbaz 1996). Produce such as wheat and barley were the most frequently recorded foodstuffs in the texts (Albayrak 2003; Donbaz 1989a). Lewy (1956) postulated that the high prices paid for wheat show its value as the preferred food for the royalty and upper-class, including the commercial elite, whereas much lower prices paid for barley marks its function as the food of the masses and livestock. In addition to their regular consumption in large quantities as the staple foods, wheat and barley also functioned as capital in payments, interest on loans, and object of debts (Dercksen 2008b, 2008a).

Despite their principal role in local production and other economic activities, Anatolians usually appear as debtors for varying amounts of silver and other commodities such as grains, sheep, and cattle, and the rate of interest charged to Anatolians was often much higher than what was charged to Assyrians (Günbattı 1996; Veenhof 1982, 2010). Assyrian debtors had to pay 30 to 60 percent annual interest rate to Assyrian lenders, whereas Anatolian debtors would have to pay interest rates as high as 240 percent and provide securities (Sever 1995:146). Donbaz (1988:58) best exemplifies the economic situation at Kanesh:

> the indigenous population of Anatolia and its economic existence was at the mercy of the Assyrians . . . They [Anatolians] appear as witnesses, debtors or buyers—in all probability they were debt slaves who were sold temporarily, for they are kept as *erubbatum* until they were cleared officially in the presence of others who were not yet indebted or had already become free of such claims. No doubt, the Assyrians benefited from the existing situation in Anatolia.

Numerous tablets from Kültepe support Donbaz's remarks and show that many Anatolians were crushed under the burden of heavy debts. As a consequence, Anatolians were coerced to sell themselves, members of their families, or their entire families (e.g., Albayrak 1998; Balkan 1974; Bayram and Çeçen 1996; Donbaz 1988, 1989b). The institutional slavery at Kanesh was quite sophisticated, involving complex and often flexible terms and conditions for the repayment of debt, higher prices and interest rates for the redemption of freedom, and Anatolian officials as private investors or in their official capacity (Bayram and Çeçen 1996). Even though slavery was usually practiced between Assyrian merchants and Anatolians, numerous examples show the involvement of wealthy Anatolians in buying, selling, or releasing fellow countrymen and -women for profit. It is interesting to note that when Anatolians were

involved in slavery as buyers, women were in charge of purchasing servants or housekeepers (Donbaz 1996). Thus, financial hardship, not ethnicity, determined the terms and conditions of slavery.

The Kültepe archives also hint at gender roles and relationships in Anatolian society and in the city of Assur during the MBA. Detailed information on marriage arrangements and compensation (e.g., dowry and bride price) as well as betrothal of girls during childhood can be found in contracts made between Anatolians and Assyrians (Balkan 1986; Michel and Garelli 1996). There is also evidence for divorces, divorce settlements, and dissolution of marriages by formal declarations of rejection by both men and women (Albayrak 1998; Balkan 1986; Farber 2001; Sever 1995; Veenhof 1998). In addition, very specific codes and verdicts published by the *kārum* describe how a man should appropriately conduct and treat an adopted girl or a wife, including how he should provide his wife with food, oil, fuel, and clothing when not present at home (Veenhof 1998).

It is also clear from the marriage contracts and divorce settlements found in the private Kültepe archives that wealthy families were proactive in approaching their property and ownership rights judiciously to minimize financial losses and to prevent division of possessions if and when facing divorce and divorce settlements (Donbaz 1989b; Veenhof 1998). Even though the basic marriage type in Assur was monogamy, Assyrian law permitted Assyrian men to have two wives: an Assyrian lady from Assur and an Anatolian woman from Kanesh, or a second Assyrian wife residing at Kanesh (Michel and Garelli 1996:300). All of these suggest that women had some rights at least in marriage and divorce.

The Kültepe tablets show that Assyrians had specific rules of inheritance under the jurisdiction of courts, since all the available documents and testaments from Kanesh exclusively belong to Assyrians and we do not know much about the Anatolian side of the equation. One letter attests to conflict between two siblings regarding the division of property and the passing on of debts and obligations upon the death of the father (Albayrak 2000). Another letter details a struggle between a sister and her brothers upon the death of their father: the woman first writes to her brothers who are in Anatolia, then pressures her younger brother, who is in Assur, to obtain her share of inheritance. She then takes her claim to a court in Assur where a ruling is made that adjudication must wait until the brothers return (Albayrak 2000). Although at first glance this may suggest the practice of patrilineal succession in Assur, the evidence is not sufficiently conclusive to permit one to correlate patrilineal inheritance with gender inequality. The Kültepe texts amply show that women

assumed various roles as powerful patrons and active businesswomen representing the family firms in Assur (Günbattı 1992; Michel and Garelli 1996; Veenhof 1995).

ANIMALS AND INEQUALITY AT KÜLTEPE/KANESH

Information on the pastoral economy was partially and sometimes indirectly registered in the texts and can also be obtained from anonymous expense lists or shopping records as part of business transactions, farewell parties, or celebrations of visits (Albayrak 2003; Dercksen 2008a, 2008b; Donbaz 1989a). These records provide snapshots of the social lives of Assyrian merchants living in Anatolia alongside indigenous Anatolians. Furthermore, the patterns of animal consumption directly or indirectly reflect socioeconomic inequality and patterns of sociopolitical organization.

Sheep, cattle, and pigs were regularly consumed during the MBA at Kanesh (Albayrak 2003; Gökçek 2004). Despite the fact that mixed herds of sheep and goats were typical in Mesopotamian history, as attested in the faunal record, goats were not particularly valued, nor were they as visible in the texts, in contrast to the frequent mention of various prized sheep breeds that provided meat, fiber, and capital value (Gökçek 2004). Moreover, the Kültepe texts specifically provide detailed descriptions of cuts and carcass parts used such as breast, stomach, leg, and shank (Albayrak 2003). The purchase of sheep, cows, and pigs at varying prices has been amply documented. Gökçek (2004) listed a number of tablets revealing a complex and selective pricing policy for sheep involving the color of fleece, place of origin, quality of meat, body condition, and breed, with a price range from 1.4 to 4.6 shekels of silver per sheep. Cattle, with a much higher price range than sheep, were not only bought and sold, but also rented: 12 shekels of silver per animal for purchase and 0.8 to 3.5 shekels of silver for rental (Gökçek 2004:69). Besides buying live animals, residents of Kanesh also bought "cooked meat" for a price between 0.16 and 0.5 shekels of silver (Albayrak 2003). Dercksen (2008b:94) argued that only the privileged local elite and wealthier Assyrian merchants consumed meat regularly, as suggested by high prices paid for sheep and oxen. Some commercial contracts from Kanesh recorded the sale of diseased cattle at much lower prices, indicating that poorer Anatolian buyers might have been able to afford only cuts of beef from diseased cattle (Gökçek 2004).

Assyrians acquired meat through various direct and indirect channels, including purchase of live animals, or purchase of cuts of meat or cooked meat. Interestingly, the word for butcher does not occur in any text at Kanesh

(Dercksen 2008b: 96). Some texts specifically mention "fattened cattle," suggesting that backyard fattening of cattle for meat and fat, particularly by Assyrian merchants and their Anatolian wives, was a common activity (Albayrak 2003; Gökçek 2004). As such an activity most likely required additional resources such as time, dedicated space, labor, and fodder, backyard fattening of animals can also be associated with status-related economic inequality. Yet, there is no evidence for the institutionalized fattening of animals by the central administration, that is, palatial flocks (Dercksen 2008b). One record reads, "if the pigs are not fattened enough, sell them; if they are fattened keep them" (Albayrak 2003:64). Textual records also report the use of animal fat and lard, and rank different oil types as normal, fine, top quality, and bad quality (Albayrak 2003). Balkan (1979) noted that words denoting the subsoil plough and its parts or components (plough-heel or ploughshare) were usually included in contracts. This would indicate that cattle were mainly used in ploughing and as draft animals, reducing cattle's role in the "meat" or food domain. Along the same lines, there is not a single mention of the word *milk* or of other dairy products in the large corpus of Old Assyrian cuneiform tablets, despite direct and indirect references to various other aspects of the agropastoral economy (Albayrak 2003:65; Irfan Albayrak, personal communication, January 2011; Fikri Kulakoğlu personal communication, January 2011). Given that the Kültepe tablets usually directly reflect Assyrian commercial interests, the complete lack of milk and dairy products in the texts suggests that those products did not play a major role either in the domestic economy or in international trade (Atici, in press).

The creation of grain surpluses and the necessity to mobilize resources within the intra-Anatolian trade network involved the utilization of cattle to draw two-wheeled carts and four-wheeled wagons to haul heavy and bulk commodities. Cattle were thus indispensable in the production and redistribution of grain surplus, playing a central role in the establishment and maintenance of wealth and inequality. The high prices paid for selling, buying, and even renting cattle and associated equipment, vehicles, and services amply appear in the text.

Textual evidence suggests that the wearisome and frequent back and forth trips between Kanesh and Assur further stimulated the economy in both cities and in other colonies in Anatolia and Syria, creating a strong and active market for donkeys. Caravans at times included up to three hundred donkeys, some of which were overloaded and died en route (Michel 2002). Assyrian merchants usually bought black donkeys near Assur for 20 shekels of silver and sold them for 30 shekels of silver upon completion of their business in

Anatolia, keeping only sufficient numbers to make it back to Assur with gold and silver (Gökçek 2004; Michel 2002). Besides the utilization of donkeys (*Equus asinus*), Michel (2002: 192) documents the use and trade of an equid hybrid, *perdum*, translated as "mule." References from Kanesh suggest that *perdum* was a coveted and rather pricy equid, about four times as expensive as a donkey, and it offered a faster ride to those privileged and high-status individuals who could afford such an animal (Michel 2002:193). Unlike the pricy and faster *perdum*, the slower donkey, the beast of burden transporting commodities and people within the international trade network and between Anatolian towns, was associated with poverty, as such expressions as "do not even have a donkey to ride" are seen in the records (Michel 2002:193).

The fact that Kültepe texts specifically mention the trade of twenty-four kinds of common and twelve kinds of rare textiles that originated from Anatolia, Assur, and Babylonia indicates the presence of a highly developed and organized textile industry and large-scale sheep raising for wool in Anatolia during the MBA (Cebesoy 1995; Gökçek 2004). Other lines of direct evidence also come from the textual record, since several sheep breeds and palace functionaries such as "chief of shepherds" and the "shepherd of the queen" are mentioned in the textual record (Dercksen 2008a; Gökçek 2003; Lassen 2008).

Because wool was expensive in Assur, textiles imported from Babylonia and Syria along with textiles woven by Assyrian women were included into the shipments sent to Anatolia for sale (Özgüç 2003). There were also centers in Anatolia with native wool and textiles such as *Hahhum* (in southeast Anatolia) or *Luhusattia* near Kanesh (Özgüç 2003; Dercksen 2008a). Despite the competitive nature of local wool production organized by the *bīt kārim*, where wool and textiles were stored, Assyrian merchants played an active role in wool trade in Anatolia and exchanged wool for copper, as evidenced by a record showing the shipment of 630 kilograms of wool from Kanesh to another city in Anatolia (Dercksen 2008a; Özgüç 2003). The sheep shearing (*buqūmum*) period seems to have also been a period for repaying debt, further emphasizing the role of wool and textiles in the local economy and trade (Dercksen 2008a). Thus, wool was an important product and source of wealth that enriched the palatial enterprise, which controlled this critical resource to maintain the *status quo* and its inequalities.

The textual evidence shows that sheep, cattle, and pigs brought to Assyrians for "payment" were accepted in lieu of "money" (silver), showing that the use of livestock for "meat" was not the primary focus, at least not in the texts. Dercksen (2008b:95) noted the following examples: out of fourteen sheep received as payment, only one was slaughtered for immediate consumption,

with the remaining thirteen sold for 31.16 shekels of silver; out of eleven sheep received as payment, nine were sold for silver, whereas two were slaughtered for consumption. As such, livestock became a commodity and acted as a means of direct or indirect exchange with value (Dercksen 1996).

CONCLUSION

Assyrians and Anatolians established and administered a sophisticated international trade system interconnecting different geographic regions through the movement and exchange of complementary resources and profitable commodities. The major concern and priority of both Anatolians and Assyrians seems to have been the control of public and private land and of economic wealth, as attested by the presence of numerous institutions and individuals within a highly hierarchical framework from the cities of Assur and Kanesh. For this, the two cities were fully committed to protecting the administrative organization, entrepreneurial operation, and ideology behind the international trade network. The cattle-drawn plough and wagons, pack donkeys, and woolen fibers obtained from sheep played a substantial role in this system by creating and mobilizing surpluses and wealth on both a local and an international scale. Cattle and sheep also played significant roles supporting farmers, pastoralists, and craftsman in Anatolia, and were also actively bought and sold as commodities.

This chapter demonstrates how systems of animal management and exploitation played a central role in establishing and maintaining systems of inequality at Kanesh during the MBA. Meat was an expensive commodity that might have been consumed more frequently by local rulers, elites, and rich Assyrian merchants. Asymmetrical access to secondary animal products such as transportation is also evident by the high prices of mules: riding mules was a luxury enjoyed predominantly by Assyrian merchants and wealthy Anatolians. In addition, wool was under the tight control of the palatial system to protect the trade network and to legitimize the local political agendas.

I must reiterate that a very complex picture of interaction between various ethnic groups, economies, polities, and patterns of social organization existed during the MBA in Anatolia. I must also emphasize that socioeconomic status and power, not ethnicity, was the prime factor determining the degree of access to animal resources. Ethnicity seems to have been a fluid and flexible aspect of life and differentially negotiated by various individual agents operating in a broad sociopolitical and economic context, producing a "trade diaspora" (*sensu* Stein 2008) or "creole" (*sensu* Hawkes 1999). Conspicuous markers

of ethnicity-based inequality, thus, cannot be traced in the textual record from Kültepe.

I conclude by emphasizing that the review presented here has some inherent biases. The content of almost all Kültepe tablets reflects Assyrian merchants' private concerns and commercial interests. The information usually does not directly engage with indigenous people or reveal all aspects of the systems of animal production and consumption in Anatolia. As such, this chapter is only a start and merely an attempt to draw scholarly attention to textual records that concern animals and to stimulate further analysis and discussion of the nature of subsistence practices in a complex society. The next step is to analyze large faunal assemblages from Kültepe/Kanesh to initiate a dialogue between the textual and zooarchaeological records so that we can see how the zooarchaeological record confirms and/or supplements the texts.

Acknowledgments. I thank Norman Yoffee, Richard Meadow, and an anonymous reviewer for their comments on a previous version of this chapter. I also would like to extend a special thank you to Fikri Kulakoğlu, the director of the Kültepe Excavation Project, for generously providing the images for Figures 11.1–11.3. I thank Benjamin Arbuckle and Sue Ann McCarty for organizing a very stimulating symposium, where I presented an earlier version of this chapter at the 75th Society for American Archaeology (SAA) annual meeting in St. Louis, in April 2010, and for putting this exciting volume together.

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12

Animal, Human, God

Pathways of Shang Animality and Divinity

Roderick Campbell

"[P]eople inhabit a world that consists, in the first place, not of things but of lines. After all, what is a thing, or indeed a person, if not a tying together of the lines—the paths of growth and movement—of all the many constituents gathered there?" (Ingold 2007:5)

INTRODUCTION

In this short quotation Ingold raises three issues relevant to animals and inequality. First, in returning to the Old English etymology of *thing* as a "gathering" he suggests that the nature of things is not bounded and atomistic, but rather collective and interconnected. Second, in seeing people in the same terms he implies potential equivalence. Third, in conceiving both humans and things as tied-together paths of growth and movement, he asks us to consider the dimension of time and the potential for transformation. In what follows I explore these themes through a study of Shang human-animal interactions and their relationships to hierarchy.

ON INEQUALITY AND ANIMALS . . .

Both "inequality" and "animals" make reference to intertwined systems of classification. It has been noted by authors as diverse as Ingold (1988) and Agamben (2004) that definitions of animality are also, by implication, definitions of humanity. Indeed, it could be argued that most cultures distinguish whole ranges of agency, animacy, and potency: from the inanimate, the insect, and the beast through to the sage, the immortal,

DOI: 10.5876/9781607322863.c012

and the god. The common, organizing intermediary of these categorizations and point of reference is, of course, humanity. Moreover, humanity is generally not so much a point in this spectrum of being as an attenuated and contingent range. The demarcation between god, human, and animal is blurry, shifting, and shaped by local ontologies of order. The very order that justifies and maintains human inequalities also creates the categories that place some creatures below or outside its sphere and others above it. In this view animals are relational terms within hierarchical spectrums of being and agency linked to civilizing orders. If this is so, then rather than seeing animals as a fixed category of bounded things that humans use as resources or instruments of inequality, it would be better to follow Ingold's lead and see them as shifting nodes of interconnected properties and relationships.

I explore the territory of Shang animals and inequality along a network of linking and diverging pathways. These pathways lead through some of the central practices of Shang world-making. They follow the linked careers and phenomenological metamorphoses of five categories of thing: *ren* (people), *niu* (cattle), *lu* (deer), *chuan* (dogs) and *chema* (horse-chariots), through spectrums of animacy, animality, humanity, and divinity.

THE SHANG

The Shang is an archaeological culture of the Chinese Bronze Age, the second of the "three dynasties" in traditional Chinese history, and a period dating from about 1600 to 1050 BC. The narrative I present here is set in the Late Shang or Anyang period (ca. 1250–1050 BC), in and around the Shang royal center at Anyang, contemporaneously known as the "Great Settlement Shang." At 3,000 hectares, the Great Settlement Shang was one of the largest urban centers in the world in its time and the center of a hegemonic network of lineage polities that stretched over much of north-central China. The Great Settlement was ruled over by kings who portrayed themselves as high-lineage leaders of an ancestralized religious landscape and who conducted massive sacrifices and daily divination to secure the blessings and avoid the wrath of the ancestors and spirits of the land (Campbell 2007, 2009; Eno 2008; Itō 1996; Keightley 2000; Liu 2004). The Late Shang kings also conducted frequent military expeditions and large-scale hunts, which, along with sacrifice and divination, formed a suite of kingly ordering practices aimed at the domestication of the enemy, the wild, the dead, and the numinous (Campbell 2007; Fiskesjö 2001; Keightley 2000).

Below the Shang kings were lower-ranking members of the royal lineage and the leaders of other, possibly distantly related, lineages that served the

king or ruled their own nominally subordinate or openly independent polities (Zhu 1991). Low-ranking members of the various lineages would have made up the majority of the Late Shang population, and, indeed, make up the majority of the over 15,000 burials excavated thus far at Anyang (Campbell 2007; Tang 2004).

Although the exploits of Shang kings are recorded in later Chinese texts, the Anyang period is the first in Chinese history for which we have contemporaneous sources: the 50,000 or so fragments of inscribed royal divination on heated and cracked cattle scapulae and turtle plastrons known as the oracle-bones. The other contemporaneous epigraphic source are the ancestral dedications appearing on some of the ritual bronze feasting vessels that were the pinnacle of Shang technological, social, and religious investment (Bagley 1999; Chang 1983; Wu 1995).

Archaeologically, the Late Shang period is known from over eighty years of archaeological work at Anyang and hundreds of other sites across China. In addition to the palace-temples, royal tombs, and sacrificial pits discovered in the early twentieth century, in the last few decades, lineage cemeteries, workshops, and residential areas have come to light, contributing to a fuller picture of the Great Settlement Shang (Campbell 2007; ZSKY 2003; ZSKYAG 2009).

Ren 人 (Human/Person/Man)

The Shang morphemes designated by the graph *ren* cover a deceptively large range of uses from a semantically bleached, focus-related counter for "people" (Campbell 2000, 2004), to the neutral term for "man" (in both the gendered and ungendered senses), to a part of the king's self-identifying epithet, "I, the one man." The first three paths I would like to follow are of three different types of *ren*. They begin in different places, converge in the institutions of war and sacrifice, and then radically diverge in their trajectories.

First Pathway

Born as a low ranking member of a lineage in Long, one of the polities that dotted the Central Plains and surrounding regions in the thirteenth century BC, our first actor was a warrior, joining his lord in raids, skirmishes, and pitched battles against other polities and sometimes against the King at the Great Settlement Shang. Successful in battle, our actor gained symbolically and materially, taking heads and captives for the glory of ancestors and lineage.

His rise in the marketplace of honor and status was cut short, however, when he was taken captive and brought back to the Great Settlement Shang for sacrifice. As a warrior of the *Long Fang* he had had a name and had been part of a larger political force, but as a loser in the great social-political arena of Shang war, he had become a nameless captive, then mere sacrificial livestock, interchangeable with, but less valuable than, cattle (Campbell 2007, 2013; Hu 1974; Huang 2004).

If Shang war could be seen as a kind of protean and uncertain game played out at the edge of civilization's order, a radical (re)negotiation of statuses, relationships, and being, then sacrifice, its complement, can be seen as the renewing and order-bringing completion of the process at the heart of the polity. On one level, enemies were neutralized on the battlefield and then used as sacrificial capital to insure the support and blessings of the unseen and unreliable ancestralized forces of the world, but on another, the reduction process went beyond animalization to symbolic destruction. Whereas animal victims were generally consumed by fire or feast, buried whole or drowned—a giving or sharing of their lives and flesh—the vast majority of human victims were decapitated, *fa*, a fate apparently reserved for *ren*—a ritual punishment as much as an offering (Huang 2004).

Our first actor's pathway leads through the key Shang institutions of war to sacrifice and finally burial, perhaps as an offering in one of the thousands of sacrificial pits in the royal cemetery, as the animus of a major gate or foundation, or as one of the hundreds of decapitated bodies and skulls ritually provisioning a royal tomb (Figure 12.1) (Huang 2004; Li 1977). This pathway is also a series of transformations, from child to kinsman, to respected warrior, to nameless captive, to animalized sacrificial livestock, to symbolically destroyed body, to ritual deposit and animating force. This pathway of *ren* crosses that of other categories of offering at the locus of elite sacrifice such as *niu* (cattle), *shi* (pig), *chuan* (dog), or *yang* (sheep/goat) but diverges from most of them thereafter, terminating as ritual deposit rather than passing through the kitchen and the meal to the midden, or the workshop to a new life as a bone artifact.

Second Pathway

A second pathway of *ren* originates at a settlement allied to the Shang king. Our actor began life as the daughter of a local leader and, reaching womanhood, became a royal consort (*fu*)—a link in the web of kinship, marriage, and ancestor veneration that helped hold together the network of Shang hegemony.

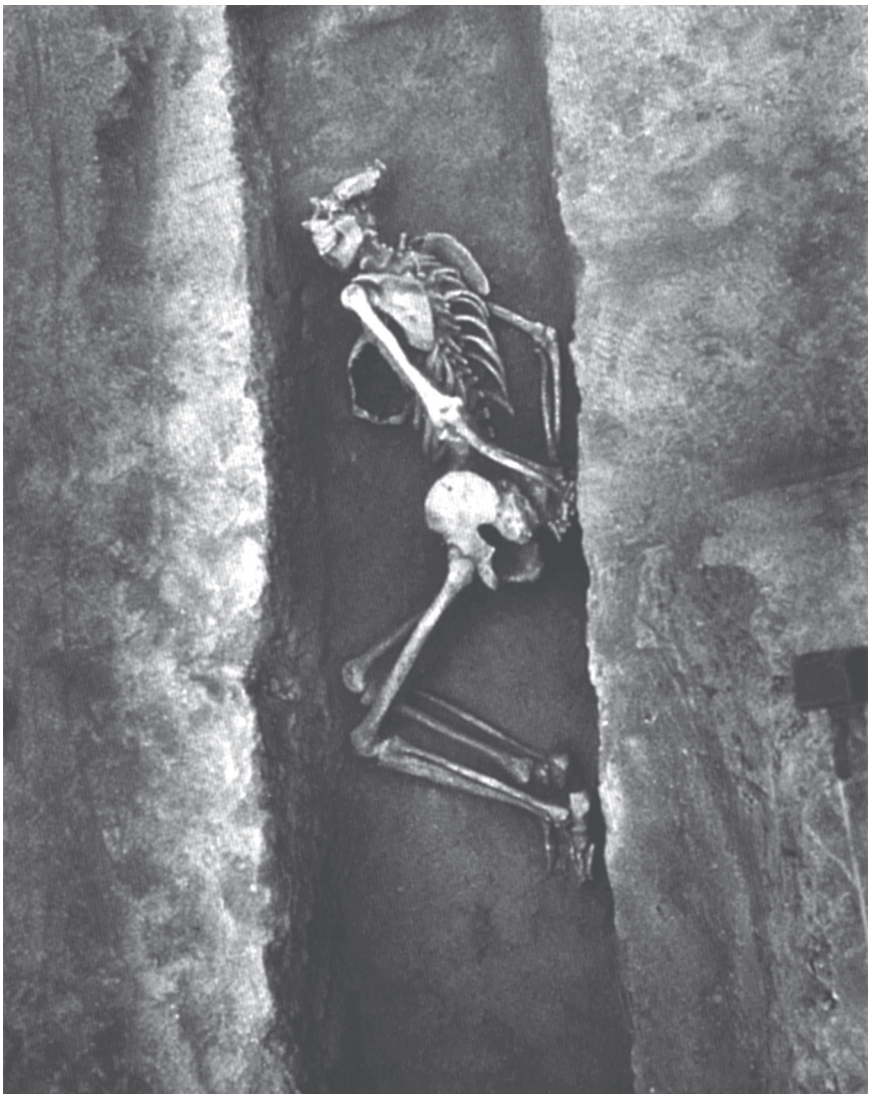

Figure 12.1. *Foundation sacrifice, Anyang, Xiaotun. (From ZSKY 2002:250, image 34.)*

She was also a special category of *ren*, being both *nü* (female) and *fu*, and was thus afforded lower status in the Shang hierarchy of being by being female (Keightley 1999), but was also raised by her birth and the preeminent status of her husband, the King. Furthermore, by producing male offspring she could

rise still higher, becoming perhaps the mother of a king and then a main-line royal ancestress at death—a minor deity—wielding a terrible power to curse or bless the living and their enterprises as their actions or gifts displeased or pleased her (Keightly 2000).

From regional center to the center of the world, this pathway leads out again to the borders of hegemony and the field of battle. Unlike elite women in later Chinese history, Shang *fu* could and did lead troops to war (Keightley 1999). Also unlike the common warrior of the first pathway, Shang leaders rode into battle on chariots, marking their elevated status and providing some enhanced measure of mobility and protection. Though battle could end the lives or transform the social careers of chariot-riding elites just as easily as foot soldiers, this particular pathway did not end on the battlefield or detour into captivity. Pitting against one another ritual favor, martial skill and aggregate, mechanically enhanced, animal fury, Shang war combined the divine, the human, the animal, and the material in a crucible of violence that dialectically transformed both the defeated and the victors, captives, and captors. Meeting as equals on the field of battle, the captured losers would be reduced to something less than human, the capturing victors elevated to something more. Thus our first and second paths converge on the battlefield and continue together back to the Great Settlement Shang transformed: the second actor's already-exalted being is further enhanced by mastery over foreign gods and warriors, and the first path, once a link in an ancestral chain, a named and honored warrior, is now an animalized captive who is soon to be consumed for the sustenance of enemy ancestors.

In addition to battle, the path of the *fu* crosses several other pathways and travels through key elite practices, including divination, sacrifice, and feasting. Though there is no evidence that *fu* themselves acted as diviners (as the kings frequently did), they shared with diviners the important task of ritually preparing cattle scapulae and turtle plastrons for divination. This act, the transmutation of animal bone into a medium for divining the will of the spirits and ancestors, could be undertaken only by certain potent individuals using only two types of bone: the scapulae of cattle and the plastron of the long-lived and wise turtle (Keightley 1978).

The path of the *fu* also led through major rituals, where the *fu* sometimes acted as principal protagonists, placating the ancestors and numinous powers of the land on behalf of themselves and their people (Zhu 1991). Successful sacrifice at once transformed the paths of sacrificial livestock from living animals into food for the gods and ancestors while simultaneously enhancing the potency of the sacrificer and her favor with the divine. Like war, sacrifice

was a dialectical machine violently mingling and transforming the paths of being that crossed it—its consummation propelling some participants down the spectrum of animacy and others upward toward divinity.

Our second pathway also leads through the central hub of feasting—whether in honor of the living or the dead—again a comingling of substance and crossing of paths as sacrificial flesh was shared and consumed, ties of obligation and patronage forged, and status reproduced. To be a Shang high elite such as a *fu* was to be a host and giver of feasts, to own elaborate sets of cooking, serving, and eating vessels made of costly materials such as bronze, lacquer, and ivory—vessels that were the pinnacle of technology and one of the most precious things one could own (Bagley 1999; Wu 1995). Who consumed what with what sort of implements was a crucial arena of Shang being. The paths of high elites like the *fu*, then, intersected others fundamentally as eaters, especially of cattle, wild game, and perhaps even humans (Fang Hui personal communication, 2010).

In a sense, the path of the *fu* through war, divination, sacrifice and feasting can be seen in aggregate as a series of events dialectically constructing and consuming animality to fuel its way toward divinity. Through death and mortuary ritual (two more transformations), this apotheosis could be completed. This second path led from high-born *nü* (female) through marriage to *fu* (royal consort) through battle, sacrifice, feasting, and childbirth to *mu* (mother/aunt) through death and burial to deified *bi* (ancestress)—object now herself of sacrifice (Figure 12.2).

Third Pathway

Our third pathway of *ren* began far to the north of the Great Settlement Shang. From childhood his path was intertwined with horse and chariot; coming to the Great Settlement as a youth, he served a Shang lord as charioteer. Horses and chariots were new to north China in the thirteenth century BC, apparently introduced from the steppe, but their spread was immediate and dramatic (Figure 12.3) (Bagley 1999; Piggott 1974; Shaughnessy 1988). From Shandong in the east to Shaanxi in the west, chariots and horses were suddenly everywhere, transforming warfare and hunting, and setting patterns of elite practice for the next five hundred years. Charioteering and its associated complex of horse raising and care, and chariot construction and maintenance, were neither simple technologies nor native to north China, and thus were likely the purview of nonlocal specialists, at least at first. The association of northern-type artifacts with charioteers and motifs on chariot fittings further

Figure 12.2. *Reconstruction of ancestral temple for a fu (Fu Hao), Anyang, Xiaotun. (Photograph by author.)*

strengthens the connection between chariots, charioteers, and the steppe (Bagley 1999; Lin 1998).

This third pathway of *ren* crosses the second in hunting and war, paradigmatic elite activities for which the horse and chariot, and thus the charioteer, were necessities. Text such as the *Zuo Zhuan* depict seventh and eighth century BC charioteers holding high status and enjoying close familiarity with their patrons as valued retainers who held their lords' lives in their hands (e.g., Duke Xuan, second year), a situation that likely did not differ from that of the Shang.

Going out from the Great Settlement with his master, the charioteer was on the third pathway, which leads again to war and again, in this particular case, to victory. Unlike the *fu* or other leaders, the charioteer was not a representative of peoples or ancestors, thus his stake in the game of battle would have been relatively smaller and closely tied to his own deeds on behalf of his master. His stake would also have been tightly linked to the total performance of the team of which he formed a part: man, horse and chariot. So closely were these interconnected, in fact—charioteer to horse, and chariot and chariot

Figure 12.3. *The afterlife of things: charioteer and chariot in Yinxu site-museum chariot display.*

team to master—that all would be laid to rest together upon death (ZSKY 1994). The master would have his own tomb but the charioteer, interred in a separate pit, would continue to serve in death as in life: inalienable from the horses and chariot with which his life and afterlife were intertwined.

These three pathways of *ren* (and of course there are many more possibilities) converged and diverged through key social fields, creating for the charioteer a dependent status with entangled aspects of animality, divinity, and human-animal-vehicle. Indeed, if the captive and the consort display trajectories toward different ends of the spectrum of being, the charioteer reminds us that being is distributed rather than atomistic—our world-integrated body-self is part of and dependent on a great many other animate and inanimate things to which we are networked (Latour 1993). Thus it is the *fu's* position in relation to the king, to her own lineage, to people subordinate to her and those defeated by her, to the ancestors and gods, to the myriad material media of her exalted status, and not least to the multitude of beings she consumes, that make her closer to divine than animal. The captive's relationship to others likewise makes him what he is and what he is about to become. With the

chariot burial, however, we not only see the possibility of one person serving another as tomb furnishing, but an intimate linkage of man to horse/chariot unit and their aggregate intermingled existence and agency.

CHEMA  (CHARIOT-HORSE)

The fourth and fifth paths, of *ma* (horse) and *che* (chariot) are intertwined ones, linked to the third path above but even more tightly associated with one another. So closely are horse and chariot joined with one another that the same counter word, *bing*, is used for both. In Old Chinese, *bing* 丙**prjangʔ*, the oracle-bone counter for horses and chariots, is a near homophone of *liang* 輛 (Old Chinese **b-rjangʔ*), the classical and contemporary classifier for vehicles that derives from the word for "two," or "a pair": *liang* 兩 (Old Chinese **b-rjangʔ*). Graphically, early forms of *liang* were merely a redoubling of the graph for *bing*, differentiating it from the reading of *bing* as a calendrical term (Baxter 1992:272; Takashima 1996:61–63), and emphasizing the sense of "paired thing." Thus horses were counted in pairs (or chariot teams) even as the chariots were counted as paired things (much like pairs of pants or glasses in English)—horse and chariot were very much seen as a compound entity. What is more, in the language of the oracle-bone inscriptions, only the quantification of humans used counter words in contexts of focus (Campbell 2000, 2004), so that "Qiang-captives, one person" is possible but "bulls, one animal" is not, indicating a higher place on the ladder of linguistic reference/animacy (Dixon 1979; Silverstein 1976). The one major exception to this rule, however, is the horse and chariot, so that "horses, one paired thing" or "chariots, one paired thing" is possible. This is one indication then, that chariots, though inanimate from our perspective, seem to be afforded a higher place in Shang linguistic hierarchies of animacy and reference than cattle, sheep, or pigs.

Shang chariots, much like others found around the edges of the Eurasian steppe (Anderson 2007), were composite creations of wood, leather, bronze, and horse—finely decorated, difficult to produce, and highly prized. They took kings and lords to battle and the hunt; indeed, they transformed these practices with their requirements of relatively flat, open ground and their potential for mobility and display. The royal hunt, for instance, for which there is no evidence before the arrival of the chariot, required the deployment of an army of beaters to drive game into an open area where the chariot-riding elite could dispatch them (Allsen 2006). Though we lack direct evidence for the structure of warfare before the arrival of the chariot, the structural requirements of chariot warfare would have created the form of battle seen in its twilight

stages in early Eastern Zhou texts like the *Zuo Zhuan*: enemy forces drawn up before one another on open fields.

The path of the horse-chariot then, perhaps beginning at the Great Settlement Shang, perhaps, like the charioteer, far to the north, leads to the center and to the heights of honor and prestige. Out again, intertwined with the charioteer, it takes its master to battle, perhaps crossing paths with the consort and the enemy. Unlike the paths of *ren*, however, victory or defeat on the battlefield would not radically change the status or trajectory of the horse-chariot (providing they came through intact): booty or vehicle of conquest, the status and prestige of the *chema* would endure.

The terminal stage of the horse-chariot has already been described above: death and burial for the team—prized possession unrelinquished by the passing and ancestralization of the master. Indeed, if our understanding of Shang beliefs about the afterlife are correct (Eno 2008; Hayashi 1993; Keightley 2000), interment was not the end of this path but a transformation into a numinous existence: once a chariot for the living, it would become a chariot for the ancestors (Figure 12.4).

CHUAN 犬 (DOG)

The sixth pathway is that of dog. In fact there are several paths for *chuan*. One short path begins at the Great Settlement or somewhere nearby where dogs were raised in large numbers, and then, upon reaching about a year of age, transformed into sacrificial flesh for the ancestors or spirit guards and companions of the recently departed. The paths of those headed for sacrificial use split into two: one led to intact interment in great sacrificial pits, sometimes with other animals, sometimes alone—their spirits perhaps sustaining or serving the ancestors in the afterlife. A second branch led to preparation as food, cooked and served in feasting episodes as the living hosted the ancestors and shared offerings of various kinds. Though it is unclear from the following oracle-bone inscription whether the offering of *chuan* was to be part of a feast or buried in the ground, the potential scale of royal sacrifice is not in doubt.

> Jiawu day cracked, offer to Father Ding dogs, one hundred; sheep, one hundred; (and) *mao-sacrifice* ten (head of) cattle. (*Heji* 32698)

Although some were apparently tied and buried alive, the *chuan* destined for the tomb were generally killed in some way that left no obvious signs on the skeletons, and then were carefully placed in "waist-pits" (small pits below the coffins of the tomb owners). Homologous with armed humans in

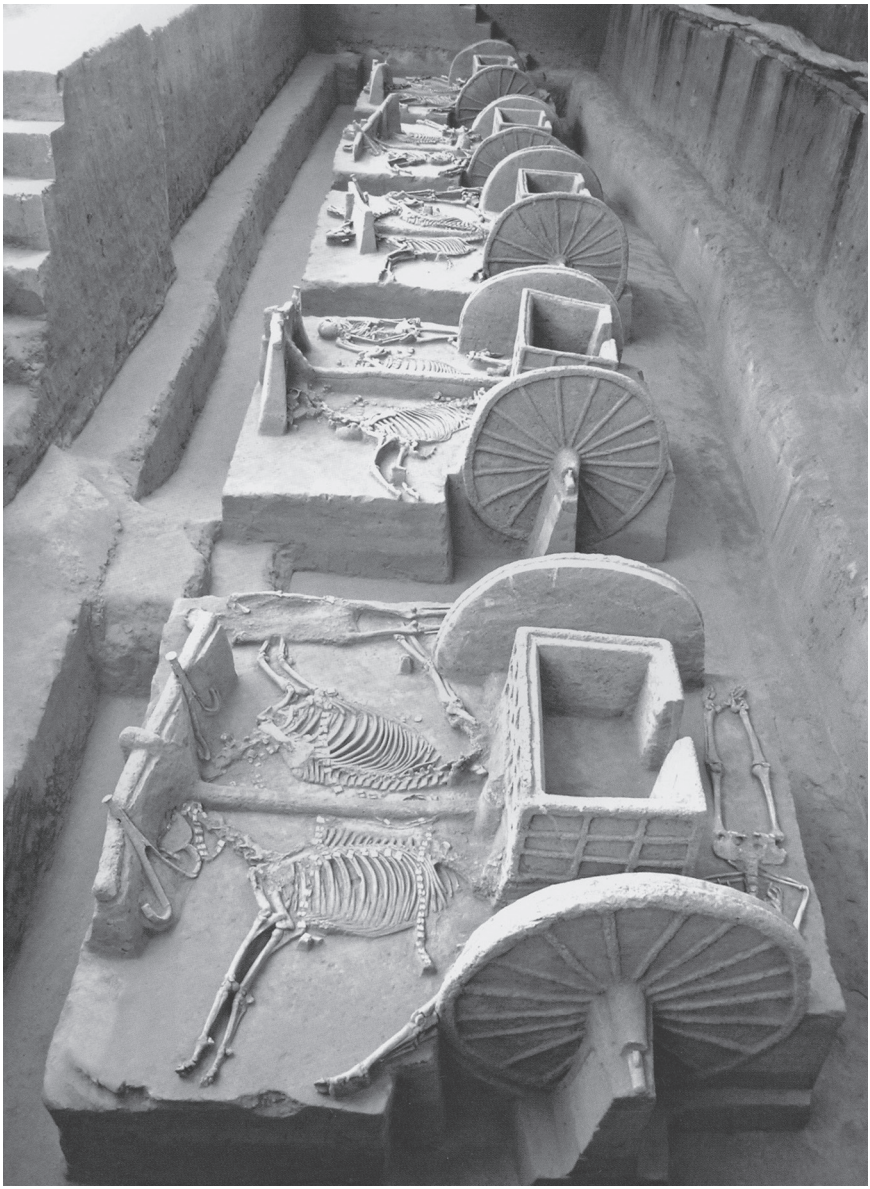

Figure 12.4. *Chariots of the ancestors: Anyang, Angang steel works. (From Shijie 2008:172, image 52.)*

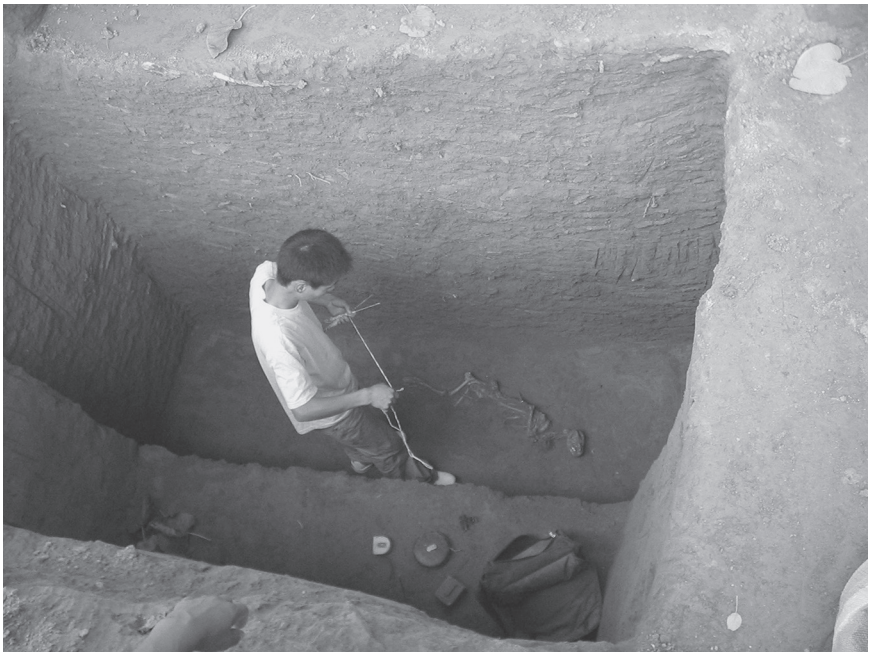

Figure 12.5. *A dog death-attendant with bronze bell on top of tomb chamber, August 2004, Sipanmo, Anyang. (Photograph by author.)*

high-elite-tomb waist-pits (Campbell 2007), these young *chuan* would serve their new masters in the afterlife as guards and perhaps in the hunt.

Another path of *chuan* begins in the dwellings of *ren*—growing up as guards and rat-catchers for their masters. This path might lead out of the settlement to the king's great hunts, assisting the beaters in surrounding and harrying the hunted into the open where the chariot-riding elites could dispatch them. This pathway, closely intertwined with *ren*, could also lead to the tomb of the master. These dogs were often older animals (and thus distinguishable from the yearlings), sometimes with bronze bells around their necks (Figure 12.5)—apparently treasured pets. These *chuan* were often placed on top of the coffin or perhaps on the tomb ledge for larger tombs, sometimes with younger dogs obtained specifically for this purpose. This path was closely intertwined with *ren*, but it was not *ren*. Instead a lower-status being became transformed with the transformation of the path on which it was dependent, and it continued to serve its master in the afterlife—structurally homologous to some human servants, but lower in status, and yet distinct from other classes of nonhuman.

LU 麓 (DEER)

The paths of *lu* traversed all the wild places of north China but one particular pathway began far to the southeast beyond the Great Settlement. *Lu* were one of three main types of deer identified in the king's hunting divinations, along with an antlerless deer, *ni*, and deer with prominent eyebrows, *mi*. *Lu* are generally identified with sika deer (*Cervus nippon*), *mi* with large David's deer (*Elaphure davidianus*), and *ni* with small river-deer (*Hydropotes inermis*) and/or some kind of muntjac deer (*Muntiacus sp.*), all of which have been identified from Anyang faunal assemblages (de Chardin and Young 1936; Fiskesjö 2001; Li 2009; Young and Liu 1949). In any case, this particular path begins in the wilderness near the lands of a Shang enemy. As such it was a living embodiment of the wild and potentially hostile powers of the land, the subject of divinatory concern, in addition to being a source of meat, bone, hide, and antler (Campbell 2007; Fiskesjö 2001; Keightley 2000). As *lu* avoided predators and grew to adulthood, their pathway of being intersected those of the charioteer, the chariot, and the dog on the battlefield of the royal hunt as the Shang king completed his victory over human enemies with a pacification of the spirits of newly conquered lands. With *ren* and *chuan* pursuing, the deer of the herd were perhaps caught in the open, along with many other beasts of the forest, between the beaters, dogs, and a ring of horse-chariots with their bow-armed masters (Fiskesjö 2001). On the day of the hunt this particular path was diverted from wild animality to subdued, symbolically charged flesh—evidence of the king's domesticating potency shared among those privileged to take part in the hunt. Although antler, meat, and perhaps hides were taken back to Anyang (or perhaps a nearer center) for consumption or processing into leather, awls, and arrowheads (Campbell et al. 2011), the head of this particular animal was defleshed and brought back to the capital where a commemorating inscription was carved into it (Figure 12.6), transforming it from an embodiment of wild, dangerous forces, to a subdued and consumed prize, to an inscribed memento of a hunter's success and favor with the king.

Aside from trophies like the skull, the path of the now disaggregated *lu* diverged as its meat was consumed by the hunting elites, the remains of their feasting activities apparent in the variety and quantity of wild taxa discovered in the early-twentieth-century excavations of the palace-temple area at Anyang (de Chardin and Young 1936; Young and Liu 1949), contrasting sharply with the relative paucity of wild taxa in residential assemblages (Li 2009). Antler on the other hand, made its way to several large-scale bone-working sites at the Great Settlement, where, in addition to cattle bone and

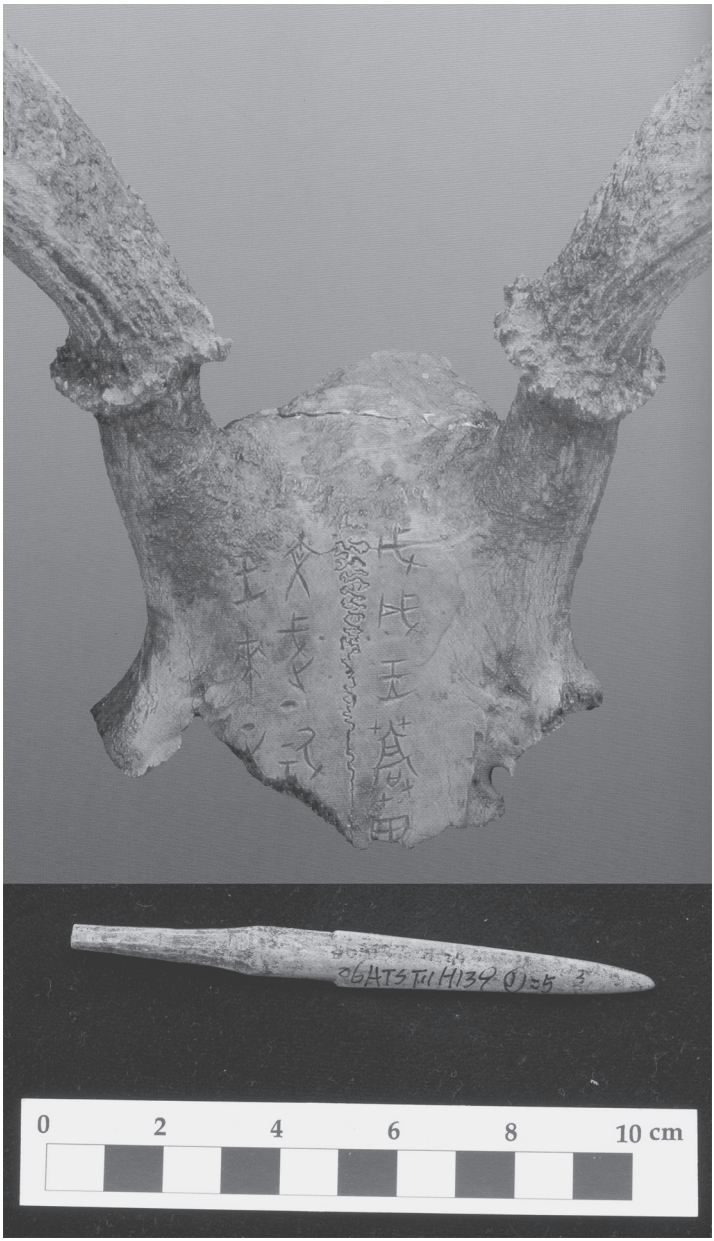

Figure 12.6. *Lu: (above) inscribed trophy-deer skull, Xiaotun, Anyang (from Shijie 2008:64, image 22); (below) antler arrowhead from the Tiesanlu bone-working site, Anyang (photo by author).*

boar tusk, it was worked into millions of artifacts (Campbell et al. 2011) that were then requisitioned, gifted, or traded to a wide range of consumers. The most common artifactual transformation of *lu*, ironically enough, were projectile points for use in future hunts, perhaps owing to the greater tensile strength of antler over bone (MacGregor 1985).

There are, moreover, other senses in which *lu* were intertwined with *ren.* Wild creatures such as *lu* were prominently displayed on Shang ritual bronze vessels and in jade, either as motifs or carved in the round. In this, *lu* shared its place with *hu* (tiger), *si* (water buffalo), *tu* (rabbits), and a variety of birds, as well as mythical creatures such as *long* (dragons). With the exception of the horse, which appears on bronze knives and chariot fittings of nonlocal "northern-type" tradition, the paucity of domestic animals depicted on ritual media is starkly contrasted with their near-exclusive use as sacrificial victims (Chen Xingcan personal communication, 2010; Fiskesjö 2001). The iconographically shared register with mythical creatures, along with the worship of mountains, rivers, directions, and winds, moreover, suggests a blurry line between the wild and the supernatural for the Shang, and that beyond the limit of the king's ceaseless domesticating practices of war, hunting, and sacrifice, the world was populated by dangerous and unpredictable beings.

NIU (CATTLE)

The last Shang pathway of being I wish to discuss is that of *niu* (cattle). Whether beginning nearby the Great Settlement, or at a distant locale, the path of *niu* in late-second-millennium BC North China led nearly inevitably to large settlements and frequently to the royal court at Shang. Small sites and large sites with elite sacrificial practices show a clear distinction in terms of their faunal assemblages: pigs predominate in the assemblages of small sites as they had for millennia before the Shang, but cattle become abundant, even more so than pig by NISP (number of identified specimens) in some cases, and certainly by meat yield in large, elite-dominated sites (Li 2008; Li 2009). In fact, at Anyang, cattle are the largest meat source even in residential areas not associated with elite activities (Li 2009). The paths of cattle depended largely on sex: around their fourth year of life, bulls intersected the paths of high-status *ren*, and then of gods and ancestors, at the nexus of sacrifice (Li 2009). They were usually offered in numbers of between one and thirty, but occasionally there was a great conjunction and transformation of paths as the following oracle-bone inscription suggests.

> Divined: (As for the) exorcism, (it) should be cattle (that are offered), three hundred. (*Heji* 300)

The offering sometimes involved drowning, burning, or burying *niu* (or *lao*, a type of cattle probably raised in pens) for the sole consumption of the spirits, but more commonly they were killed and used to host the ancestors while the sacrificial flesh was distributed among those present and then, perhaps in turn, further divided among lower-ranking individuals upon their return to their own areas. This latter possibility is supported by the enormous quantity of meat that major sacrifices like the one above would have produced (perhaps as much as 75,000 kg; Campbell et al. 2011) and by the abundance of cattle remains in non-elite contexts at Anyang (Li 2009).

The conjunction and transformation of paths in sacrifice changed all that passed through it. For the sacrificers there was potency and favor gained in successful interaction with the gods and ancestors, whereas the latter received sustenance and their due tribute. For the cattle there was a branching of paths into consumed flesh—mingling with the lines of *ren* and *zu* (ancestors) and transforming into bone (the raw material of divination and manufacture) as well as sinew, hide, and perhaps other resources of industry.

Following the path of the bone, it too splits into at least three branches. The first branch, cattle scapulae, led to the practices of Shang oracle-bone divination either of kings in the palace-temple precinct, or, more commonly, of lesser elites across Anyang. By some estimates, 90 percent of the oracle-bones were of the uninscribed, nonroyal type (Flad 2008). Those scapulae destined for royal divination intersected the paths of diviners and *fu* (royal consorts), who ritually prepared them (Figure 12.7). Once prepared, the scapulae would join turtle plastrons as one of only two media of royal divination through which everything from sickness, childbirth, and weather to warfare, sacrifice, and hunting success were divined (Keightley 1978). These royal oracular scapulae reached out to the gods and ancestors on the one hand and supported the sacred authority of the kings and diviners on the other. Inscribed with the record of the divinations, they were kept for verification and then interred in pits within the palace-temple precinct—numinous artifacts returned to the spirits of the earth, perhaps analogous to the later Houma covenant texts, which were also inscribed and then buried to seal their efficacy (Weld 1997).

Although the scapulae went to diviners, many of the limb bones, mandibles, and, to a lesser extent, ribs went to one of the Great Settlement Shang's four major bone-working areas. There, the mandibles were made into spades and

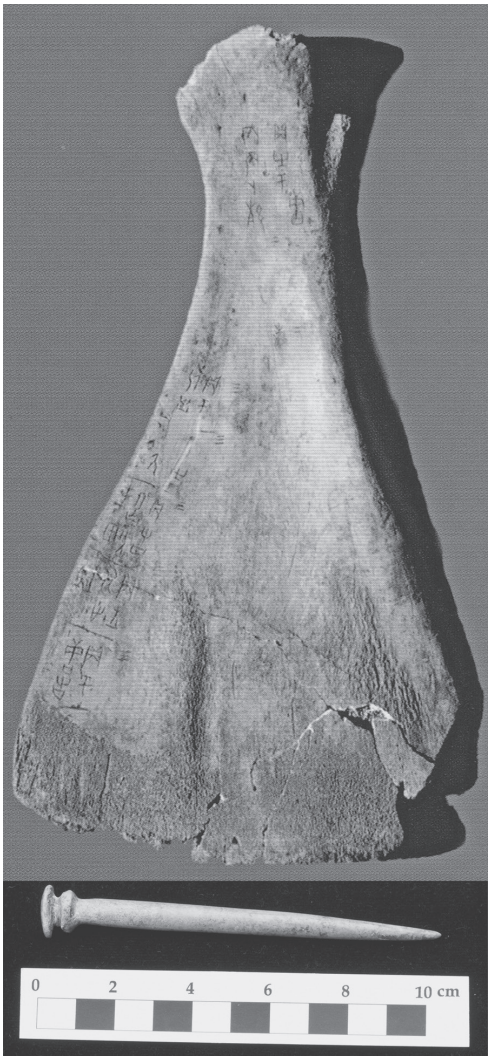

Figure 12.7. *Niu: (above) inscribed oracle-bone, Xiaotun, Anyang (from Shijie 2008:66, image 7); (below) hairpin from Tiesanlu, Anyang (photograph by author).*

the ribs into small plaques to decorate horse and chariot fittings or spatulas for elite feasting, whereas the limb bones were largely transformed into hairpins of varying sophistication (Campbell et al. 2011). The paths of finished cattle-bone spades and other tools passed through uncertain exchange mechanisms to find their way into broad circulation. Their paths led to agriculture and construction, where they were facilitators of both corvée and independent labor,

and they intertwined with those paths of *ren* closer to animality than divinity. The end of this path was breakage and discard. Spatulas on the other hand (whether of rib or humerus) were tools of feasting and signs of status. The finest were intricately carved and sometimes inlaid with turquoise or inscribed; the latter are usually made from the ribs of hunted animals like water buffalo, with the inscription commemorating the success of the hunt (Wang 2000). Their post-workshop paths led through the nexus of elite commensal feasting of the living and the dead, a path that, though transformed through death ritual, nevertheless continued in perpetuity in the tomb. Starting from the beginning, this subpath of *niu* was intertwined with *ren* of a wide spectrum of being, from lowly herders to high-elite sacrificers to craftspeople and returning again to consuming deities and elite feasters, but now as tool rather than object of consumption.

The path of hairpins (the most abundant product of the bone workshops), or rather the network of pathways, is even more complex as they were exchanged widely through diverse mechanisms, ending up, for the most part, lost or discarded in residential areas (Figure 12.7) (Campbell et al. 2011). These transformed paths of *niu* took a great many forms and ranged from simple to very complex in design. Their entanglements with various categories of people are even more complex, however, as hairpins do not seem to be part of the "basic package" of Shang burial, yet they occasionally occur with either sex. Although some elite Shang women were buried with matching sets of hundreds of fine hairpins—such as Fu Hao (ZSKY 1980), a "concubine" in royal tomb 1550 (Kao 1976), and a recently excavated, unpublished tomb (He Yuling, personal communication)—low-status burials could have quite fine examples and high-status burials none at all. This branched pathway of *niu,* then, leads through some still unexplained large-scale exchange mechanisms (or a vast network of small exchanges) from the workshop to Shang women and men of a wide variety of statuses.

Hairstyles, along with headgear and clothing would have been highly visible markers of social standing in a culture that demonstrates both deep-time traditions and contemporaneous concerns with highly ramified social distinctions. The graph for *fu*, for instance, has been argued (Qi̱ 2003) to derive from the elements for "woman" and an elaborate hairstyle with a hairpin. This path of *niu*, then, intertwined with that of *fu* and helped shape her aestheticized social-symbolic self by carrying on this entanglement in the afterlife. If the cattle-bone hairpins she owned were, in an important sense, a part of her social being, then this cattle/artifact-human fusion became an intertwining of animal/thing and deity upon her death and ancestralization:

from animal to thing to human symbolic self-extension to prosthesis of deified social being.

CONCLUSION

In disaggregating Shang things, animals, and people, and following their "paths of growth and movement" (Ingold 2007:5), we discover that the role of animals in inequality is complicated by the mutability of animality, humanity, and divinity. Rather than stable categories, we find ranges of perceived animacy and agency—shifting hierarchical and heterarchical arrangements of things that fundamentally organized the Shang world. Tracing the movement and transformation of people, animals, and things through key nodes of Shang practice, we glimpse a much more fluid and intertwined world, one which our own systems of categorization, reification, and purification (Latour 1993) obscure.

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13

Inequality on the Surface

Horses, Power, and Community in the Mongolian Bronze Age

Joshua Wright

The large, resource-intensive monuments of the Mongolian Bronze Age are often presented as demonstrations of elite power and territorial control (Allard and Erdenebaatar 2005; Fitzhugh 2009; Houle 2009; Houle and Erdenebaatar 2009). However, in this chapter, I argue that they can be interpreted as monuments that discourage inequality by commemorating events of social cohesion (see Bradley 1993, 1998; Edmonds 1999), and that the largest monuments are not monuments to hierarchy but are instead demonstrations of community solidarity and leveling mechanisms in a Bronze Age society in which models of social order were being negotiated by early nomadic pastoralists.

INNER ASIAN PASTORAL NOMADS

Ethnohistorically, Inner Asian nomads form a complex mobile society in which animals—primarily sheep, goats, cattle, and horses—are the foundation of wealth and are essential to nearly every aspect of human endeavor (Barfield 1993; Ekvall 1968; Erdenebaatar 1996; Fernandez-Gimenez 2000; Lattimore 1940; Simukov 2007 [1934]; Vainshtein 1980). Horses are of central importance and are used for transport, secondary products, and meat. Mobility, both in regards to human populations and herds, is a central factor affecting a range of decisions that pastoralists make related to kill-off choices, social landscapes, resources, time and scheduling, seasonal survival decisions, and knowledge about distant cultural landscapes. The human ecology of pastoral nomads is a key component of the argument of this chapter, particularly the unrestricted possibilities for mobility,

DOI: 10.5876/9781607322863.c013

the resulting utility of horses, and the necessity to organize social space on many scales.

THE MONGOLIAN BRONZE AGE

The Mongolian Bronze Age (ca. 2000–750 BC), the focus of this analysis, is a period characterized by the fluorescence of charismatic (following Simberloff 1998; Walpole and Leader-Williams 2002; also see Wright 2007) monument building in Eastern Inner Asia, and is the period of the adoption of nomadic pastoralism and horse riding. Its beginning is defined by the appearance of horses and bronze objects in grave monuments (Anthony 2007; Di Cosmo 2002; Mei 2000), and its end by notable shifts in monumental form and arrangement as well as historically documented shifts in the scale of political organization (Barfield 1989; Konovalov 2008; Minyaev 1985).

The Bronze Age is the period in which nomadic pastoralism became widespread in Inner Asia. By its end, in the mid–first millennium BC, we can reasonably say that many of the patterns we know ethnohistorically were present. Prior to this time, during the thousand years spanned by the Bronze Age itself, the nature of pastoralist practice is less clear. As the most common remains of the Bronze Age, monumental sites are a way to start looking at the role that horses played when the cultural landscape included new pastoral-agriculturalists (perhaps migrants with new technologies), a powerful new social order, and pastoralists only a few generations away from being hunter-gatherers (Anthony 2007; Fitzhugh 2009; Houle 2009; McKenzie 2010; Weber 1994).

THE MONUMENTS

The archaeological record of Inner Asia is primarily a record of historic and prehistoric mobile populations and is dominated not by domestic structures but by monuments. Monuments provide a physical record of memory and past activities, create meaningful places, communicate information to observers (see Bradley 1993, 1998), and frequently serve as repositories for bones and—less commonly—items of value. Because of their robust and enduring nature, and the necessity for many people to be involved in their construction, monuments communicate enduring concepts of social order. Their spatial organization and structure, arrangements into groups, intervisibility, positioning in relation to productive areas, and so on, makes them defining features of the social and economic landscape. They can communicate a wide range of information to people familiar with them, including the importance of a

locale; memories of events that took place at the monuments, including their construction, reconstruction, and modification; and a sense of local cohesion that ties people and architecture into a common phenomenon of monumentality that reaches beyond the immediate region.

Many interpretations of the monumental landscapes of Eurasia depict them as landscapes of inequality (following Wilkinson 2003). These are landscapes in which there is a pervasive experience of hierarchy, in which the most important cultural manifestations are distinctly related to a hierarchy in which observers know where they stand. Applying this characterization to the monumental landscape of the Mongolian Bronze Age specifically, stone monument sites of different sizes are interpreted as direct representations of hierarchy among the people who built them. Smaller monuments are associated with larger ones, giving them status and lineage affiliation. Large mortuary zones mark central places in the geography of Bronze Age chiefdoms (Allard and Erdenebaatar 2005; Fitzhugh 2009; Houle 2009; Houle and Erdenebaatar 2009; Humphrey 1995).

This "inequality scheme" is contingent on acceptance of a hierarchical mobilization of labor and alienation of wealth in monuments. At the core of the inequality argument is the notion that large monuments are built as monuments to the power of an elite class, particularly their ability to command labor and consume animals, especially horses. There are, however, reasons to believe that this was not the case and that the landscape of Bronze Age Mongolia was not a landscape of inequality.

An alternative to the inequality argument is that many monuments, including most of those that consume horses, were built primarily as mechanisms to strengthen community solidarity and to discourage inequality rather than to solidify hierarchy and difference. To make this "solidarity argument," I first highlight the difference between human burials and the places where horse remains are found. I then examine the parallels between these monuments and the active use of these spaces and suggest that monumental contexts are signifiers of living horses and thus recall events that, because of the nature of the monuments themselves, are community, not hierarchically, oriented. Horses are the key element of this monumental landscape because they are essential for the mobility of early nomadic social relations.

CONTEXTS IN WHICH HORSES ARE FOUND

Inner Asia monuments are typically glossed as mortuary structures, or structures that contribute to mortuary constellations. Many monuments are

graves, but the bodies that are really required for monumental construction and continued use of monumental sites are not humans, but animals—most notably horses. The practice of horse-head burial spans the entire Bronze Age (Allard and Erdenebaatar 2005; Fitzhugh 2003; Hall et al. 1999; Houle 2007; Torbot et al. 2003). Several analyses of horse remains excavated from different contexts around north and central Mongolia show a wide demographic profile for the animals (Allard and Erdenebaatar 2005; Fitzhugh 2003); no particular age or sex group is preferred for any particular type of interment.

As archaeologists we expect to find distinctive, patterned, faunal deposits within monumental structures, and it is reasonable to say that the monument builders in the Bronze Age also knew what kinds of animals were hidden beneath the surface features of monuments. For any nomadic pastoralist, that knowledge immediately links those structures with both the active symbolic and social value of the animals and their economic worth. The place of horses in monuments is a record of their place in the social order and a reminder of their central importance in mobility—the key to the survival of all nomadic pastoralists.

The data that are the basis of this discussion are drawn primarily from two intensive regional surveys in Mongolia (Figure 13.1): The Egiin Gol Survey and the Baga Gazaryn Chuluu Project (Amartuvshin and Honeychurch 2010; Erdenebat et al. 1999; Honeychurch et al. 2009; Torbot et al. 2003; Wright, et al. 2007, 2009; Wright et al. forthcoming). Because these are primarily surface-archaeology projects, interpretation proceeds by the comparison of surface remains with a small sample of excavated features. As a result, the discussion here is not about faunal remains, but about the contexts in which those remains may be found.

Horses, particularly horse crania, are found in three distinct but overlapping Bronze Age monumental contexts. Monuments of the first type are slab burials (Figure 13.2a). These are quadrilateral burial monuments about four meters long in their longest dimension, and they consist of large stone slabs standing on edge. They contain shallow burial pits holding the remains of one to three human skeletons, one or more horse heads, and occasional post-cranial horse remains along with bronze objects, ceramics, and pieces of saddlery (Csorba 1996; Erdenebaatar 2002; Mandelshtam 1983). These represent the first unequivocal appearance in the archaeological record of horse-riding nomads and burials that include both humans and horses in Mongolia.

Monuments of the second type are known as deer stones (Figure 13.2b). These distinctive, carved standing stones, showing animal-human forms, abstractions, personal equipment, and domestic and wild animals, are found

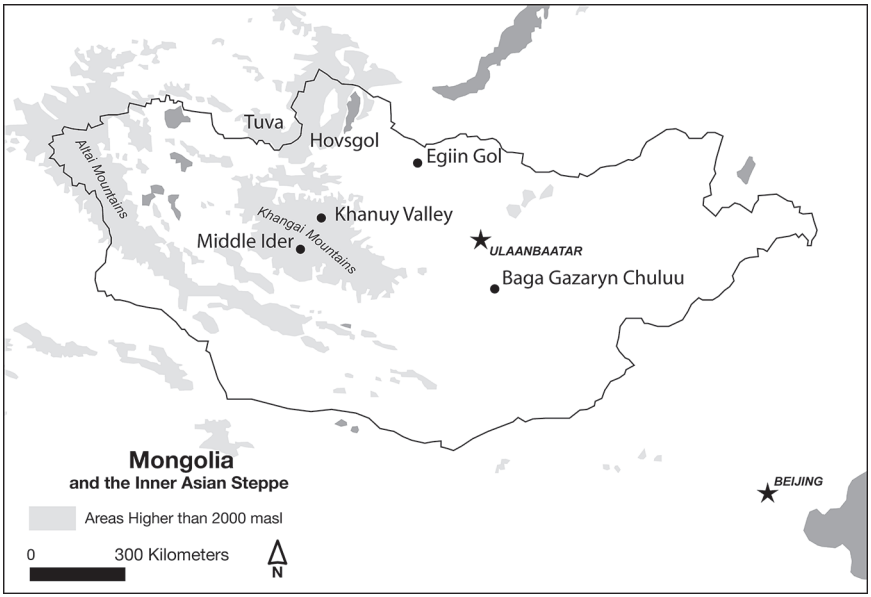

Figure 13.1. *Locations discussed in the text.*

over a wide area of Eastern Inner Asia (Jacobson 1993). They rarely occur in isolation. Deer stones occur in groups and also are accompanied by other monumental stone structures. It is in these other structures, usually buried beneath small satellite mounds, that horse crania are frequently found (Fitzhugh 2009; Takahama and Hayashi 2003).

The third context for Bronze Age horse interments is a type of monument known as a *khirigsuur* (Figure 13.2c). These are central stone mounds surrounded by stone alignments and smaller mounds. Though there is regional variation, the central mounds are in the range of ten meters in diameter, and the total width of the alignments is thirty meters or less. Horse heads are found buried in structural components of the monuments and in satellite mounds much like those at deer-stone complexes. It is khirigsuur monuments that are the focus of this discussion because they are most variable in final form. Though the majority of them do not contain human remains or grave goods, they are frequently interpreted as burials or cenotaphs with their surrounding elaboration and scale indicative of the status of the deceased.

Within khirigsuur and deer-stone complexes, satellite mounds are the most common place that horse remains are found (Figure 13.3). Although not all satellites contain horse crania, based on many different excavations in

Figure 13.2. *The three major monumental contexts in which horse crania are found: (a) slab burials, (b) deer-stone sites, and (c) khirigsuurs. (Photos by author.)*

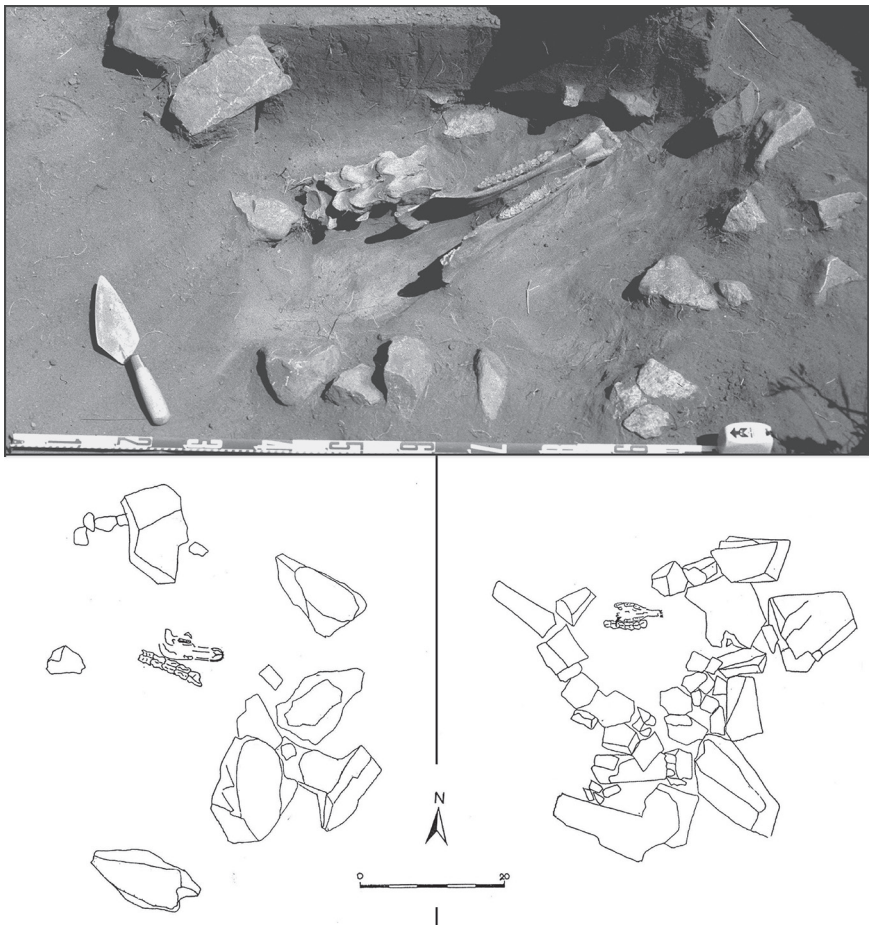

Figure 13.3. *Excavated satellite features from Egiin Gol. (After Eredenebaatar 2002; photo by author.)*

Mongolia, and excluding exceptional cases (see below), one-third to one-half of these satellites contain horse crania. Considering the two most complete data sets discussed here, from Egiin Gol and Baga Gazaryn Chuluu (Table 13.1), the average number of satellites per khirigsuur is five to six, which suggests two or three horses per monument, with extremes reaching to fifteen to twenty animals.

It is important to note that all three types of monument can coexist in a monumental complex alongside one another. Also, in terms of the labor

Table 13.1 The range of khirigsuur satellites from two intensive survey areas in Mongolia.

Survey Region	*Average Satellites per Khirigsuur*	*Khirigsuurs with Satellites*	*Total Khirigsuurs*	*Maximum Satellites Mounds*	*Total Satellites*
Egiin Gol	4.9	121	238	33	588
Baga Gazayn Chuluu	6.3	140	318	40	887

investment, measured by the amount of stone moved to build them, each of these three monument types is within the same range. Khirigsuurs are the largest monuments, but slab burials require larger individual stones, and deer stones themselves would have required the acquisition of the appropriate stone and its carving and polishing.

All of these typical types of structures can easily be modeled as having been built by groups as small as twenty people. Where differences emerge is when monuments of vastly different sizes are considered. Although there can be large groups of slab burials and deer stones, it is khirigsuurs that can grow to tremendous size, and these larger monuments would have required the mobilization of a greater labor force to build.

VEHICLES OF INEQUALITY?

When one considers examples from later chronological periods in Inner Asia, or the Kurgan burials of the western steppe (Anthony 2007; Askarov et al. 1992; Chochorowski and Skoryi 1997; Crubézy et al. 1996; Cugunov et al. 2003; Davis-Kimball et al. 1995; Jisl 1997; Rudenko 1970), the horses associated with Bronze Age burials in Mongolia are easily interpreted as precious objects put into graves or sacrificed in large events to demonstrate the wealth and power of a chief and the loyalty that chief commanded in life. This interpretation is a compelling one because horses are often associated with a militaristic Bronze Age elite. In historically known periods such as the Uighur and Mongol Empires, rulers controlled huge herds of horses for aesthetic and political reasons (Cleaves 1982; Mackerras 1973). Horses are also key to elite ritual in the early history of Central Asia (Anthony 1995; Mallory 1989).

Horses consumed in monuments are often interpreted the same way, as rare and exotic preciosities or objects requiring large amounts of labor to produce. But there are fundamental differences if we consider analogies between ethnohistoric, modern and Bronze Age horse-riding nomadic pastoralists. In

ethnohistoric cases, horses are also common, quotidian tools—everyone has access to them. Horses are sources of metaphor, foundations for many types of social rhetoric, and vehicles for social action. To own many horses gives power to an individual and that individual's associates through secondary products, acclaim through exceptional animals, and the possibility of charity and largesse. But they are not really wealth in the sense of the possessions or trappings of the elite that we see in other Central Asian mortuary traditions. Economically, horses were household resources for everyone, producing primary and secondary products (milk, meat, bone, etc.) familiar from the Neolithic and Eneolithic of Central Asia (Benecke and Driesch 2003; Olsen 2003, 2006; Outram et al. 2009). They are also useful for the production of wealth through the herding and scouting that is required to maintain large herds of sheep, goat, and cattle (Anthony 1998, 2007), and they are central for the everyday mobility that holds together Inner Asian nomadic pastoralist society.

Following these more egalitarian examples of horse usage, in which they are considered as a central element of everyday social and economic existence, and not a form of alienable wealth, what do we see in the Bronze Age archaeological record? In Bronze Age slab burials, horse crania occur in small numbers, and there are no burials directly accompanied by exceptional numbers of horses. Furthermore, most horses in Bronze Age monumental groups are not hidden within the monuments but are arranged visibly as part of the monumental group. Unlike most other mortuary traditions in Eurasia, these arrangements make the horses cognitively accessible to people using the monuments and offer a model of social order in which horses are a central and active part.

Arguing that horses are not wealth but are instead common, valued, and central parts of everyday experience is not to suggest that horses were not sacrificed as an important action related to cosmological views and models of mortuary order. This view of order was not one centered on hierarchy but on the affirmation of common experience in a mobile world in which humans and animals interact within a landscape made up of subsistence resources and monumental structures. In the domesticated sphere, only horses and humans move freely around this world; when the people gather, horses gather with them.

KHIRIGSUURS AS INDICATORS OF COMMUNAL ACTIVITY

Khirigsuurs with only a few horses buried with them are clearly locales where groups of people, perhaps extended families, could have gathered to

build a monument and demonstrate their commitment to the social and cosmic order represented by that monument. In the process they gave up some of their livestock. The many thousands of these structures throughout Mongolia and southern Siberia suggest that this was a common experience of the Bronze Age.

However, there are a few much larger monuments that required the consumption of many more horses than the average, and these monuments form the center of the argument for a hierarchical organization in Bronze Age Mongolia (Allard and Erdenebaatar 2005; Houle 2009; Houle and Erdenebaatar 2009). To approach the largest monuments, we must first discuss more ordinary khirigsuurs in some detail. The form and potential on-the-ground experience of a khirigsuur shows us the place that horses held in the uses of these monuments. Khirigsuurs are the most common locus in which horse remains are found and most are similar in their general components. Across the region there are tens of thousands of them; studies of different scales have been carried out in the lower Egiin Gol and Baga Gazaryn Chuluu in Mongolia, as well as in Hovsgol Aimag (Fitzhugh 2009; Frohlich et al. 2009; Takahama et al. 2004; Takahama and Hayashi 2003), the Middle Ider Valley and the Khanuy Valley in Mongolia (Allard and Erdenebaatar 2005; Houle 2009; Houle and Erdenebaatar 2009), and the Altai Mountains and Tuva (Mandelshtam 1983; Tsybiktarov 1995) (Figure 13.1).

Figure 13.4 shows the plans of three khirigsuurs that illustrate how they divide space and structure experiences around them. In all examples, the monument is focused on a central mound that is surrounded by an array of ground-level alignments and small mounds of stone. Of primary importance here is the fence that surrounds the mound, creating an enclosed space. The area within the fence is frequently empty, but there may be features within it that connect the exterior space to the central mound. Outside the fence is an array of satellite features—mounds, or pavement areas, sometimes haphazardly clustered and sometimes organized and creating another sort of surrounding ring or satellite zone. It is clear from these layouts that there are mechanisms here for highlighting and maintaining social difference, but, more important, also for bringing people together through a focused and common experience of movement through a space.

Khirigsuur monuments are designed: their plans are made up of regular components added in systematic ways (Wright 2007), and horses are also added to the monuments in specific ways. Horses enter these monuments in the satellite features outside the fence. If the patterns of movement at a contemporary social gathering around an active monument were mapped onto

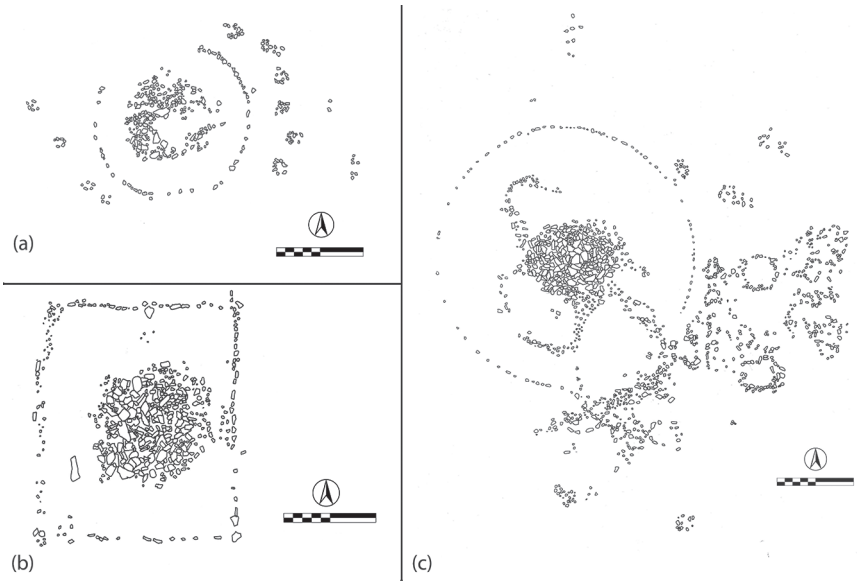

Figure 13.4. *Three typical khirigsuurs: (a) with a circular fence and a symmetric array of satellites, (b) with a square fence, and (c) a complex example with a circular fence, interior elaboration, and a haphazard array of satellites. (Scale bars each 10 m.)*

a khirigsuur plan, living horses would be found outside of the fence. There are clearly two patterns of satellite arrangement. First, and most common, is a haphazard style, in which the satellites are the only elements that do not have a regular or symmetrical relationship to the central mound. There is also a second pattern in which the satellites are part of distinctive asymmetric arrays (Figure 13.4). This second arrangement includes cases in which most or all of the satellites may contain horse remains. Haphazard satellite arrays, with overlapping rings and mounds, and disparate radiocarbon dates (Figure 13.4; see Hall et al. 1999; Fitzhugh and Bayarsaikhan 2008; Torbot et al. 2003), suggest that these were not built as part of a single event but during repeated visits to the monument. Even systematic arrays are rarely complete, offering room for extension.

Dead horses are part of the social world around a khirigsuur, just as they were part of the social world when they were living animals. The horses that we find in monuments could easily have served in roles as catalysts for interaction, sources of historical and political rhetoric, and a measure of the importance of an event. The bottom line is that khirigsuurs can be social monuments in

which the form suggests that they were built to be actively used and they did not promote a sort of individualizing ideology, but one that was participatory, event-centered, and temporal, and the horses were sacrificed there to mark the scale and importance of the event. In this case, the answer to the question of "who caused the horses to be sacrificed at these monuments" is that those who gathered there did. They did so not by the command of one person, living or dead, but by the will of the group.

COMMON PRACTICE AT DIFFERENT SCALES

The exceptionally large, megamonuments of central and western Mongolia, mentioned above as the exceptions used to argue the case for monumental hierarchy in Bronze Age Mongolia, are huge khirigsuurs, several orders of magnitude larger than anything else on the landscape and comparable in size with the largest kurgans from Central Asia. In some cases, they also consumed hundreds of times as many horses as other monuments. The exceptional nature of these monuments speaks to their exceptional social functions.

Here I argue that these huge monuments are not a measure of individual status and hierarchical position. Because of their position in an economic landscape characterized by a seasonal nomadic round, large monuments can also be interpreted as a form of signaling of group size and cohesion in a seasonally uninhabited landscape (compare Roscoe 2000). In this case, does scalar variation matter in how a monument might function or could be experienced, or are there paradoxes in possible interpretations between the huge and the normal khirigsuur monuments?

Figure 13.5 shows plan views of two megamonuments: one in the Khanuy Valley of the Northern Khangai, and the other in the Middle Ider Valley of the Southwestern Khangai. The central mound, the fence, and the satellite zone are all clearly present. These large monuments are almost identical to their smaller counterparts (compare Figure 13.5b and Figure 13.4a). Based on their similarities to smaller monuments, I contend that these big monuments work the same way as the smaller ones. Their larger size means that they include more people, more stone, and more horses. But because of the similarities in form and structure of the monuments, individuals with previous experience at smaller monuments would know how to move around them, where they can or cannot go, who should be where in the monumental space, and where their horses should stand and move. This shows us a shared ideology from the smallest groups, building little monuments, to the biggest gatherings. Even if an elite manager inspired the building of a huge monument, the conservative

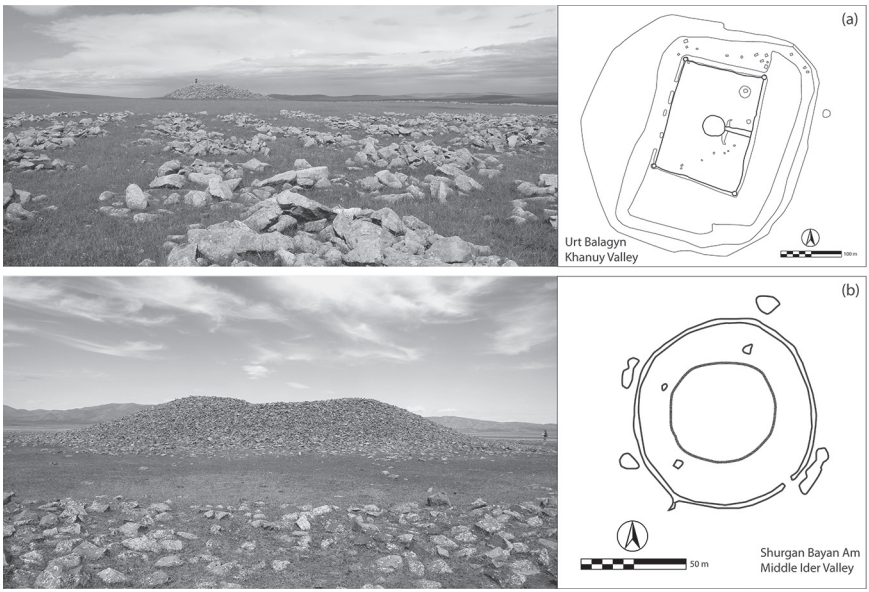

Figure 13.5. *Images and plans of two large khirigsuurs: (a) Urt Balagyn in the Khanuy Valley, and (b) Shurgan Bayan Am in the Middle Ider Valley. In addition to the mounds and burials, large satellite fields are shown only as outlines. (Urt Balagyn plan after Allard and Erdenebaatar 2005; photos by author.)*

formal similarity to smaller ones demonstrates a strong leveling element in Bronze Age Inner Asian society.

In addition to the conservative form showing a leveling tendency among Bronze Age Mongolian monument builders, the sacrifice of horses within monuments, especially in larger numbers, also provides a leveling function. Individuals with more horses to give up may do so to demonstrate their commitment to the communal endeavor and also possibly to bring them to a level closer to their peers.

How are horses incorporated into these large monuments? In some khirigsuurs, like those in the Middle Ider, they are arrayed just like they would be for a smaller monument and the number of horses interred is no greater than anywhere else. At sites like Urt Balagyn in Khanuy, however, as many as 1,700 horses were sacrificed in only a few events, giving this monument its cachet (Allard and Erdenebaatar 2005). Is this number of horses so extreme that it must reflect a society in which paramount chiefs organize monument construction? There would have been a huge economic price for building this

monument, along with the smaller ones surrounding it in the valley, but a single wealthy individual need not have paid the whole bill. Instead, it is more likely that scores of individual herders provided horses themselves.

The number of horses can carry an exceptional meaning—as individual horses are participants in the social world, so can masses of horses be catalysts for large events and long-remembered experiences. If these huge monuments are not built at the command of an individual leader, the conclusion is that they mark some form of major event and would provoke future respect and appreciation of the power of place, and the cohesive action of a community. When a huge sacrifice of horses is part of this event, these animals are more than treasures buried in stone mounds; they become remembered and active elements in the use of the monument. Economically and socially important animals are therefore killed and become temporal and spatial anchors—chronotopes (Bakhtin 1981; Ingold 1993)—for a community for generations to come.

AN ALTERNATIVE MODEL

This chapter leaves us with an alternative model of animals and inequality in Bronze Age Inner Asian society, one in which horses incorporated into monumental structures, and usually considered to be sacrificed wealth deposited in graves, can be seen not as vehicles of inequality but as sacrifices acting as leveling mechanisms to maintain social cohesion. These monuments can exist and function as social mechanisms without the need for a chiefly elite to command their construction; as the sheer number of ordinary monuments help to show, it is the need for integrating activities over the short and long term that drives their construction. Social cohesion is critical to survival during the time of the adoption of nomadic pastoralism, which included new mobility practices. Building on documented historic and modern nomadic pastoralist practices, it is clear that community-based pasture management arrangements, long-range social networks, confederations that protect isolated herding groups, and the ability to move away from an unfavorable social situation are critical to success as a nomadic pastoralist, and appropriate social mechanisms must have been developed very early in the adoption of nomadic pastoralism in Bronze Age Mongolia. In this region, the power of an emerging elite to organize people and build monuments was overshadowed by the ability of the people of a community to communicate their own solidarity and their willingness to work, and to sacrifice the most important animals in their world within enduring stone monuments.

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14

Pythons, Pigs, and Political Process in the Hueda Kingdom, Benin, West Africa AD 1650–1727

Neil L. Norman

INTRODUCTION

The kingdom of Hueda, located in the modern Republic of Benin, was an African state that flourished during the middle Atlantic period, ca. AD 1650–1727 (Law 1990, 2004). In terms of settlement organization and political structure, Huedans drew from the urban tradition of the region, where as early as ca. AD 1000, archaeological evidence from nearby Nigeria indicates that elite people inhabited palace complexes that were in turn surrounded by agriculturalists and artisans who lived in rural villages, and regional administrators who lived in densely settled centers (Ogundiran 2001; Shaw 1977, 1978). International markets, located near the Huedan palace at Savi, were a draw for people from the countryside (Norman 2009a), as were nearby state-sponsored temples and the palace itself, which served as the final point of judicial appeal (Law 1991). Our knowledge of Hueda is distilled from three main sources: oral accounts, historical documents, and archaeological evidence.

From recent archaeological excavations, we know that the Huedan palace complex at Savi coalesced as a densely settled urban center in the early seventeenth century and collapsed spectacularly in the early eighteenth century (Figure 14.1). The palace itself stretches approximately 1.5 by 1 kilometers (Kelly 2001) and is surrounded by at least four other regional settlement centers, which are interpreted as the house compounds of regional community leaders (Norman 2009a). Given historical accounts speaking to numerous quarrels between the Huedan crown—or "stool" in keeping with the local materiality of royalty— and regional community leaders, it is quite possible that these fortified and expansive residences were also points of resistance against royal authority

DOI: 10.5876/9781607322863.c014

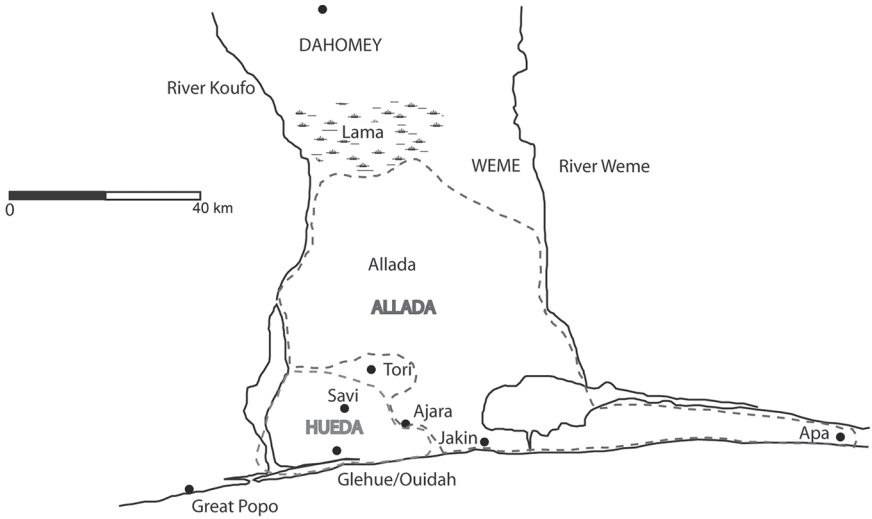

Figure 14.1. *Project area and historical kingdoms in and near modern Benin.*

(Akinjogbin 1967). From historical documents, we know that part of the stress within the Huedan political coalition revolved around the trade of war captives (Law 1991). During the period of its international prominence, more captives were traded from Hueda into the Middle Passage than any other port of call in West or Central Africa (Eltis 2011). In turn, Huedan elites worked to subvert royal monopolies on the slave trade and divert Atlantic riches toward their own interests (Akinjogbin 1967).

Despite political stresses, archaeological research has revealed that local political economies were linked to Atlantic ones through markets at Savi; Atlantic trade items historically known to have passed through palace markets were recovered from agricultural villages located around the palace (Kelly 2001, 2004; Norman 2009a, 2009b, 2010). The nature of these exchanges is the subject of recent research, but most likely relates both to economic transactions, such as market vendors trading cowry-shell currency to agriculturalists for staples, and gift-giving, in which elites passed cloth and other items down the line to curry favor and secure coalitions (Norman 2009a, 2009b). The Huedan political economy was thus both a source of stress and cohesion, as was the cosmological world that enveloped the Huedan human landscape.

Modern Huedan oral-history specialists carefully curate and convey accounts of *vodun*, or cosmological actors, who shaped the emergence of Hueda as an Atlantic state, facilitated its emergence as a hot spot of the Atlantic world, and

played a fundamental role in its ultimate collapse (Blier 1995; Norman 2009b). Throughout the Bight of Benin region, as well as in associated diasporic places, the term *Vodun*, when capitalized, glosses the decentralized religious tradition practiced throughout the region and, in the lower case, refers to individual deities such as ancestral figures, forest spirits, and creators of the universe (Blier 1995). In terms of the rise and fall of the kingdom, Huedan oral historians suggest that the narrative of the Huedan state is only intelligible when recounted alongside the history of Dangbe, the principal vodun for the kingdom as represented by its reptilian avatar, the African royal python (*Python regius*).

This chapter explores the politics and practices surrounding Huedan python worship, where Dangbe served as a symbol of the royal family, a major source of statewide stability, and a mainstay in ceremonies that provided a sense of well-being (Norman and Kelly 2004). Historical accounts suggest that pythons were ubiquitous aspects of Huedan daily life and this chapter argues that, as such, they linked quotidian daily practices to spectacular cosmological events (see Smith 2003). The chapter charts a path through the numerous historical accounts that discuss Dangbe and his involvement in sociopolitical processes and transformations. Then, it tracks the use of animals and animal avatars at the most spectacular state rituals as well as some of the most ordinary moments within Huedan households. This chapter endeavors to explore not only subject/object relations between vodun and Huedan political processes, but also the social role that animals played in the multiple scales of Huedan society in which social authority was turned into political action (see Meskell 2005). In so doing, it builds on attempts to expand the theorization of socialized landscapes beyond built places and the unbuilt spaces connecting them, to include the numerous animate, nonhuman *things* that did memory work, actively framed social relations, and served as mediums for configuring and reconfiguring identity (Bender 1993; Carmichael et al. 1994; Lekson 1996). In short, the chapter argues that pythons were part of the materiality of the Huedan social world and thus builds on this volume's focus on writing animals into human landscapes to arrive at a more complete rendering of past social landscapes. First though, it is necessary to present the archaeological evidence from the palace complex at Savi, and the surrounding countryside, which is at the core of the above argument.

SNAKES IN THE RAFTERS, ANCESTORS UNDER THE FLOOR: AN ARCHAEOLOGY OF THE SAVI PALACE AND COUNTRYSIDE

The Huedan palace center at Savi was identified through archaeological survey and excavations by Kenneth Kelly (2001, 2004) and its rural countryside

and urban warrens explored by the author from 2002 to 2010 (Norman 2009a, 2009b, 2010). Archaeological research revealed that Huedan kings placed their palace complex approximately seven kilometers from the Atlantic coast and adjacent to an expansive body of freshwater, known today as Lake Toho (Figure 14.2). This position was advantageous on several fronts: the upland clayey soils that predominate around the palace are much more productive than are the sandy soils found along the coast, Lake Toho provided a source of fish and other aquatic resources, and the lake constrained and concentrated north/south terrestrial movement and thus afforded Huedan kings a chance to monitor movement of traders and their goods throughout the region (Norman 2009a).

Within the town and countryside surrounding Savi, archaeologists encountered deflated rectangular architectural mounds, which range in size and organization from 40-by-100-meter multiroom house compounds to 5-meter single-room ovular or circular structures. Huedans constructed houses out of rammed clay, with walls in some of the larger structures approaching a meter in thickness. Huedan builders excavated structural clay, common throughout the Savi countryside, from pits purposefully dug adjacent to the houses. The resulting open borrow pits served as boundary ditches as well as trash pits. In many cases, house compounds or, in the case of villages, clusters of house compounds were surrounded by the noncontiguous ditch segments. Networks of ditches and conjoining house walls presented a relatively unbroken series of architectural features that separated zones inside and outside of house compounds. For example, someone wanting to access the innermost portion of a house compound, or village, would be required to pass through a ditch or house entryway (Figure 14.3). These architectural systems, much like a coiled snake, offered protection to those elements at the center, while putting at risk those elements at the boundaries.

The Savi settlement center, which covers an area of approximately one hundred square kilometers, contains a palace center, four dense concentrations of architectural features interpreted as the residences of regional community leaders, and networks of villages inhabited by artisans and agriculturalists (Norman 2009a).

In terms of stratigraphy, the archaeological structures and features described above exhibited European trade items dating from the early seventeenth century to the early to mid-eighteenth century (e.g., Dutch trade pipes with maker's marks) overlain by a common layer of burned material. This burned layer resulted from catastrophic destruction; the walls and roofs of numerous structures burned and thereafter slumped into low architectural mounds. The

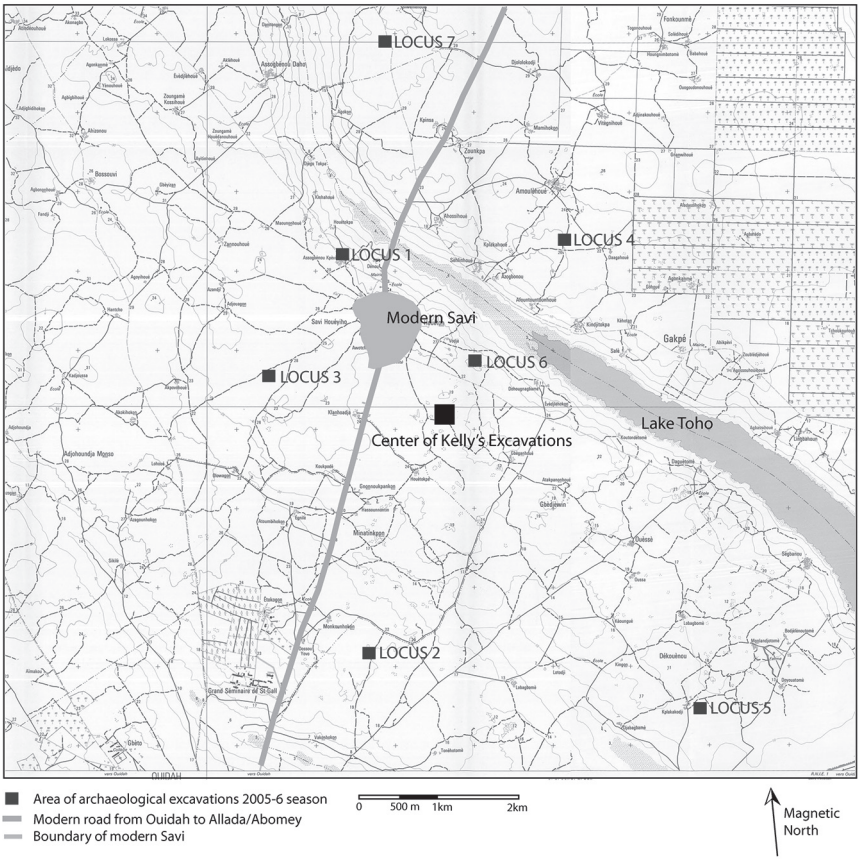

Figure 14.2. *Savi Palace region.*

archaeologically recorded zone of devastation was associated with a campaign of conquest in March of 1727, when historical accounts record that troops from the nearby kingdom of Dahomey burned and sacked the palace at Savi (Law 1991); archaeological evidence suggests the larger urban complex shared the fate of the palace (Norman 2010).

The dense settlement system recorded in archaeological survey and excavation accords well with the accounts of European travelers to Savi such as Willem Bosman (1721:315) who recounts that the villages were tightly packed around the palace "not a musket shot from one another." The English slaver Thomas Phillips (1732:214–218) noted that, in terms of political organization, each of these smaller settlements had a "captain" and that their houses were

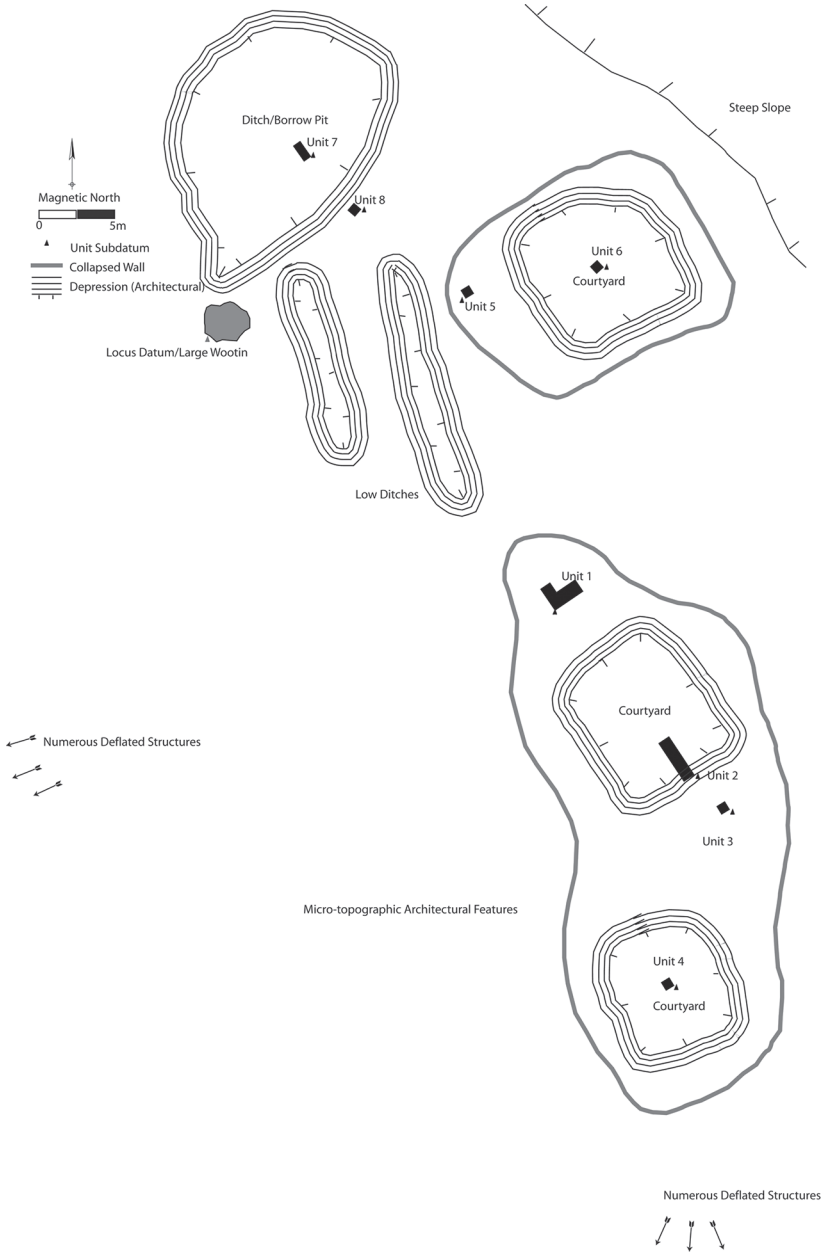

Figure 14.3. *Excavations at Locus 2.*

slightly larger than the general populace. Archaeological evidence suggests that both large and small settlements were organized along a northeast/southwest road (Norman 2009a) that historical accounts describe as the main corridor of commerce along which captives were driven to the sea and goods were moved to the interior as material payment, but not replacements, for the human loss (Law 1991).

Archaeological excavations by the author in regional settlement centers surrounding Savi revealed dense concentrations of large, handmade, locally produced earthenware-ceramic storage jars and jar fragments. These vessels are interpreted as storage vessels for maize and other staples and occur in a much greater frequency in regional settlement centers than in village houses. Although storage jars concentrated in settlement centers, smaller cooking and serving vessels occurred in similar frequencies in both settlement centers and village sites. One possible reason for this discrepancy is ritualized "patron role" feasting that legitimized established unequal social relations through the distribution of food and drink (Dietler 1996, 2001). On such events in Hueda, Bosman (1702:362) reports that the Huedan king "is daily obliged to keep Four Thousand Men, and to provide them with Meat and Drink." Gifts of choice cuts of meat and drink were the burdensome responsibility of elites who feted potential trading partners, as well as work details at the ends of their projects (Norman 2010). Huedan kings used these same strategies with Europeans, attempting to create beholden relationships through providing copious quantities of sheep, hogs, fowl, bread, fruit, and beer on a daily basis (Bosman 1721:338–339).

In the Huedan social world, patrons were required to provide gifts to their clients and feasting events marked spectacular points on the Huedan calendar; however, ceremonial redistributions reached beyond the realm of politics and economics. The Hueda terms for presenting offerings to shrines for vodun spirits can be translated as to "feed" or "feast." It is clear from historical accounts that the Huedan world was alive with vodun in want of sustenance. During the seventeenth and eighteenth centuries, Huedans designated trees, specific bodies of water, and certain animals as physical representations of vodun (Bosman 1721:368). In the domestic sphere, vodun ancestors might reside or rest in, or visit, family shrines (Norman 2009b). For both community-wide deities and those within the house compound, sacrifices were necessary to attract the attention of cosmological actors and focus their attention on the requests of the petitioner (Bay 1998; Norman 2010). Feeding vodun involves not only perishable items, but also durable things (Norman 2009b); vodun have been described as having an insatiable appetite for new "hot" material

items (Rush 2001). Archaeologically, the signature for this religious aesthetic for accumulation and ceremonial feeding is trade items drawn from throughout the Atlantic world and clustering in domestic spaces alongside purposefully constructed ceramic offering vessels.

Excavators recovered anthropomorphic and zoopomorphic ceramic vessels, human remains, and Atlantic trade items from small freestanding shrines located near or within domestic activity areas (e.g., entranceways to house compounds and courtyards). At one excavation locale, Locus 2, excavators unearthed two skulls: one placed on an elaborately incised bowl and another in a large storage jar (Figure 14.4). European mass-manufactured trade items (e.g., cut nails, hand-blown glass bottles, smoking pipe fragments) clustered around the skulls as did heavy concentrations of carbonized organic material. Both crania were recovered within a small, deflated architectural mound adjacent to the main entrance to a large house compound. The small structure is interpreted as a shrine and fits with historical descriptions of Huedans venerating ancestral figures and vanquished opponents by installing their skulls in places of honor within the household (Law 1989). Historical accounts record Huedans removing skulls from postcranial bones and placing them in shrines as part of structured deposits—collections of materials that in sum represent certain deities or people—in household shrines (Norman 2009b). These records correspond nicely with the archaeological finds from seventeenth and eighteenth century contexts such as skulls recovered within storage jars from subfloor pits. In all cases where human remains were recovered, excavators encountered concentrations of imported Atlantic trade items (Norman 2009b). Today, in southern Benin, the honor of being interred within one's house is reserved for patriarchal and matriarchal figures and consequently a family might lavish fine cosmologically charged offerings on the deceased who is thereafter elevated to be the family's representative with other cosmological actors. Historical accounts from the Hueda kingdom, as well as the broader Bight of Benin region sharing historical and linguistic connections with Hueda, document that during the Hueda era offerings were lavished on ancestral figures on an annual basis (Labouret and Rivet 1929; Norman 2009b).

Spaces interpreted as religious offerings included small caches of these same ritual ceramics with a few imported items and organic materials. These offerings were placed within walls and at the base and corners of houses just below living surfaces. These Huedan-era (ca. AD 1650–1727) religious spaces connected families to their pasts and literally rooted house compounds to lineages and ancestral actors (Norman 2009b). Huedan families offered lavish food

Figure 14.4. *Excavations at a shrine, including human skull and ceramics.*

and material goods to focus the attention of ancestors on the family and convince them to intervene in earthly affairs on their behalf. These offerings also braced the house against cosmological attack from outsiders, neighbors, and displeased vodun (Norman 2009b). Thus, houses were stages for cosmological battles, and feasting vodun was part of the logical response to slave raiding and internal political intrigue, and for mitigating the flux and dislocation due to the regional warfare that would eventually bring down the kingdom (Law 1991). It was vodun who brought wealth, prosperity, and stability, and sacrifice and offerings were required to keep cosmological largess flowing.

Huedan feasts brought rich, poor, young, old, and cosmological actors together for communion. It can be further argued that snakes served as a medium bridging household feasts and events organized at the state level. During the Huedan era, European traders gave numerous accounts of snakes

in and around Huedan houses; reportedly, they often occupied places in rafters and chased vermin on the ground (Phillips 1732:223). European traders visiting Hueda in general and the towns of Savi and Ouidah in particular noted various bush and arboreal vipers and constrictors throughout the kingdom. One snake in particular attracted much attention and Snelgrave (1734:11) describes this class of constrictors as

> peculiar to their Country, being of a very singular Make; for they are big in the middle, round on the Back like a Hog, but very small at the Head and Tail, which renders their Motion very slow. Their Color is yellow and white, with brown Streaks; and so harmless, that if they are accidently trode (for it is a capital Crime to do it willfully) and they bite, no bad Effect ensues; which is one Reason they give for worshiping of them.

This snake is undoubtedly a python, and two species of pythons are common in the area today: the African rock python (*Python sebae*) and the African royal python (*Python regius*). Oral accounts, historic documents, and modern Vodun practice all agree that it is the latter, smaller species that was, and still is, venerated as Dangbe. The African royal python is correspondingly sacred and is thus afforded numerous ritual prohibitions.

During the Huedan era, Bosman (1721:349) noted 140,000 gods within the Huedan pantheon with the first and most prominent represented by Dangbe, the second tier including sacred trees, and the third the sea (Bosman 1721:347). Reportedly, Huedans created new gods on a daily basis and moved gods who were deemed ineffectual out of the pantheon (Bosman 1721:347–348). However, pythons are universally recorded as the senior or tutelary deity.

In tracing the deeper history of Dangbe, Christian Merlo and Pierre Vidaud consider him so important to the polity that they chart the trajectory of python worship alongside the earliest iterations of the kingdom, as well as the ethnolinguistic identity of the kingdom's populace (Merlo and Vidaud 1984:269). Bosman (1721:350–351) describes the principal snake venerated as Dangbe as being very old and being spirited away from another kingdom where he was displeased by the wickedness of the people there. In the oral histories that they collected in the early twentieth century, Merlo and Vidaud (1966:66) recorded that Dangbe confers on people the knowledge of good and evil: he "opened their eyes." Dangbe is universally considered to be at the center of the Huedan pantheon, and is an exaggerated archetype of humanity as well as a self-contained pantheon incorporating aspects of war, fertility, culture and the arts, wisdom, and earthly well-being, and he serves as the controller of waters (Villiers 1950:34).

As central elements of the Huedan cosmos, it follows that earthly manifestations of Dangbe would receive special treatment within the kingdom. European travelers noted that thatched-hut temples were spaced along the aforementioned main road linking Savi to the coast, and if a royal python was encountered along the thoroughfare a ritual specialist picked the snake up and returned it to the temple (Hair, Jones, and Law 1992:638). The role of the ritual specialist was an important one, because Huedan devotees would avoid physical contact with royal pythons, and thus movement and commerce stopped along the road until the python was removed. In this way, pythons actively shaped the flow of people and ideas in public spaces throughout the kingdom, and shaped the ways that Huedans not only experienced their landscape but also the ways that they circumambulated throughout it. However, pythons were not bound to public spaces as Bosman (1721:357) describes:

> Serpents, notwithstanding that we are frequently molested by them, since in the hot Sun-shine Weather . . . they visit us by five or six together, creeping upon our Chairs, Benches, Tables, and even our Beds, and bearing us Company in Sleep; and if they get a good Place under our Beds, and our Servants . . . don't turn up our Bedding, they sometimes continue there seven or eight Days. Where they have also cast their Young.

Indeed, pythons were part of the human and living landscape of Hueda and to kill or even endanger one in a public or private space was a capital offense.

Bosman (1721:356) recorded an event in which English traders killed a python soon after landing on Ouidah Beach nine kilometers south of Savi, and in response the English party was killed by infuriated Huedans. The English trading lodge, and all the goods and items therein, were immediately burned. In 1697, after a European-owned hog killed and ate a python, the Huedan king issued a royal decree that all of the pigs in the kingdom be killed. Thousands of Huedans reportedly executed the order by using clubs and swords to kill swine with moblike fury. Bosman (1721:361) arrived after the incident and reported that pork was "dear" throughout the Hueda kingdom due to the shortage. It was apparently even hazardous to disturb or dislocate a royal python, reflected in the case of a European who removed a python from his house with a stick and was nearly killed by a group of devotees (Bosman 1721:357). Given the fact that physical harm would be visited on European traders and their goods if they disturbed pythons, it is not surprising that English trader John Smith (1967 [1744]:196–197) was corrected and chided by a senior official of the English trading lodge after the following event:

> One Day, as I walk'd abroad with the *English* Governor, I spied one of them lying in the Middle of the Path before us, which indeed I would have kill'd had he not prevented me, for he ran and took it up in his Arms, telling me, that it was the Kind of Snake which was worshipp'd by the Natives, and that if I had kill'd it, all the Goods in his Fort, and our Ship would not be sufficient to ransom my life.

Beyond movement around the house, and around the kingdom, pythons also shaped relationships between people, their cosmos, and their domestic spaces.

Huedans today associate ditches with pythons, because ditches contain aesthetic elements associated with the constrictors. These shadowy and dank spaces are ideal for python habitation; they provide the cool and moist temperature that protects a python's skin, and the vermin that provide a large portion of their diet. When viewed from the surface, the ditches trace a sinuous pattern on the landscape and shape movement away from their voids in undulating patterns. Such shapes and patterns are also associated with the movement of pythons, as are strips of white cloth flapping in the breeze and a cord or string placed on the ground. The logic is clear: ditches that evoke the aesthetic elements associated with pythons and that restrict practitioners' movements are potent landscape features aimed at protecting the family, or families, living in interiors of house compounds from uncertainty located on the outside (Norman and Kelly 2004). Beyond protecting and delineating the Huedan house compound, Dangbe and his pantheon were also leveraged for massive affairs of state.

The largest and most spectacular ritual on the Hueda calendar was a parade by the king and his retinue to the grand temple of the python (Figure 14.5). Bosman (1705:370, italics in original) describes the location:

> situated about two [Dutch] Miles [or approximately seven English miles] from the King's Village, and built under a very beautiful lofty Tree, *In which* (say they) *the Chief and largest of all Snakes resides*. He is a sort of grandfather to all the rest; is represented as thick as a Man, and of an [im]measurable length.

The parade was thus located outside of the bounds of the palace, and correspondingly outside of the direct control of the king. The king was preceded in the parade by drummers, trumpeters, singers of praise songs, and hundreds who carried gifts of silk, cowries, imported European goods, and prepared food. The parade represents a moving feast and mirrors the aforementioned structure of the ritual in which vodun are appeased at the household through food offerings (Norman 2010). As a central ceremony aimed at statewide reciprocity in which kings and commoners repaid debts to one another and to

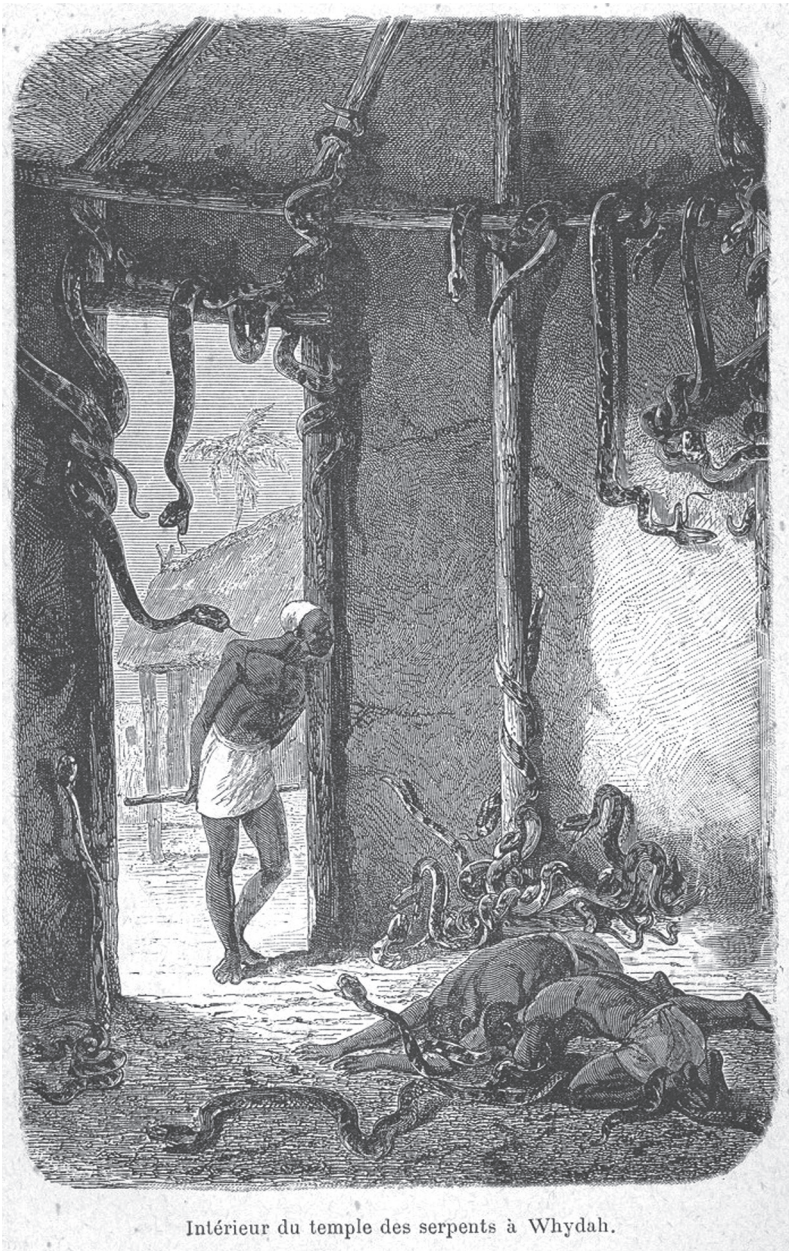

Figure 14.5. *Nineteenth-century engraving of the Temple of the Python, Ouidah, Benin (Morienval 1898:41).*

Dangbe, the recompense was dear and repayment ceremony spectacular. The cost was particularly onerous to Huedan kings.

The annual parade, and ceremonial payment at the temple of the python, was the only time of year when the king left the confines of the palace, and he often did so with Europeans taking part in the parade. By order of Huedan kings, Europeans were housed in specially built trading lodges near the Huedan palace complex and were forbidden from fortifying their positions (Law 1991). Europeans complained that the fact that they were housed together impeded their ability to secure favorable prices for war captives; representatives of the Huedan king would simply move from lodge to lodge playing English offers against those of the French, Portuguese, Dutch, and so on (Kelly 1997). Beyond economics, these Europeans represented symbols of social standing and Atlantic connectivity unavailable to competing Huedan elites (Kelly 1997), and possibly rose to the level of avatars representing foreign vodun (Norman 2010).

Throughout the Bight of Benin region, wealth is reckoned more in terms of the followers with specialized knowledge and skills that a leader can muster, rather than gilded whatnots and paper script (Guyer 1993). Thus, the bodies of foreign traders play into the long-term history in the Bight of Benin region, which incorporated foreign traders into the theatrics of state and local political negotiations (see Brooks 1993), and into displays of wealth in terms of parading one's followers (Norman 2010). Europeans participated in these parades alongside the king's retinue and people exhibiting signs of dwarfism, associated in the Hueda area with the vodun Toho (Norman 2009b). Albinism, twin births, breached births, and various diseases each have their own vodun, as well as their own material repertoire (e.g., specially constructed ritual ceramics) for worship (Norman 2009b). In essence, the king was organizing people who exhibited aesthetic elements of certain vodun—for example, dwarfism is associated with Toho, the color white is associated with Lisa, variola (smallpox) scars are associated with Sakapata—thus gaining social standing as the giver of gifts, keeper of the feast, and orchestrator of this cosmological cavalcade. The parade itself was an important point for referencing the well-being of the kingdom, in that all wealth was seen as coming from Dangbe, and during this ceremony reciprocal gifts were given by the king as thanks for the largess of the python deity. These payments were rendered as partial reciprocity for regional community leaders organizing corvée labor and military action for the king. The parade was also the point on the Huedan calendar when the king presented gifts to local community leaders and the priests at the temple of the python (Norman 2010).

After conversations with the Huedan king, Bosman (1721:350) reported that the high priest of Dangbe requested "Money," "Silk," "Cattle, Eatables and Drinks: All of which exacted from the king and he sometimes grows tired and refuses them." Bosman (1721:350, italics in original) continued the description of the pressure leveraged by the high priest of Dangbe, by virtue of the fact that he controlled the temple and the avatars of Dangbe contained therein:

> This I had once an Opportunity of observing; for, finding him very much enrag'd, I made no Scruple to ask him, *What had so much displeased him*? He very freely told me, That *that Year he had sent much larger Offerings to the Snake House than usual, in order to obtain a good Crop; and that one of his Viceroys* (whom he shewed me) *had desired him afresh in the Name of the Priests, who threatened a barren Year, to send yet more:* To which he answer'd, *That he did not intend to make any further offerings this Year; and if the Snake would not bestow a plentiful Harvest on them, he might let it alone: For* (said he) *I cannot be more damaged thereby, the greatest Part of my Corn being already rotten in the Field.*

In other years, the grand priest of Dangbe prescribed considerable quantities of precious merchandise: barrels of cowries, hard alcohol, gunpowder, cattle, goats, and chickens (Bosman 1721:178–179). Given the great expense of the parade cycle, with gifts necessarily given to both regional governors and the temple of the python, Bosman (1721:351) reported that the king "broke off the custom," which at the time of his visit had "grown in disuse for several years past." During Bosman's visit he reported that the king sent his wives and, in editorializing on the issue, suggested that expense was the reason that he did not participate (Bosman 1721:351). While the expense of the parade was substantial, the expense in not having the parade was even more dear, and arguably played a role in the collapse of the kingdom.

CONCLUSIONS: PYTHONS AND CONSUMPTION, PYTHONS AND COLLAPSE

Historical accounts suggest that pythons were part of the lived experience for Huedans; these avatars of Dangbe inhabited Huedan homes, moved through fields, traversed roads, and were closely involved in political action. Historical accounts are equally clear that food, drink, and Atlantic trade items were equally involved in the negotiation of political, social, and economic capital. Feasting and reciprocal gift-giving were not bound to exchanges between Huedans, or between Huedans and foreign traders. They included exchanges between Huedans and members of their pantheon; good fortune required

thanksgiving to one's ancestors, among others. Causing favorable imbalance, such as economic gains in the markets or ascending to the royal stool, required offerings and sacrifice that held the potential to convince cosmological actors to intervene on one's behalf. Archaeological remains from the Savi countryside interpreted as shrines and offering spaces represent material sacrifices pooled in and around shrines recorded within house compounds. These offerings were part and parcel of structuring architectural features in such a way to protect and preserve the family line. Around the house compound, ditches did such cosmological work by evoking elements of the python deity to protect and control movement into and out of the domestic sphere.

However, pythons did not always successfully define and defend social space associated with Hueda. In March of 1727, troops from the nearby kingdom of Dahomey advanced on Savi, with a mandate from king Adgaja of Dahomey to conquer Hueda and link Dahomey territories in the north to Huedan terrirory in the south (Law 1991). After a few days of fighting in the territory north of Lake Toho, Huedan troops retreated to Savi. Dahomean troops surveyed their newly conquered territory and then moved south to the lake, just north of Savi. Reportedly, the defense at the lake was left to the care of pythons (Snelgrave 1734:12–16). Although this might have been a metaphorical, or metonymic, statement by Huedans, it speaks to the belief that Dangbe would intervene on behalf of Huedans for the defense of their territory. However, Dahomeans forded the river and found that Huedans had largely fled in advance, or "vapoured" (Snelgrave 1734:15). Quite probably, at least some of the reluctance of Huedan to take up arms and defend the kingdom related to larger issues of discontent and elite infighting in the kingdom (Akinjogbin 1967) as well as non-elite discontent associated with the growing irregularity of public parades and spectacles associated with Dangbe, which in the years before the collapse had been reduced and restricted by the Huedan king (Norman 2010).

The pythons left behind in the small temples along the main road, and presumably in the main Temple of the Python, fared poorly, as did the many thousands of Huedans who were killed, sold into slavery, or displaced. Snelgrave (1734:31) noted that it was difficult to dine, because flies were swarming around "a great number of dead Mens Heads," which were piled on stages not far from their tent. So many Huedans were killed that Snelgrave (1734:19) reported the fields being strewn with bones. When Snelgrave (1734:47–48) asked why so many old men were sacrificed by his troops, Adgaja, king of Dahomey responded that they would always plot against the king and would never be easy under slavery after having been masters in their own land. Apparently

there was a similar fear of pythons being leveraged in these plots as Snelgrave (1734:12) described that

> the Conquerors found many of them in the Houses, which they treated in this manner: They held them up in the middle, and spoke to them in this manner: *If you are Gods, Speak and Save your selves*: Which the poor Snakes not being able to do, the *Dahomes* cut their Heads off, ripped them open, broiled them on Coals, and eat them.

Above and beyond the symbolic link between shattering the Huedan state and shattering the bodies of the python, the act of consumption also started the process of incorporating Huedan pantheons into Dahomean ones, and to this day there is a prominent temple to Dangbe in the Dahomean palace complex at Abomey.

As Appadurai (1986) states clearly and forcefully, things have social biographies that extend and change through the generations. During the Atlantic era, artisans in Holland created trade pipes, and probably never imagined that they would be incorporated into ancestral shrines in West Africa. As archaeologists problematize categories associated with form and function and seek more locally coherent renderings of subject/object relations, it seems necessary to incorporate animals into such discussions as well. It is no longer good enough to describe animals solely in terms of calorie content; now we must also consider how people used animals to negotiate status and power, frame memories of themselves, and reference their position within social landscapes. Such renderings add a needed element to landscape studies, where animals are seen as active elements in shaping human action.

Acknowledgments. The author wishes to thank Adria LaViolette, Kenneth Kelly, J. Cameron Monroe, Jeffrey Hantman, Jerome Handler, and Joseph C. Miller for comments on earlier versions of this chapter and/or the dissertation project from which it is drawn. The volume's organizers, Sue Ann McCarty and Benjamin Arbuckle, provided valuable suggestions to drafts of this chapter. Alexis Adandé served as the local coordinator of my project and offered his considerable knowledge of the archaeology of southern Bénin. Joseph Adandé, Obaré Bagodo, Souayibou Varissou, Bienvenue Olory, Didier N'dah, and Elisée Soumoni deserve special thanks for their kind encouragement and local logistical assistance. Early field efforts in 2003–2004 were supported by The Explorers Club, Washington Group; the Graduate School of Arts and Science, University of Virginia (UVa); the Department of Anthropology, UVa; and the Center for Academic Excellence, UVa. The longer field campaign

in 2005–2006 was funded by a National Science Foundation Dissertation Improvement Grant (#0432893), a Fulbright-Hays Doctoral Dissertation Research Abroad Fellowship (#P022A0500), and a special grant by the Embassy of the Netherlands to Cotonou.

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15

"Tails" of Romanization

Animals and Inequality in the Roman Mediterranean Context

Michael MacKinnon

INTRODUCTION

Although the term *inequality* may appear, at one level, rather straightforward (e.g., some imbalance within a concept or category), upon closer inspection one realizes such imbalances themselves may span multiple components. Who or what has more, and why? Who or what ranks higher, and why? Who or what is privileged or special, and why? In essence, inequalities permeate myriad components of culture, whether or not humans acknowledge, institutionalize, or otherwise mark these aspects. Although inequalities exist even among egalitarian societies, they are arguably more pervasive in complex societies, where the span between ends measured on this scale of imbalance is often rather substantial. Among complex cultures, the ancient Greeks and Romans display abundant criteria for inequality (e.g., rulers and slaves, masters and servants, rich and poor, native and newcomer, Roman and non-Roman, etc.) (Potter 2004). Animals yield data about a variety of these facets. They may be considered property, yielding information about economic and social inequality (Barth 1969; Dahl and Hjort 1976). Many are consumed, providing data about dietary inequality. Animal types differ temporally and geographically, aspects that in turn are manipulated by human agency, itself a concept heavily influenced by social and economic inequality. Herding, consuming, producing, and even caring for and thinking about animals are all components whose actions and results may be shaped by inequalities (Ingold 2008).

Complex cultures, such as the ancient Romans, contain many examples to investigate in regards to animals and inequalities. These span a variety of dimensions:

DOI: 10.5876/9781607322863.c015

from site to region; from individual to community; from tangible commodity to intangible idea or concept. Explanations of these phenomena are also diversified. One prominent concept used in assessing Roman cultural inequalities and societal identities is *romanization*. Although romanization might imply acculturation, variously expressed in multiple aspects—material, cognitive, behavioral—it is controversial. Some have argued that romanization "civilized" barbarians (Brunt 1976; Haverfield 1923). Others see it as an elite-driven mechanism to exert control (Millett 1990; Woolf 1998). Still others concentrate on reciprocal exchanges between "Romans" and "Natives" (Mattingly 1997). More recently, arguments incorporating "creolization" or cultural blending have been employed (Webster 2001), as have explanations focusing on identity, such as structuration theory (Mattingly 2010).

Romanization, inequality, and animals are all interconnected. The ties among these are explored here, under the following aspects: (1) the connection of pork to Roman cultural identities, and the impact this had upon animal-husbandry regimes; (2) cases for persistence in dietary and/or husbandry schemes, despite romanized contact, presence, or control; (3) butchery and marketing changes that resulted from greater urbanization in many of the areas of the empire; (4) Roman improvements to animal breeds, and the spread and trade of new varieties; and finally (5) pets and inequalities.

PORK AND ROMAN CULTURAL IDENTITY

The pig (*Sus scrofa*) formed a prominent component of the meat diet of Roman Italy, especially, and embodies a defining aspect of Roman identity (MacKinnon 2001). As the empire expanded, provinces emulated components of Roman Italy. Increased pork consumption, therefore, often typically coincides with romanization, which in turn frequently underlies patterns of inequality: who partakes in augmented pork consumption and what does this mean about their cultural identity and social status? The relationship, nevertheless, is multifaceted. Regional and temporal variations exist.

Taking Italy as the core, the empire might be broadly divided into four regions for exploration of animals, romanization, and inequality: North (including Gaul, Britain, and the Germanic provinces), West (Iberia), South (African provinces), and East (Eastern Europe, Greece, and Asia Minor).

Certainly, regional climates and topographies factor into setting limits upon animal-husbandry schemes. Cattle thrive in lowland fields of northern Europe, whereas sheep and goats are better suited to scrublands in North Africa or the eastern Mediterranean. However, diets are not determined exclusively by

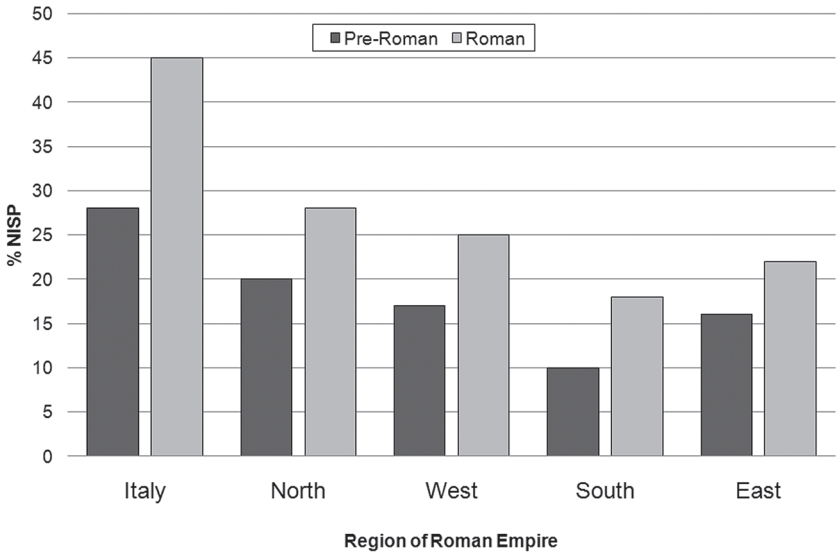

Figure 15.1. *Mean NISP frequency for pigs between pre-Roman and Roman contexts for Italy and four Roman provincial regions (North, West, South, East). Data derive from references provided by King (1999) and MacKinnon (2004).*

local environmental conditions; cultures, like that of the Romans, did shape husbandry and dietary systems. This process appears to take two forms: (1) a "people-led" emulation of Rome and (2) a "military-influenced" catalyst.

First is the relatively abundant contribution of pigs in the Roman diet in Italy, which ties with higher social status, sparking elevated pork levels elsewhere in the empire. Figure 15.1 outlines the rise in pork consumption as measured by the relative frequency of pig bones (by NISP) recovered from pre-Roman and Roman sites in Italy and across the four general regions denoted above. All site types are pooled (rural, urban, military, and so forth), so values reflect averaged patterns within each zone. In some regions, such as southern Iberia, parts of Italy itself, and areas of western North Africa and Gaul, the increase is sizeable (e.g., 10–20 percent, or more). In the north, however, only sites of strong Mediterranean orientation, generally in this case urban centers where greater wealth was typically concentrated and where larger populations of Roman citizens might reside, display the Rome pattern. Immediately, inequality in how the pork-rich Roman diet spread across the empire is evident and not all areas changed equally in this respect.

Succinctly, the pork-rich diet of Rome was being emulated within other high-status, romanized sites, especially urban ones. Inherent within this are additional notions of inequality: Roman versus non-Roman sites, higher- versus lower-statuses, and urban versus nonurban sites. These dichotomies, with their underlying frameworks of inequality, can be extended further with a case study. Pig frequencies between pre-Roman (i.e., Punic) and Roman Carthage, for example, climb from 18.9 percent to 38.5 percent, one of the biggest increases for Roman North Africa. Data for these derive from eleven sites within the city (MacKinnon 2010c). Zooarchaeological evidence does not support the hypothesis that Carthage predominantly imported pigs or cuts of pork from overseas; presumably, it was supplied locally. As pigs cannot easily be herded vast distances, pig breeders would have displaced pastoral herders and grain farmers around Carthage as urban pork demands escalated. The suburban husbandry dynamic therefore changed because of the Romans. Again one encounters an added dimension of inequality: here, an imbalance between farmers and herders who could afford to modify their husbandry schemes and those who could not.

Two principal types of pig-raising operations were possible at Roman Carthage. Both are outlined in the Roman agricultural texts (Columella 7.9.3–4), first for Roman Italy, though the principles proposed could be applicable across larger areas of the Mediterranean as well (MacKinnon 2004). Farms closer to cities could have capitalized on urban demands for tastier, costlier, younger piglets, and practiced biannual breeding schemes, generating surpluses. This option, however, would only be available to sufficiently prosperous farmers who could afford to grow or purchase the necessary fodder for these pigs on otherwise prime suburban lands. Alternatively, pig herds could be kept some distance from the city, where fodder could be more cheaply produced and the pigs either herded or transported to Carthage as required. Given the increasingly complex logistics of this, however, such movements probably occurred annually, perhaps coinciding with harvesting of crops, so pigs could feed off stubble left behind even while making their way to market. Either option would tend to push sheep and goat pastoral operations even further away from city, and would be most productive under a unified, extensive, and relatively peaceful domain, as existed during Roman times.

Romanization also has a military catalyst. Thus, for northwestern provinces we typically cannot refer to a common Italian origin, but rather a "Gallicization" or "Germanization" of the diet (King 1999). Beef was a major meat in the Roman army diet among many northwest regions, averaging 45–65 percent on most sites, but with a greater emphasis on pork in German establishments, and

mutton at British sites, particularly in auxiliary forts and their local supplying towns. Still, the army, particularly the legions, could operate a command economy and exercise dietary preferences without constraints that affected those living closer to subsistence levels (King 1999). Pork was still prized, if it could be acquired. Consequently, legionary assemblages (legions were comprised of Roman citizen-soldiers) generally record higher percentages of pig bones than their auxiliary counterparts (auxiliaries formed the standing noncitizen corps of the Roman army), presumably because pork was seen as higher status, or perhaps had some perceived nostalgic feel to it. Its consumption formed part of identity, even if armies here were not strictly of Italian origin. Inequality in pork consumption, in this case, stems from a divide between military and civilian, and citizen-soldier and noncitizen-soldier, with soldiers, and especially citizen-soldiers, feeding upon more pork.

Sheep and goats dominate eastern Mediterranean Roman assemblages, but military sites here also register relatively more pig bones than do their nonmilitary counterparts. This suggests that the army's preference for pork had some larger empire-wide component to it, again stressing a level of inequality between military and civilian in terms of diet. Still, environmental limitations restricted levels of pig exploitation in the East. Their frequency values among many eastern romanized sites never increase as much as elsewhere in the empire (King 1999). Cultural choice for increased pork consumption within the Roman army was in part tempered by practical concerns for what the local landscapes could produce. Landscapes and regions themselves, it may be argued, also exhibit inequalities in terms of animal resources.

Romanized pork diets clearly filtered into the provinces, either through emulation of Roman patterns at urban centers, presumably through elite administrators who in turn likely influenced local economies, or through military operations, and legionary desires for pork where available. Embedded within these concepts, however, is a notion of inequality. Control and distribution of pork was not uniform, since frequently the commodity was imbued with deeper meaning, separating Romans from non-Romans, soldier from civilian, elites from peasants and slaves, or, more generally, "haves" from "have-nots." Pork consumption underscored one's identity; it could be manipulated to codify inequality on numerous scales—social (who is Roman and who is not), philosophical (who wishes to be Roman and who does not), economic (who can afford to emulate a Roman lifestyle, and who cannot), and so on. Nevertheless, the process was not uniform. Even if other aspects (e.g. fashions, pottery styles, or a myriad of other cultural parameters) may have become markedly Roman, at various intensities and rates, regional identity

within a loosely drawn Roman framework seems best to characterize the diet of the provinces.

PERSISTENCE DESPITE ROMANIZED CONTACT, PRESENCE, OR CONTROL

Romanization is less evident in animal economies of the eastern provinces, which maintain a Hellenistic predominance of sheep and goats. Whether this is deliberate persistence or simply upholding traditional schemes that best suit local geographies and economies is debatable. Nevertheless, it raises questions about dietary persistence despite Roman contact.

Figure 15.2 shows comparative NISP frequencies for pre-Roman (I) and combined Roman Republic (II) and Imperial (III) contexts in Iberia by geographic area (roughly divided as North, West, Central, South, and East). Average frequencies for pigs increase within all areas. Arguably, romanization augmented pork consumption in Iberia overall, much at the expense of beef.

Changes were unequal, however. Northern areas of Iberia changed the least, suggesting dietary persistence; where the frequency of pigs does increase in this zone, it is at urban sites. As highlighted above with Carthage, Roman cities throughout the empire attracted a burgeoning elite population, many of whom, if not Roman citizens already, presumably felt some pressure to emulate romanized lifestyles, including augmented pig consumption (Fentress 2000; MacKinnon 2010c). Western and central Iberia show similar trends: the frequency of cattle drops, sometimes significantly, as sheep/goat and pig values rise under Roman contact, presumably to cater to wool and pork demands upon these regions. In the South, sheep/goat values remain fairly consistent whereas pig numbers increase appreciably. This area saw extensive Roman contact, so significant elevation in pig frequencies lends support for the hypothesis that inhabitants favored a "romanized Italian" diet.

When data for wild animals are added, new patterns emerge. As shown in Figure 15.3, an increase in wild-animal frequencies occurs among practically all regions of Iberia in the Roman period (save the East, where sample sizes are insufficient), but with significant increases in western and central Iberia. In fact, with Roman-period frequencies ranging between 20 and 25 percent, western and central Iberian percentages of wild animals are among the highest for all ancient Mediterranean sites, compared, for example, to an average of less than three percent for sites in Italy (MacKinnon 2004). Why is this so?

The connection between the Roman elite and wild game in Iberia may not be as simple as for Roman Italy, where elevated frequencies of wild animals

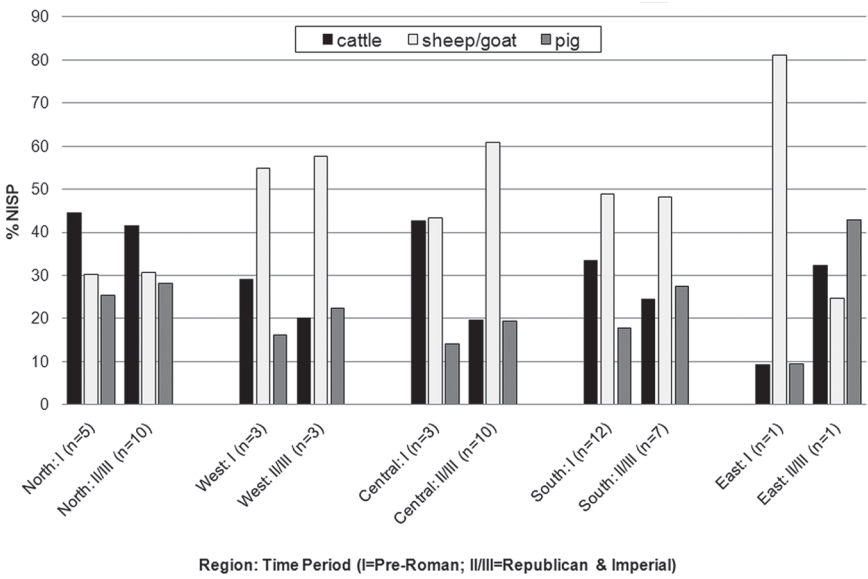

Figure 15.2. *Mean NISP frequency for cattle, sheep/goat, and pig between pre-Roman (I) and Roman Republican and Imperial (II and III, combined) contexts across geographic regions of Iberia. N = number of sites.*

generally imply wealthier diets (MacKinnon 2004). Wild animals were plentiful in Iberia during antiquity, as ancient authors attest (Strabo 3.2.6, 3.2.14; Polybius 34.8.4; Martial 1.49). If the local Iberian diet was marked by a high percentage of game initially, then Romans, especially elite Romans, may have distinguished themselves from this "native" pattern by consuming more domesticated, or even exotic animals—in other words, picking a menu distinct from the traditional Iberian one. This then would identify them as Romans. The use of diet, among other parameters, to define social boundaries and ethnic identities appears among many cultures (Barth 1969), including Romans (King 1999). Game animals, Roman elite, and overall Roman influence arguably were all plentiful in southern Iberia, but this is also the location where wild animals were consumed less than elsewhere in Iberia. Elites in Italy may have craved wild resources to help define their identity, but this was not so in southern Iberia where wild animals may not have had as much social significance. Still, no classic romanized dietary patterns are established anywhere in Iberia. This suggests that local patterns persisted in many areas, becoming somewhat modified by romanization, although never entirely supplanted.

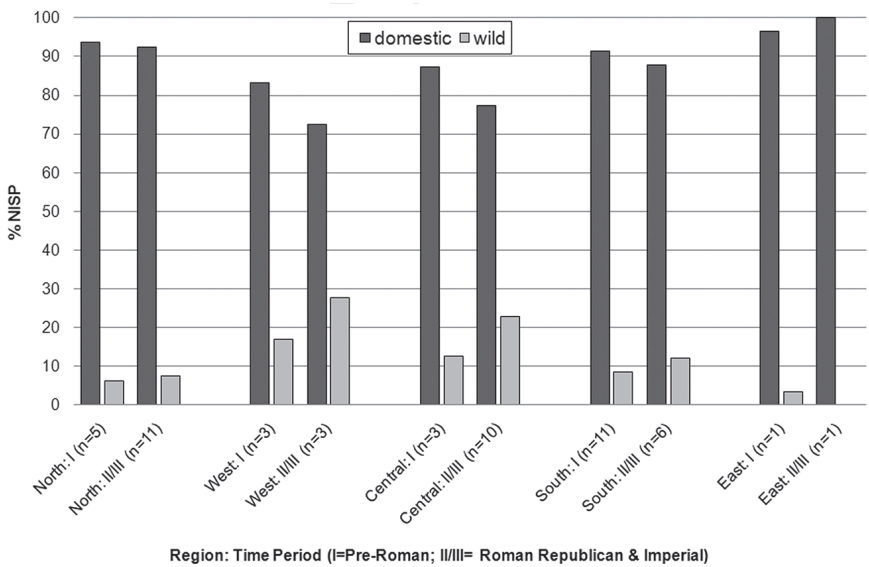

Figure 15.3. *Mean NISP frequency for domestic and wild mammalian taxa between pre-Roman (I) and Roman Republican and Imperial (II and III, combined) contexts across geographic regions of Iberia.*

Inequality again underlies patterns displayed for Roman Iberia. Elite individuals and Roman citizens often desired to distinguish their meat diet from those less privileged or from those viewed differently from themselves. Inequalities in wealth, rank, and identity-labeling were the criteria creating such divides among people. The choices made to display and advertise such inequalities, however, were contingent on cultural and environmental parameters. Where conditions favored such parameters, pork consumption could be used to denote elite, Roman identity, especially in urban settings. However, a greater abundance of wild animals in Roman Iberia overall, compared to provinces elsewhere, such as Italy and North Africa, diminished the role game meat had in marking dietary inequality. Consequently, alternate patterns for noting dietary, and in turn, social inequality were sought, in this case a drive by elites in some areas of Iberia to augment the proportion of domestic taxa on their menus.

BUTCHERY, MARKETING CHANGES, AND URBANIZATION

As romanized urban sites see an increase in pork, changes also surface in butchery practices. Much relates to the need to process more carcasses for

expanding urban populations. Take cattle in Roman Britain, for example. Up until the Romano-British period, cattle here served primarily as beasts of burden; however, in urban and military enclaves of Roman Britain, cattle became a main source of meat. Experiments involving the replication of cut marks show great uniformity in how animals were processed, especially among Romano-British urban contexts (Seetah 2006). Results indicate a principle of butchery based on quick and efficient dismemberment. Heavy chopping tools are employed frequently, and limb bones are often chopped apart rather than carefully separated with knives (Seetah 2006). Implement and technical specializations are apparent. A degree of interaction among people of different trades (e.g., butchers, metallurgists, herders, and cooks, among others dealing with animals) must have taken place for the level of tool specialization shown.

Meat processing in Britain, therefore, became highly systematic in the Roman period. Personal assessments of faunal assemblages in Italy, North Africa, Greece, and Iberia show similar butchery uniformity that appears with Roman cultural influence (MacKinnon 2002, 2004). These patterns are displayed especially at urbanized sites, and in part exhibit elements that parallel routine, assembly-line procedures in some cases. Could this have happened without the Romans if settlements themselves were naturally headed for greater urbanization? The answer is probably "yes," but romanization catalyzed urbanization in many areas. Romans sped up this process.

ROMAN IMPROVEMENTS TO ANIMAL "BREEDS"

Inequalities also factor in the development and spread of animal "breeds" under the Romans. The term *breed* as used here should be understood as surrounded by quotation marks to distinguish it from modern definitions of the term, which employ a broader understanding of the genetic principles behind the manipulation of physical and behavioral traits in animals (i.e., to create new breeds). Certainly ancient cultures bred animals to promote certain features, but how they distinguished types of the same species often depended more upon geographic location and other features than upon genetic and reproductive criteria today used to mark breeds (MacKinnon 2001, 2010a). Nevertheless, romanization did bring size improvements to animal breeds, most notably domestic cattle, sheep/goats, and pigs (Audoin-Rouzeau 1995; Bökönyi 1984; Filean 2008; Lepetz 1996; MacKinnon 2001, 2004, 2010a; Peters 1998).

Starting with Italy, measurement data record an increase in average withers heights of all three taxa going from Republican to Imperial times (Figure

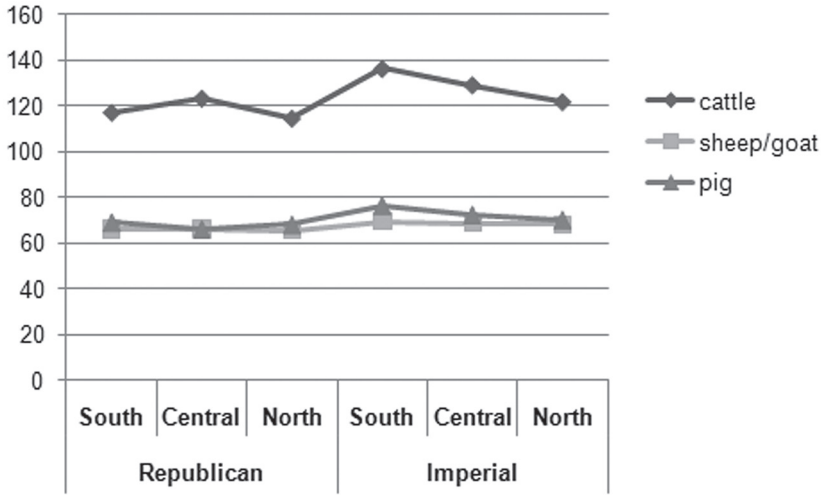

Figure 15.4. *Mean withers heights (cm) for cattle, sheep/goat, and pig between Republican and Imperial contexts in various geographic regions of Italy (South, Central, and North).*

15.4). The biggest changes register in southern and central Italy, presumably related to higher population densities in these areas, and the need to feed cities. Although to some degree the improvement of southern Italian breeds of cattle may be linked with the import of quality stock from Greece, the increase in pigs and sheep/goats is tied with conscious breeding performed by the Romans (Bökönyi and Gal 2010).

When values for Italy are compared to other areas, interesting patterns develop. Figure 15.5 displays height ranges and means for cattle for pre-Roman Europe, alongside values for Roman Imperial Italy, and Roman provincial territories in Hungary, Gaul, Germany, and Britain. Overall the pre-Roman European average is less than all Roman cases. Romanization improved cattle sizes across the empire (Audoin-Rouzeau 1995). Ranges are still sizeable, however, and many smaller breeds were never totally replaced under Roman contact and influence. Nevertheless, following the mean values from Italy to Britain, the impression is that larger breeds appeared first in Italy, and were later disseminated to more distant regions of the Roman Empire. Such a pattern, in part, lends support to a notion of inequality among Roman provinces. Italy appears favored as a center for breeding manipulation, at least as regards breeding larger livestock.

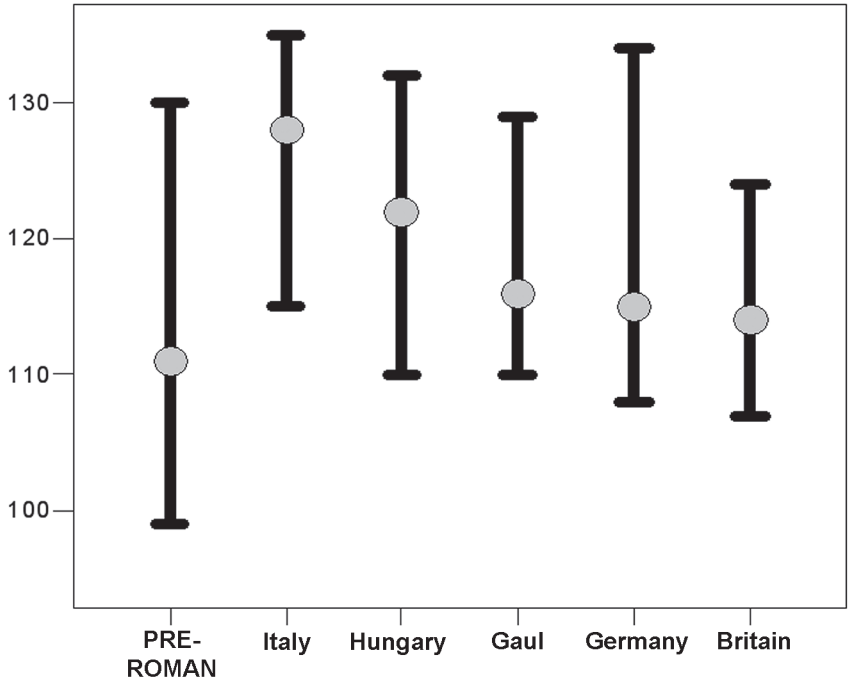

Figure 15.5. *Box plot minimum/maximum ranges and means (cm) for cattle withers heights from pre-Roman European contexts (from all geographic regions) and five Roman provincial zones (Italy, Hungary, Gaul, Germany, and Britain). Ranges for Italy are especially broad. Large breeds originate in Italy, and gradually spread through romanization to provinces further abroad.*

Assessments of animal size using zooarchaeological metric data are contingent on many variables. Cultural, genetic, and environmental factors influence an animal's size and shape. Sexual size dimorphism is also a factor. A change in the balance of the different sex ratios among samples under consideration can result in an apparent size increase (Filean 2008). While the interaction of all of these forces is difficult to determine for the Roman cases above, preliminary analyses show no dramatic variation in environmental conditions or sex ratios among the periods investigated (MacKinnon 2010a). The impression is that size changes within the animals relate largely to cultural factors to "improve" livestock. Nevertheless, although romanization seems to have brought an overall increase in livestock sizes, which seems to funnel out from Italy across the empire, Romans did not eliminate smaller local breeds,

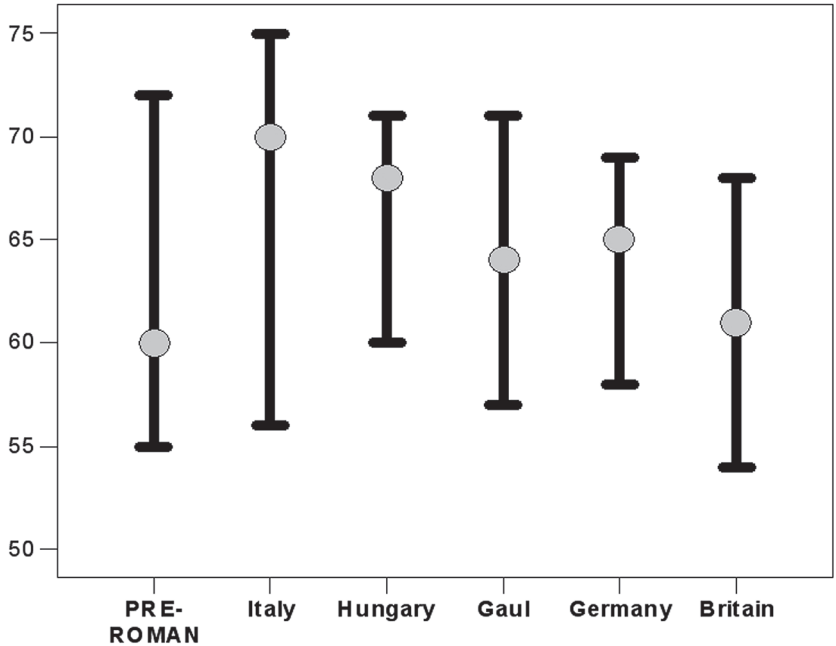

Figure 15.6. *Box plot minimum/maximum ranges and means (cm) for sheep/goat withers heights from pre-Roman European contexts (from all geographic regions) and five Roman provincial zones (Italy, Hungary, Gaul, Germany, Britain). The pattern is similar to that of cattle in Figure 15.5. Even as average sizes improve, smaller breeds are not totally eliminated; the minimum for Roman Britain, for example, remains below the minimum for pre-Roman European contexts.*

especially breeds of sheep and goats. In fact, the minimum size for sheep/goats in Roman Britain is below the minimum for pre-Roman European contexts (Figure 15.6). It is better to view Romans as shrewd breeders, variously improving or maintaining animal breeds that suited geographies, economies, and diets within regions of their empire.

The focus above has been on withers height, and certainly in many areas animals got taller. What about other traits, like stockiness? Did Romans change these too? Data seem to support as much. In fact, for Italy some of the biggest width and depth changes to cattle bones—variables that correlate with strength, as in pulling plows and carts—coincide neatly across regions that underwent major agricultural and economic change during antiquity

(MacKinnon 2010a). Campanian cattle, for example, show the first significant increases in bone-width measurements during the late Republic and early Empire (MacKinnon 2010a). The same trend is documented for cattle in the Po River area. In Umbria, Romans are responsible for much of the initial developments that eventually lead to the great, white Chianina breed—the variety prized for Roman sacrifices and a model for Roman artistic representations of cattle (MacKinnon 2010a).

The assessment of changes in animal size and shape during Roman times adds another aspect regarding animals and inequality, though now among the animals themselves (as distinct from their use in human dietary aspects). One may argue that Roman breeding tactics created and manipulated "inequalities" among livestock, on a variety of levels. First, there was an overall drive to "improve" stock by breeding larger animals. Consequently, one sees height increases across the empire. Italy, as the core of the Roman world, seems to capitalize on this notion earlier than its provinces—perhaps another example here of regional inequality, with Italy promoting its dominance over other zones. However, animal "inequality" among areas of the Roman world also operated on a second level, with various efforts to select and promote a range of physical and behavioral features within different livestock as suited the local and regional demands and settings. Weight, stockiness, color, hide and wool quality, strength, hardiness, docility, and so forth were among a range of characteristics under selection, all of which the Romans manipulated as suited their needs. In sum, not all animals within a single species were considered equal, and the Romans bred multiple types to augment this variety.

PETS

In the same manner in which sizes and shapes of livestock were manipulated by the Romans, so too did they modify breeds of pet animals, notably some types of dogs (De Grossi Mazzorin and Tagliacozzo 1997; Harcourt 1974). Dogs were by far the most common pet in Roman antiquity. Perhaps the earliest, major proliferation of dog sizes and breeds can be traced to Roman times, where a dramatic range of varieties is displayed among archaeological, ancient textual, and artistic evidence across numerous parts of the empire (De Grossi Mazzorin and Tagliacozzo 1997; Harcourt 1974; MacKinnon 2010b; Toynbee 1973). Pet dogs factor among these types. Particularly noteworthy is the case of an elderly, pathological toy breed (likely an early form of a Maltese) from the Yasmina necropolis in ancient Carthage (MacKinnon and Belanger 2006). This animal was certainly a pampered, cherished pet, considering its

compromised mobility, elderly age, and special feeding needs (it lacked nearly all its teeth). The fact that "lap dogs" appear first in Roman levels at Carthage attests to a growing elite population in the burgeoning city at this time. Toy breeds are not represented in later levels, the assumption being that perhaps only larger, working breeds, such as guard-, hunting-, or shepherding-dogs were favored then.

The example of the Yasmina dog adds another dimension to assessing animals and inequality in Roman times. Here we are dealing with an extremely special pet dog, one whose treatment far surpassed the norm for many other animals, including other pet animals. It was cared for in a manner unequal to most.

What might be the norm for pet-animal treatment in antiquity? This is difficult to assess, given that attitudes toward animals and motivations for pet-keeping varied in the past (Bodson 2000). Literary references record cases of great care among some Roman pet animals, but patterns are inconsistent, and the line separating pets from working or utilitarian animals can be blurred (Gilhus 2006; Toynbee 1973). Some information for the treatment of pet animals, however, is available from the archaeological record. On the basis of zooarchaeological data, patterns of skeletal pathologies among Roman dogs from the Mediterranean largely parallel patterns observed for pre- and post-Roman sites in the larger Old World region (MacKinnon 2010b). Common pathological conditions include dental complications, especially premortem tooth loss, healed limb fractures, osteoarthritis, and infection (MacKinnon 2010b). Generally, these Roman dogs seem to be in good condition, as regards skeletal health, with minimal osteological evidence for human abuse or maltreatment. Moreover, no conclusive data for splinting any broken bones exist, despite the capability to perform such operations as outlined in the ancient Greek and Latin texts (Toynbee 1973; MacKinnon 2010b). Active care toward dogs in the Roman Mediterranean context is indicated, especially in terms of facilitation for feeding. Propensity for injury and illness, and in turn treatment of such ailments may have varied depending on dog breed, size, and role as pet. Smaller toy varieties of dogs in Roman times appear more susceptible to multiple pathological conditions, but also display signs of greater human care, especially in terms of pampering and feeding (MacKinnon 2010b).

In sum, this assessment of Roman dog breeds and their treatment introduces further dimensions to the topic of animals and inequality. First, there is the notion of inequality in appearance and breeding in dogs, best seen perhaps in the development and spread of small toy breeds, themselves not bred on any significant scale in the ancient world prior to Roman times. Second, the

case study from Yasmina, in conjunction with skeletal pathological evidence for differential care among types of dogs in the Roman world, adds a further component, specifically inequality in treatment. This latter form of inequality is itself tied to variation in the emotional connection people felt toward various animals, some of which may be considered pets. Again, not all animals (even those of a single species or which otherwise may appear equal) were viewed, or treated, equally in Roman times.

CONCLUSIONS

This brief assessment of animals and inequality can serve only as a general overview of how zooarchaeological research can assist in tracing patterns of change in animal use across the Roman world. Overall, while romanization did affect aspects such as pork consumption, butchery procedures, and the creation of, and improvements in, breeds or varieties of animals, it is important to stress that changes were not felt equally across the empire, nor were they brought under similar circumstances. Regionalism did remain strong and cases of persistence occurred. Diet can be a central component of one's identity, as also can be the company one keeps—including nonhuman company: pets, pests, livestock, and so forth. Diets and animal use, moreover, are often formulated within concepts of inequality. Zooarchaeological remains again provide numerous examples of such cultural inequalities in this respect.

Why did these changes and inequalities occur? It seems that no single, sweeping explanation or theory applies. Any number of factors could contribute (e.g., elite change, urbanization, cultural mixing and blending, identity labeling) whether the participants were cognizant or not of the processes or outcomes. Moreover, factors could present themselves in various capacities and at various times, individually or collectively. The complexity behind the process need not be seen as a failure to derive a single sweeping explanation; rather, it is just part of cultural complexity. Most scholars can probably agree that cultural change occurred during Roman times, across the empire. Changes were felt across myriad aspects of culture, and in different ways depending upon the region, time period, group, and aspect in question. Change was not always a top-down or bottom-up event, and how quickly or slowly it occurred depended as much upon how willing people were to embrace change, at one level, as how forceful schemes were to make change happen, despite objections.

To conclude, it is apparent that romanization, inequality, and animals are all interconnected topics. Cultural change, brought as a result of romanization, was often linked with the expression of inequalities. Pork-rich diets, for

example, spread into various areas of the Roman world through two key processes: elite identity labeling and military dietary influence. Both social groups (elites and the military), it appears, regularly promoted the consumption of pork, where viable, as a means to display inequality. They wished to be viewed as special and privileged in this respect, and pork consumption helped characterize this inequality. Dietary identity, however, was complex. Regional variation over a generalized "Roman" scheme for augmented pork consumption among elites perhaps best suits the patterns displayed. In some cases, such as the Iberian example outlined above, pigs were not always the best animal to exploit to establish social and dietary inequality. Wild animals sometimes factored in distinguishing inequities, but again much depended on availability, abundance, and other practical factors. Dietary choices made to construct one's identity, and any inherent inequalities that helped define that identity, were often fluid. What worked in one area or region of the Roman world need not imply that it held the same role elsewhere. Consumption of wild animals in Roman Iberia, for example, appears widespread. Consequently, evidence suggests that elite Romans in southern Iberia chose to augment domestic meats in their diet as a means to express inequality.

The increasingly urbanized nature of Roman society and settlement provided a second means of promoting inequality as regards animal resources. Butchery procedures became more specialized, mechanized, and routine as cities spread and grew under the Roman Empire. Urbanized centers also attracted more elites and Roman citizens, who in turn wished to display their identity and inequality, often through augmented pork consumption.

While variation in the meat consumed within one's diet is perhaps a common means to structure social inequality during Roman times, it represents but one level in the complex relationship of animals and inequality. Enhanced breeding operations undertaken by the Romans show inequalities among the animals themselves. Evidence supports Roman selection of different traits within livestock—height, strength, and so on—which in turn are displayed in varying proportions among regions of the empire. Larger taxa seem to appear first in Italy, with many subsequently filtering out to other areas of the Roman world. Not only is there an inequality among breeds of livestock, with some deemed "improved," but perhaps a second level of inequality in such improvements that initiated in specific areas, often Italy. At one level, enhanced breeding under the Romans created inequalities among animal types (some "better" than others), but on another level, specific areas, it seems, may be unequal in this respect, if they represent the zones where the earliest or more earnest breeding was undertaken. Breed proliferation during Roman times is

also expressed among dogs, with the creation of many smaller toy types. This further creates a dimension of inequality in the variation of human care and manipulation of animals. In sum, inequalities permeate multiple components of ancient Roman life. Animals, in turn, form a vital means to examine the range of inequalities that exist in human social, cultural, emotional, and behavioral aspects.

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16

Wool Production, Wealth, and Trade in Middle Saxon England

Pam J. Crabtree and
Douglas V. Campana

INTRODUCTION

Our research at the Anglo-Saxon sites of West Stow and Brandon in western Suffolk, England, suggests that a shift in animal-husbandry practices took place during the seventh and eighth centuries AD. Here we present our zooarchaeological data from the new excavations at Early Anglo-Saxon West Stow[1] (ca. AD 420–650) and Middle Anglo-Saxon Brandon (ca. AD 650–850). We compare these data to a broad survey of zooarchaeological data from over thirty Early and Middle Anglo-Saxon sites in eastern England. These data suggest a shift from a pattern of relative self-sufficiency to one based on specialized production of commodities such as wool. We examine the relationship of this change in animal economies to the social and political transformations that took place in the Middle Saxon period, including state formation, urbanism, and the intensification of trade.

BACKGROUND

The Early and Middle Anglo-Saxon periods in England provide a unique opportunity to use archaeological data to study the beginnings of the complex urban societies that form the basis of the modern English nation. The Early Anglo-Saxon period begins after the withdrawal of Roman military power from Britannia, around AD 400. Constantine III appears to have withdrawn the last of the Roman legions from Britain in AD 407 to mount an expedition against the barbarian incursions in Gaul. The residents of Britain were also threatened by attacks at that time, but no help was available from Rome. In AD 410 the Roman

DOI: 10.5876/9781607322863.c016

Emperor Honorius told the citizens of the towns of Britain to see to their own defenses, and this date is usually taken as the end of Roman Britain (Esmonde Cleary 1989:136–137). Extensive archaeological research at cities such as London (*Londinium*) (Cowie 2008) and towns such as Winchester (*Venta Belgarum*) (Qualmann, Rees, and Scobie 2010:8) indicates that most of the Roman towns in southern and eastern England had lost their urban character by the beginning of the fifth century. Major Roman industries, such as the pottery industry, disappeared at about the same time (Esmonde Cleary 1989:154). Modern historical and archaeological scholarship indicates that the arrival of the peoples who came to be known as the Anglo-Saxons was not the cause of the end of Roman Britain (e.g., Esmonde Cleary 1989; Jones 1996). Britain ceased being Roman before the arrival of the Anglo-Saxons, which probably dates to the second quarter of the fifth century.

Historical sources for early post-Roman Britain are few. The only truly contemporary source is Gildas, a Roman Catholic cleric writing in the west of Britain in the earlier sixth century. In his *De Excidio et Conquestu Britanniae* (*On the Ruin and Conquest of Britain*) (Giles 1891) he sees the arrival of the Anglo-Saxons in eastern England in the fifth century as God's punishment of the British. Based on Gildas and later sources, such as Bede's eighth-century *Ecclesiastical History* (*Historia ecclesiastica gentis Anglorum*) (tr. Sherley-Price 1968) and the ninth-century *Anglo-Saxon Chronicle* (Killings 1996), the arrival of the Anglo-Saxons in Britain was traditionally seen as a substantial migration of Germanic peoples who extirpated much of the native British population and drove the rest of them westward into western Britain and Wales.

Modern scholars have questioned both the nature and the size of the *Adventus Saxonum* (for a modern review, see Hills 2002), suggesting that it probably represents a much smaller movement of political and military elites whose language and material culture came to dominate much of eastern England in the later fifth and sixth centuries. The nature of the Early Anglo-Saxon settlement was essentially rural and agrarian, and most people were buried in folk cemeteries, such as Spong Hill in Norfolk, as either cremations or inhumations (Hills 2001 and references therein).

By the seventh and eighth centuries, the nature of Anglo-Saxon society had changed dramatically. From a political perspective, seven powerful kingdoms, known as the heptarchy, emerged out of an earlier patchwork of small polities. One of these was the kingdom of East Anglia, located in what today are the counties of Norfolk and Suffolk in eastern England. Rich burials, such as the seventh-century burial from Mound 1 at Sutton Hoo in Suffolk (Carver 2005)

point to increasing social differentiation in the seventh and eighth centuries. In the seventh and eighth centuries, we also see the establishment of the first towns of post-Roman Northwest Europe, the *emporia* (Hill and Cowie 2001). Four emporia have been identified in eastern England, at Ipswich, London, Southampton (Hamwic), and York. These towns served as centers of both regional and international trade.

Recent archaeological research (Scull 2009) has refined the chronology of the settlement of Ipswich. The emporium at Ipswich in Suffolk appears to have been established on the bank of the Orwell River under the aegis of the East Anglian royal house in the seventh century as a way of channeling and controlling exchange contacts with the continent (Scull 2009). Beginning in the early years of the eighth century, Ipswich was home to the first large-scale pottery industry in post-Roman Britain (Rogerson 2001:175; see Blinkhorn 1999 for a discussion of the chronology of Ipswich ware). Unlike earlier Anglo-Saxon pottery, which was hand-built and fired in a bonfire, Ipswich ware was turned on a slow wheel and kiln-fired. It was distributed throughout East Anglia, and it is also found at major ecclesiastical and high-status sites throughout eastern England.

Similar transformations are seen in the Anglo-Saxon countryside. There is evidence for the development of high-status estate centers beginning as early as the late sixth or early seventh century, as well as evidence for substantial settlement shifts, the so-called "seventh-century shuffle" (Reynolds 2005), and the possible beginnings of the open-field system as early as the eighth century in central England (Oosthuizen 2007). In short, the political, socioeconomic, and settlement-pattern data suggest that complex societies were developing in eastern England by the seventh or eighth centuries AD.

Zooarchaeology has played a major role in studies of the rise of complex societies in both the Eastern Hemisphere and the Americas. Previous studies have shown that faunal analyses can contribute to our understanding of trade, political economy, and increasing social complexity (see Campana et al. 2010; Crabtree 1990a; deFrance 2009). In Britain, Bourdillon (1994) has shown that the inhabitants of the early urban site of Hamwic, Middle Anglo-Saxon Southampton, were provisioned with animals drawn from the surrounding countryside and that this process required both planning and control. Similar arguments have been made for the Middle Anglo-Saxon emporium at York (O'Connor 1994; see also Hamerow 2007). Less research, however, has been carried out on the contemporary transformation of the Anglo-Saxon countryside. Field surveys and finds by metal detectorists have helped identify a series of inland sites where goods, including animal products, were exchanged

(Pestell and Ulmschneider 2003). In addition, historical sources indicate that textiles were being exported from Middle Saxon England to Francia in the eighth century (Owen-Crocker 2004:173). The archaeological and historical data suggest that production for exchange played an increasingly important role in Middle Anglo-Saxon animal husbandry. Zooarchaeological data, including species ratios, age profiles, and measurement data can be used to identify specialization in animal husbandry. In addition, patterns of species and body-part representation may allow us to identify increasing social differentiation in the Middle Anglo-Saxon period.

ZOOARCHAEOLOGICAL DATA FROM WEST STOW WEST AND BRANDON

Our analysis is based on faunal data from the Early Anglo-Saxon site of West Stow West and the Middle Anglo-Saxon site of Brandon, both of which are located in western Suffolk, England (Figure 16.1). We compare our data to a broader range of faunal assemblages from Early and Middle Saxon sites in eastern England to document the social and economic changes that took place in the Anglo-Saxon countryside. We look for evidence of increasingly specialized animal production and its relation to increasing social inequality in Anglo-Saxon England.

The Anglo-Saxon site of West Stow in western Suffolk remains one of the largest, well-published Early Anglo-Saxon sites in eastern England (West 1985). The original excavations were carried out at the site between 1965 and 1972 under the direction of Dr. Stanley West of the Suffolk County Archaeological Unit. The excavations uncovered sixty-nine sunken-featured buildings (SFBs) clustered around seven small "halls." It is likely that only two or three of the halls were in use at any one time. The faunal remains from the site have also been exhaustively published (Crabtree 1989, 1990b, 1993). The data indicate that the West Stow economy was based on cattle, sheep, and pig husbandry, with little evidence for bird and mammal hunting. Both cattle and sheep appear to have been kept for a range of purposes, including meat, milk, some wool, and traction. Zooarchaeological evidence for trade was limited to a single bone from a marine flatfish. Although some animals may have moved in or out of the settlement as a result of trade, tribute, and/or payments of food-rent, the overall picture was one of relative economic self-sufficiency.

Recent excavations at West Stow West, conducted in advance of the construction of a new visitors' center, uncovered six new buildings, including five

Figure 16.1. *Eastern England, showing the location of the West Stow West and Brandon sites in Suffolk.*

SFBs and a post-built structure, and over seven thousand additional animal bones and fragments. These new finds have begun to change our understanding of both the West Stow settlement and its animal economy. From a settlement perspective, the new discoveries challenge Stanley West's (1985) original model, which saw West Stow as a small bounded settlement. The new finds suggest that Early Anglo-Saxon settlement was far more widely distributed along the banks of the Lark River. These new discoveries may indicate that the plan of West Stow more closely resembles the layout of the Early Anglo-Saxon village of Mucking in Essex, where Early Anglo-Saxon building were spread across a broad stretch of the landscape (Hamerow 1993; Hirst and Clark 2009). Unfortunately, animal-bone preservation at Mucking was very

poor, and the limited faunal assemblage that was recovered (mostly teeth) can tell us very little about animal husbandry and hunting practices in Early Anglo-Saxon Essex (Done 1993).

Fortunately, faunal remains were well preserved at both the original excavations at West Stow and the excavations at West Stow West. Although the faunal remains from the new excavations are still under study, preliminary analyses suggest that they show some interesting differences from the original West Stow faunal sample. Like the original faunal assemblage, the new animal-bone collection from West Stow is dominated by the remains of domestic mammals, including cattle, sheep, pigs, horses, and domestic birds, including both chickens and geese. A small number of goats were identified from the original excavations at West Stow (Crabtree 1990b:6), but no clear goat remains were identified from West Stow West. Hunting played a very minor role in the economy; there is less evidence for hunting at West Stow than there is at the neighboring late Roman (fourth-century) site of Icklingham (Crabtree 2010a), even though Icklingham was a small town whereas West Stow is a rural settlement. Evidence for hunting in the West Stow West faunal collection is limited to small numbers of bones of red deer (*Cervus elaphus*), badger (*Meles meles*), and East Anglian crane (*Grus grus*).

Differences between the original West Stow sample and the new data are seen in the relative importance of the main domestic mammals (Figure 16.2). Whereas the original West Stow faunal assemblages were dominated by the remains of sheep, followed by cattle, pigs, and horses, the new assemblage produced roughly equal numbers of sheep and cattle, with far fewer pigs. On the basis of the original excavations, West (1985) saw West Stow as a small village that would have been home to no more than three or four extended households at any one time. The new excavations indicate that the settlement may have been much larger, and there may have been a degree of intrasite variability in the relative importance of the various domestic species. The new West Stow data are more like the faunal data that have been recovered from other Early Anglo-Saxon settlements. Most are dominated by cattle remains, even those like Spong Hill in Norfolk (Bond 1995) that are located in areas well suited to sheep and goat husbandry (Figure 16.3). Cattle were valuable because they could provide a variety of products, including meat, milk, and traction. The aging data indicate that the West Stow West cattle were killed at all stages of life, and some of the adult bones showed traction pathologies, indicating that they had been used to pull carts and plows. Cattle may also have served as a form of wealth in Early Anglo-Saxon society, as they did in contemporary early medieval Ireland (McCormick 2008).

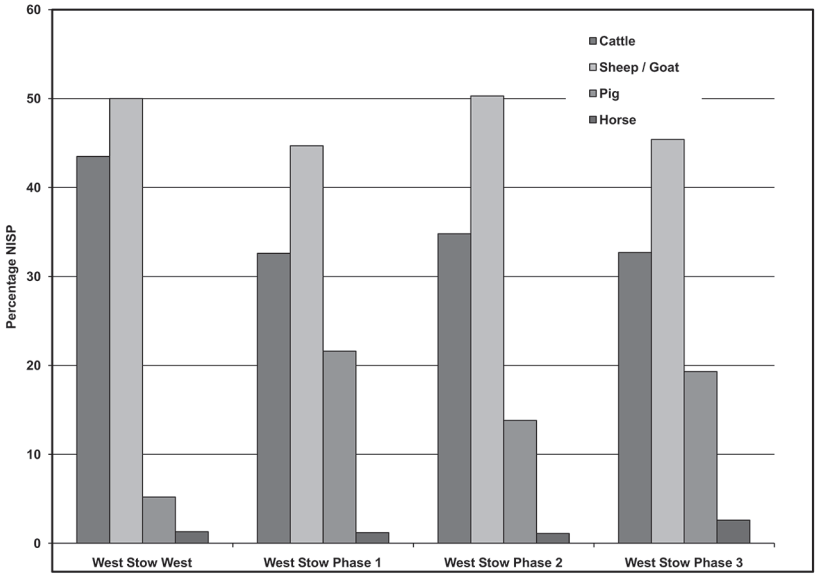

Figure 16.2. *Species ratios based on NISP or Number of Identified Specimens per taxon for the faunal assemblages from West Stow West and the original West Stow phase 1 (fifth century), West Stow phase 2 (sixth century), and phase 3 (late sixth to seventh/eighth century) assemblages. (See Lyman [2008] for a detailed description of the quantification method used.)*

The aging data for the sheep from West Stow West, based on dental eruption and wear, following Payne (1973), indicate that most of the animals were killed during the first two years of life (Figure 16.4), a pattern that is also seen in the original West Stow data (Crabtree 1990b). A minority of these animals survived to adulthood. These data suggest that the primary goal of caprine husbandry was probably some combination of meat, milk, and/or herd security, rather than more specialized wool production (Payne 1973; Redding 1984). The age profile seen at the new West Stow excavations is closely mirrored by the mortality profile for sheep seen at the Early Anglo-Saxon site of Kilham in East Yorkshire (Archer 2003; Crabtree 2010b:Figure 2).

Summing up, the zooarchaeological data from the new West Stow excavations and from other recently excavated Early Anglo-Saxon sites suggest that Early Saxon animal husbandry was focused on autarky or local self-sufficiency. Cattle and sheep were kept for a variety of purposes, including meat, milk, traction, and wool, although wool was not much of a focus based on the data

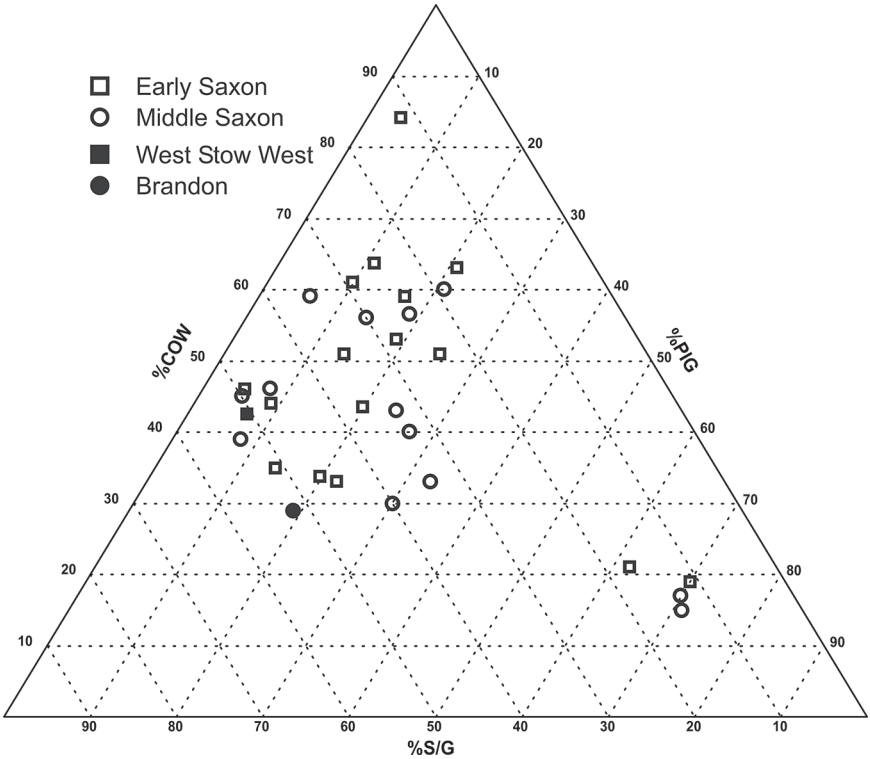

Figure 16.3. *Species ratios based on NISP for cattle, sheep, and pigs for thirty-one Early Anglo-Saxon and Middle Anglo-Saxon sites in eastern England. (Crabtree 2010b.)*

in Figure 16.4. There is no clear evidence for specialized animal husbandry or the surplus production of commodities for markets. In addition, the Early Saxon economies were based on animal husbandry with relatively little evidence for hunting. Sykes's (2010:178) recent survey of the evidence for deer hunting in Anglo-Saxon England has shown that this activity was not a common practice until at least the seventh century AD and that it probably served primarily as a means of supplementing the diet in times of need during the Early Anglo-Saxon period.

Archaeological and zooarchaeological data indicate that this pattern of autarky began to change in the late sixth and seventh centuries. The Staunch Meadow Brandon site (Figure 16.1) in west Suffolk typifies this change. Brandon is a wealthy estate center that was occupied from the mid-seventh century to about AD 850. Under the direction of Andrew Tester and Bob

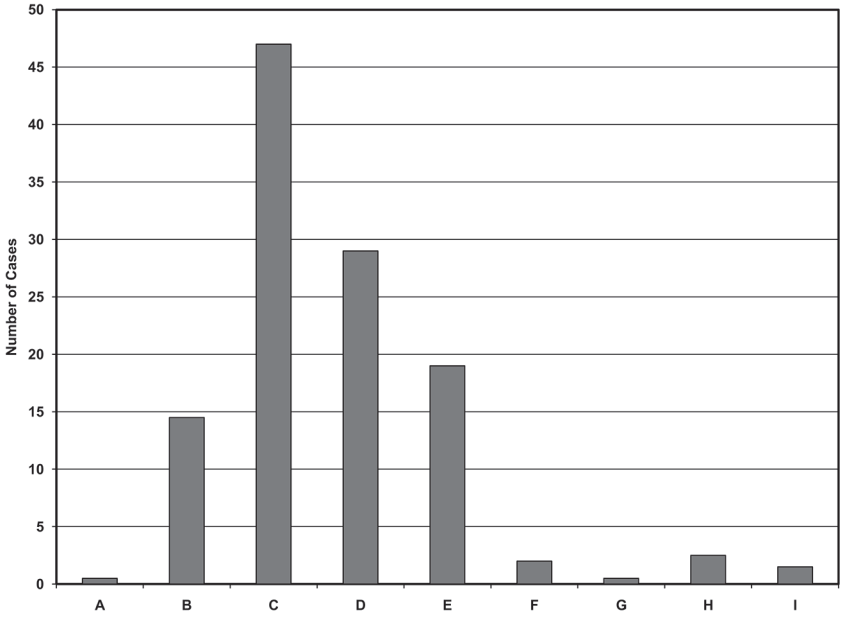

Figure 16.4. *Mortality profile for sheep from West Stow West, following Payne (1973). A majority of the sheep were killed during the first two years of life (stages A through D), and only a small number survived to four years of age or more (stages G through I).*

Carr, the Suffolk County Archaeological Unit carried out eight seasons of excavation at the site between 1979 and 1988 (Carr, Tester, and Murphy 1988). Approximately one-third of the site, an area of 13,000 square meters, was excavated in advance of the construction of playing fields. The excavation revealed thirty-four post-built timber buildings, plus fence lines, pits, ditches, hearths, and a church and cemetery. The site also included a waterfront industrial area on the north side of the site. Since the site was never ploughed, the Middle Saxon remains, including the fauna, were exceptionally well preserved.

Artifactual remains, such as silver pins, indicate that Brandon was a wealthy community, and the presence of a stylus suggests that at least some members of the community were literate (Carr, Tester, and Murphy 1988). Brandon was clearly a Christian community, as revealed by the presence of the church and artifacts such as a plaque depicting the eagle of St. John. It may have served as an early monastic community for much, if not all, of its life (Andrew Tester, personal communication), although our knowledge of the form and layout of Middle Anglo-Saxon monastic communities is quite

limited. Often evidence for literacy is used to identify early settlements as monastic (see Blair 2005).

The excavations at Brandon yielded about 158,000 mammal and bird fragments which were initially identified in 1990 and 1991 (see Carr and Tester, forthcoming). Like the new faunal assemblage from West Stow West, the Brandon animal-bone collection was dominated by the remains of domestic animals, including cattle, sheep, pigs, horses, chickens, and geese. A small number of goats were also identified, but goats make up less than 1 percent of the identified caprine remains at the site. Hunting, however, appears to have played a more important role in the Brandon economy. The Middle Saxon inhabitants of Brandon hunted red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), badgers (*Meles meles*), otters (*Lutra lutra*), and marine mammals, including both gray seals (*Halichoerus grypus*) and a dolphin or small whale. Sykes (2010:179) notes that game animals generally become more common on Middle Saxon sites and that hunting may have taken on elite associations by this time. This appears to be the case at Brandon as well. Body-part distributions for Early Anglo-Saxon sites, including West Stow, are primarily composed of meat-bearing elements, suggesting that the waste elements were left at the kill site. This is consistent with the use of hunting as an occasional dietary supplement. The body-part distributions at Middle Anglo-Saxon sites, including Brandon, are more complex, suggesting that hunting may have been more about social display than diet (Sykes 2010:178–179). The Brandon roe deer assemblage, for example, includes high numbers of forelimb elements. These complex patterns may reflect redistribution, hospitality, and feasting (Sykes 2010:180).

The avian assemblage from Brandon is equally diverse. It yielded the remains of East Anglian cranes (*Grus grus*), swans (*Cygnus olor*), ducks, divers, and other water birds and waders. The most striking avian find was the skeletal remains of a nearly complete peregrine falcon (*Falco peregrinus*). Because falcons are not native to this part of England, this find represents the earliest known evidence for falconry in Anglo-Saxon England (Crabtree 2007), a sport that has always had elite associations. The evidence for falconry and hunting indicate that Brandon was a wealthy estate center in Middle Saxon England.

The species ratios for the main domestic mammals also show some important differences from both the original West Stow and the new West Stow West faunal collections (Figure 16.5). In particular, the Brandon faunal assemblage includes a higher proportion of sheep, and comparatively fewer cattle. This shift toward sheep husbandry is seen at a number of other Middle

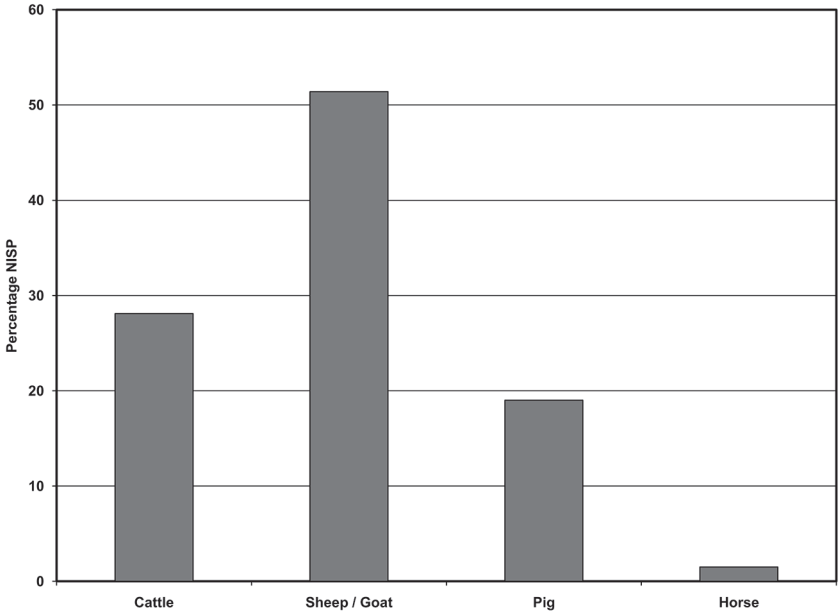

Figure 16.5. *Species ratios based on NISP for the main large domestic mammals from Brandon.*

Anglo-Saxon sites in England (Figure 16.3). However, as the data from Middle Saxon Flixborough in Lincolnshire suggest, beef remained a prestige meat during Middle Saxon times (Dobney et al. 2007). Distributional data from Brandon show a distinct concentration of cattle bones around two wealthy households at the site (Crabtree and Campana, in press).

The aging data for sheep from Brandon reflect more fundamental changes in animal husbandry. Whereas the West Stow West assemblage included many young sheep killed during the first two years of life, the Brandon kill-pattern was focused on mature adult sheep (Figure 16.6). The shift toward a more focused kill-pattern centered on older adult sheep is seen at other Middle Saxon sites, including Quarrington in Lincolnshire (Rackham 2003). The age profiles indicate that we may be seeing a shift toward more specialized wool production at a number of rural sites in Middle Saxon England. Although sheep produce their finest wool before the age of three years, they will continue to produce large quantities of high-quality wool for several years after. As a result, sheep in wool-producing flocks are generally not culled until they reach five to seven years of age (O'Connor 2010:12).

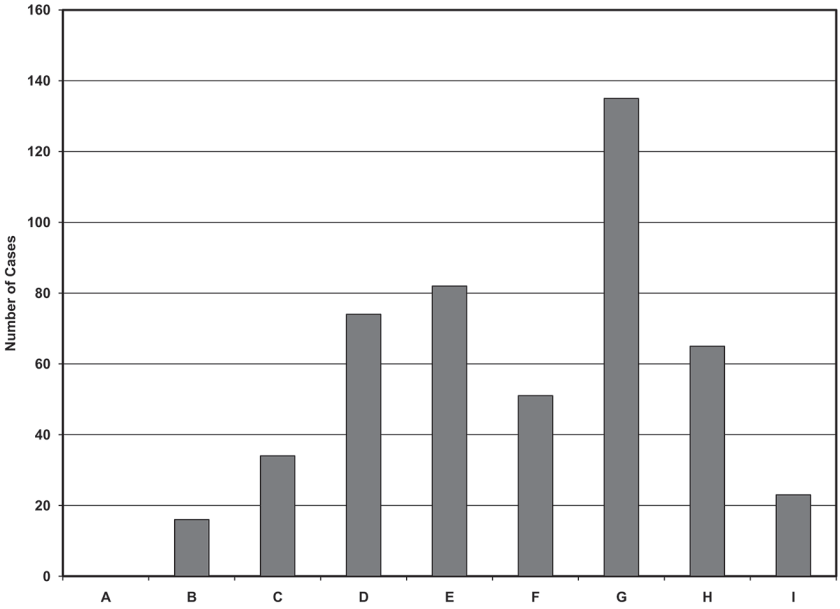

Figure 16.6. *Mortality profile for the sheep from Middle Anglo-Saxon Brandon, following Payne (1973).*

Other data from Brandon support this inference. First, a majority of the sheep from Brandon were male, based on the analysis of the pelves and horn cores. Wethers or castrated males were often preferred for wool production in the later Middle Ages because they carried heavier fleeces (Bischoff 1983:148). Females are the productive members of domestic flocks, producing both lambs and milk, in addition to wool, but the expense of keeping large numbers of castrated males was worthwhile because of the value of their wool. Detailed statistical comparisons between the Brandon faunal assemblage and the original West Stow data indicate that the Brandon sheep were significantly smaller than their West Stow counterparts (Crabtree and Campana, in press). Although the metrical data from the new West Stow West excavations are still under study, the sheep from the West Stow West excavations had an average estimated withers' height of 60.5 centimeters, whereas the Brandon sheep were only 56.6 centimeters tall, following Von den Driesch and Boessneck (1974). The Brandon sheep may represent a smaller variety of sheep that were bred specifically for wool production. In short, the data from

West Stow, Brandon, and other Early and Middle Anglo-Saxon sites in eastern England suggest that the Early-to-Middle Saxon transition was marked by a shift from autarky and production for local use to more specialized animal production for exchange.

INTERPRETATION

How can these data contribute to our understanding of the rise of complex, stratified societies in Middle Anglo-Saxon England? Much of the earlier work on state formation in Anglo-Saxon England, such as Hodges's (1982) *Dark Age Economics*, has focused on the rise of the emporia and their control by the emerging royal houses of Anglo-Saxon England. Our data suggest that the beginnings of social complexity were also dependent on fundamental changes in the countryside, and that these changes are first seen as early as the late sixth to early seventh centuries AD. At that time, high-status Anglo-Saxon settlements that include large buildings and planned layouts appear for the first time at sites such as Cowdery's Down in Hampshire (Millett and James 1983) and Yeavering in Yorkshire (Hamerow 2006:278; Hope-Taylor 1977). Unfortunately, Cowdery's Down produced little in the way of faunal data, and faunal preservation was poor at Yeavering as well (Hope-Taylor 1977:325–332).

The animal-bone and artifactual data from Brandon indicate that wealthy estate centers based on specialized animal production were established in eastern England by the seventh century AD. Moreover, faunal data from other early estate centers, including Wicken Bonhunt in Essex (Crabtree 2012) and Bloodmoor Hill in Suffolk (Higbee 2009), suggest that the shift to more specialized animal production for exchange may have begun as early as the late sixth to early seventh centuries. At Wicken Bonhunt, the archaeozoological data suggest that specialized pork production may have begun as early as the late sixth or early seventh century, whereas the aging data for sheep from Bloodmore Hill suggest an early shift to a pattern that is more closely focused on wool production. Rather than seeing the emporia as the driving force in Anglo-Saxon state formation, it is possible that the rebirth of urbanism was dependent upon significant changes in the Anglo-Saxon rural economy, including intensified animal production for exchange. The beginning of urbanism transformed both the city and the countryside, and a more intensive study of faunal assemblages from Anglo-Saxon rural sites may shed new light on this important socioeconomic transformation.

NOTE

1.The West Stow dataset discussed here is published in Open Context (Crabtree 2013) at http://dx.doi.org/10.6078/M7QC01DG.

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17

The Rhetoric of Meat Apportionment

Evidence for Exclusion, Inclusion, and Social Position in Medieval England

Naomi Sykes

INTRODUCTION

Over the last few decades, faunal-remains specialists have become increasingly adept at identifying social inequality in the zooarchaeological record, and able to characterize "high-status" and "low-status" sites based on the presence or absence of different animal species, age groups, body parts, or other variants (e.g., Ashby 2002; Crabtree 1990). However, with this advance has come the recognition that inequality is more complex than a high/low-status label. The perception and expression of inequality is often situational and shifting; what may be a marker of elite identity in one setting can be a trait of lower social standing in another (deFrance 2009; Sykes 2005; also see Jackson, chapter 5, this volume). This is particularly the case for material goods, as their meaning and significance is usually constructed through the social mechanism surrounding their procurement, distribution, and consumption (Hamilakis 2000).

It should come as no surprise that inequality is a complex phenomenon; humans are, after all, complex animals whose actions are often governed more by ideology than necessity. But while the often-contradictory nature of human beliefs and behavior present problems for archaeologists, it also makes their jobs far more interesting, with the potential to provide in-depth insights into the societies that we study.

Zooarchaeologists are well-placed to provide such insights, having within their grasp the very evidence—data relating to human-animal relationships—that "mirrors" or offers a "window" into cultural worldviews (Bussata 2007; Mullin 1999). However, we need to realize that animals cannot be the sole focus of our analysis.

DOI: 10.5876/9781607322863.c017

Human behavior and thought are not compartmentalized; we do not interact with "animals now, plants later, and ceramics tomorrow afternoon"—our lives are integrated. Similarly, it is important to recognize that the lives of animals are also not compartmentalized. The bones that we study, although recovered from their final resting place, have a history, or "biography" that documents a lifetime of interactions with cultural landscapes and environments as well as people. This connection with landscape is particularly significant within the context of inequality, given that concepts of land ownership, social structure, and human rights are intimately linked (Peters 2004; Tilly 2003; Wickham 1994) and are frequently expressed through human-animal relationships (Bussata 2007; Sykes 2010b). Indeed, in this chapter I argue that there is a very close relationship between social structure, land rights, and food distribution; that a shift in one will produce a change in the others.

If it is accepted that the lives of humans and animals are integrated, zooarchaeological studies should be likewise. This is not simply in terms of examining animal-bone data alongside other sources of evidence, although this is clearly desirable, but also by considering how data sit in their wider social setting. Such an approach is vital when examining social inequality, since inequality is, by necessity, a group activity (one cannot be unequal by one's self) and can only be understood in relative terms. Within medieval studies, zooarchaeologists are increasingly examining evidence in this way and, by adopting diachronic perspectives, have been able to demonstrate how members of the elite used animals (as food, material culture, and symbols) to create and maintain social difference (Pluskowski 2007; Sykes 2007a, 2007b; Thomas 2007). It seems, however, that these studies have themselves been somewhat unequal, with far more academic attention being lavished upon the elite minority at the expense of the more populous lower social echelons. This is perhaps unsurprising for later medieval Europe, a period when society was strongly hierarchical and the flamboyancy of elite display left a clear and easily interpretable mark in the historical and zooarchaeological records. At the lower end of the social spectrum, there are fewer clues and the task of examining responses to inequality is problematic. Equally challenging is the identification and interpretation of inequality for the early medieval period, when society lacked institutionalized forms of ranking and was less concerned with the generation of documentary records. Yet, there is potential for using animal-bone analysis to understand social dynamics, and this chapter combines zooarchaeological data (synthesized from 246 assemblages; see Table 17.1) with evidence from anthropology, history, and artifact and landscape studies to explore how expressions of inequality changed in

Table 17.1 Number of assemblages for each period and site type analyzed in Figures 17.1–4. (Source: Sykes 2007a.)

		Number of Assemblages			
Period	*Date Range*	*Rural*	*Urban*	*Elite*	*Religious*
Early Anglo-Saxon	5th to mid-7th century	8	-	1	-
Middle Anglo-Saxon	Mid-7th to mid-9th century	23	13	11	3
Late Anglo-Saxon	Mid-9th to mid-11th	5	20	9	7
Norman	Mid-11th to mid-12th century	4	20	18	5
Later medieval	Mid-12th to mid-16th century	13	45	20	21

England through the course of medieval period (AD 410–1550; see Table 17.1 for period definitions). Given the large size of the data set, the wide timeframe, and the interdisciplinary approach, this chapter concentrates on one very particular theme: the procurement and distribution of meat, or more specifically, venison.

THE MEANING OF MEAT AND THE RHETORIC OF PORTIONS

It is my belief that we cannot understand the role and significance of food, and in particular meat, in medieval society by examining the evidence through our modern eyes—our circumstances and worldview are simply too different from those of the societies we are studying. For the majority of people in medieval England, their lives were substantially entwined with the domestic and wild animals with whom they dwelt. And because of the closeness of their relationship, people are unlikely to have been ambivalent to the slaughter of animals or the distribution and consumption of their meat. Anthropology provides a source of relevant attitudes toward meat, and even a cursory examination of the literature demonstrates that in many societies, meat distribution and consumption are powerful sensory and symbolic acts (Fiddes 1992). This is particularly the case among groups in which the concept of meat retail is absent, and so the easiest way to utilize the considerable amounts of meat produced by a single carcass is to share it, usually in feasting events (Lokuruka 2006; McCormick 2002). However, the breaking and sharing of an animal carcass is undertaken not simply for logistical reasons; participation in communal consumption acts as a strong statement of shared ideology and group

identity. But, as there is seldom room for all to take center stage in the process, the roles played by individuals also serve to define their social positions (Symons 2002). Furthermore, as animal carcasses are, by nature, hierarchical, the giving and receiving of meat often plays an important sociopolitical role, with cuts of different (perceived) quality being given to individuals as a meaty symbol of their age, gender, wealth, or power (McCormick 2002; Sykes 2010a). Exclusion from such performances can be equally expressive, communicating separation and social difference.

Practices of meat redistribution are not cross-culturally uniform but the fact that the overarching concept is extremely widespread suggests that similar traditions may have been established in the medieval period. Certainly historical literature indicates that food sharing through hospitality was of central importance. Texts from Wales and, in particular, Ireland provide quite detailed information about how meat distribution was linked to social hierarchy (Charles-Edwards 2000; McCormick 2002). For England, however, Magennis (1999) has shown that the texts are almost silent on the topic of food, focusing instead on drink. Animal bones provide, therefore, our best opportunity to understand the methods and meaning of meat redistribution in the medieval period.

VENISON DISTRIBUTION IN MEDIEVAL ENGLAND

This chapter focuses on deer remains because, although all meat was considered a premium food in the medieval period, venison (as a product of the hunt) is likely to have been especially prized. This is because hunting is seldom just a method for gaining protein—it tends to be a social performance and the process of obtaining, distributing, and consuming venison is generally governed by strict rituals and codes of etiquette (Cartmill 1993).

To begin at the coarsest level, Figure 17.1 shows the variation in deer-bone representation between sites and through time. During the Early Anglo-Saxon period (between the fifth and mid-seventh centuries AD), hunting contributed little to the diet and, where wild animals are represented archaeologically, they tend not to be food waste but rather "objects" in their own right, often incorporated into human burials and cremations as grave goods and amulets (Sykes 2011). In the few instances in which deer seemingly were hunted and eaten, assemblages tend to show an overrepresentation of meat-bearing bones with heads and feet being present only in low frequencies (Figure 17.2). Skeletal patterning is the same for both high- and low-status sites, suggesting that all sections of society were treating deer similarly.

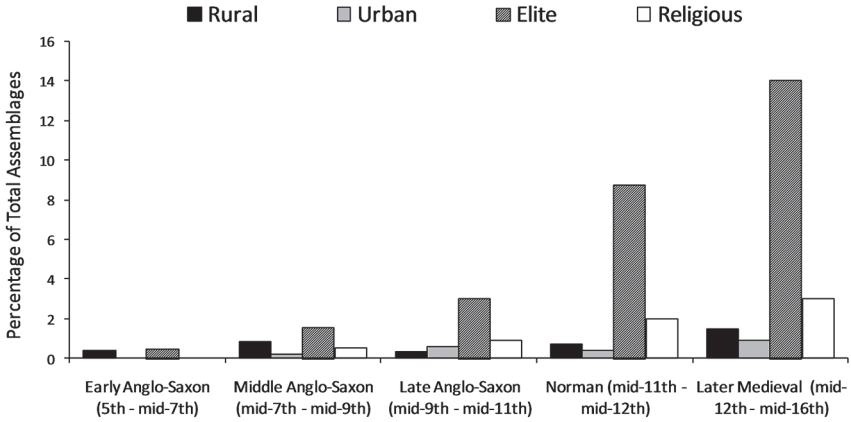

Figure 17.1. *Variation in the representation of deer remains on sites of different type, from the fifth to the mid-sixteenth century, as a percentage of the total bone assemblage, excluding fish.*

The body-part data hint at a logical, functional attitude to deer butchery whereby "low-utility" portions were discarded at the kill site and only the meat-bearing portions were brought back to the settlement. This, together with the general lack of evidence for wild-animal consumption, indicates that hunting may simply have been an occasional subsistence activity, undertaken only in times of need. This idea finds support from Bede's *History of the English People* (trans. Colgrave et al. 1999), which mentions that, following the withdrawal of the Roman Empire, people had to resort to hunting in order to avoid starvation. If wild animals were a famine food in Early Anglo-Saxon England, their archaeological presence may, potentially, reflect absolute poverty. No such association can be made for the succeeding period, however, to which we now turn.

MIDDLE ANGLO-SAXON ENGLAND (MID-SEVENTH TO MID-NINTH CENTURY)

By the Middle Anglo-Saxon period, although still not very well represented archaeologically, deer remains are found increasingly in food-waste deposits, particularly on rural sites of both high and low status but also in assemblages from religious houses. When the data are examined in more detail, it becomes clear that these different social groups were not procuring and consuming

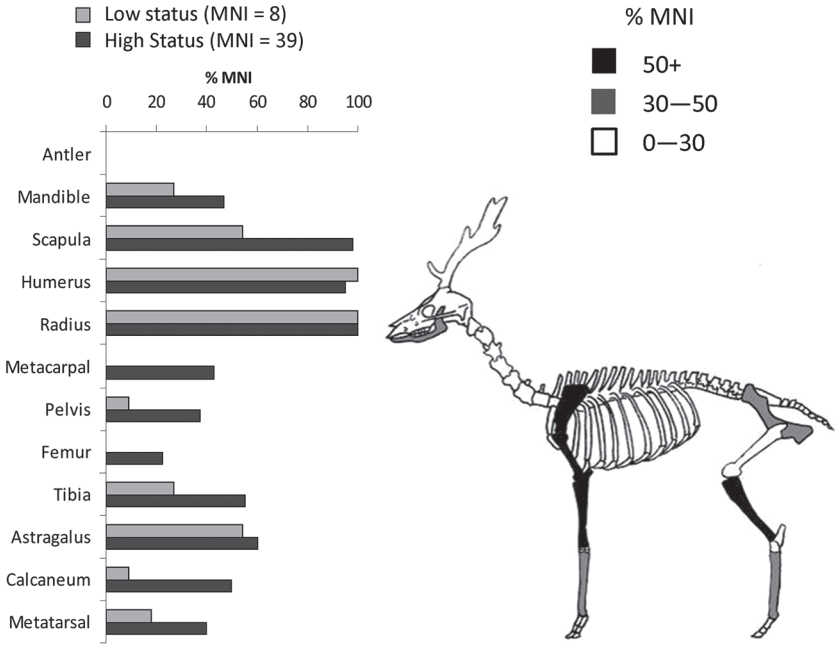

Figure 17.2. *Relative frequency of body parts of deer (red and roe) recovered from Early Anglo-Saxon period sites (light shading = low status, dark shading = high status). Shown as a percentage of the minimum number of individuals (MNI). (Source: Sykes 2010a.)*

venison in isolation from each other: if they had been, we might expect that all sites would show broadly similar deer body-part patterns, as in the earlier period. As can be seen in Figure 17.3, each site type is characterized by different skeletal patterns. Assemblages from elite sites are dominated by heads (represented here by the mandible) but meat-bearing elements, particularly from the hindlimb, are noticeably underrepresented. The possibility that this pattern is an artifice of preservation, recovery, or identification can be entirely discounted because the "missing" elements (in particular the metapodia and tibia) preserve well and are highly identifiable. Their poor representation indicates that they were discarded elsewhere. With this in mind, it is interesting to note that assemblages from religious sites show a contrasting pattern, with an abundance of meat-bearing bones from the forelimb, a large number of foot bones but very few mandibles. Again, however, meat-bearing elements

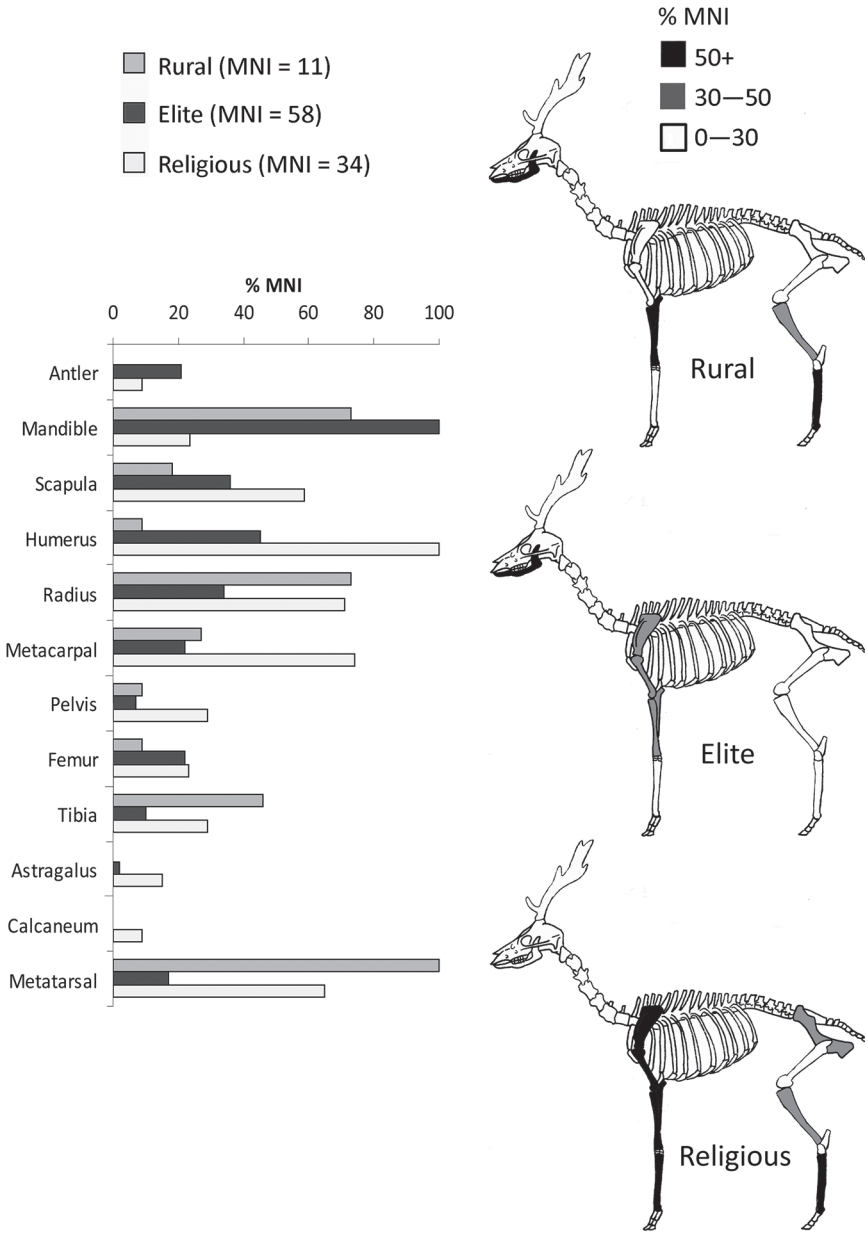

Figure 17.3. *Relative frequency of body parts of deer (red and roe) recovered from Middle Anglo-Saxon period sites. Shown as a percentage of the minimum number of individuals (MNI). (Source: Sykes 2010a.)*

from the hindlimb are poorly represented. Clues to the whereabouts of the haunches are provided by the skeletal data for rural settlements, which highlight the tibia as one of the best-represented elements; the high frequency of metatarsi also indicate the presence of the lower hindlimb. Bones of the lower forelimbs (notably the radius) are also comparatively well represented.

These patterns conform to a scenario of meat redistribution, and perhaps predictably so, given that the period's economy was based on the accumulation and redistribution of food, whereby landholders were paid in kind for the use of their land, with portions of these food rents being given over to support kings and their court as they toured their kingdoms. Kings could, in turn, transfer accrued provisions to religious institutions that, unlike the itinerant royal court, were stationary and depended on supplies gravitating toward them. Lower down the social scale, estate workers could expect to receive food payments in return for their services (Lee 2007). A set-up of this kind would certainly account for the deer body-part patterns shown in Figure 17.3. The skeletal distribution for religious houses suggests that ecclesiastics were taking receipt of pre-butchered joints of venison and possibly skins (indicated by the high representation of feet), and it is feasible that these were gifted by the king or local nobles in return for pastoral care. The overrepresentation of heads on elite sites finds resonance with the practices of modern hunting and pastoral societies, where crania are frequently conferred with special significance: among the Ngarigo of Australia and Turkana of Kenya, for instance, crania are seen as representing the animal in its entirety, and are either claimed by the head of the community or returned to the individual who "donated" the animal for consumption (Lokuruka 2006; Symons 2002:442).

If, as seems feasible, heads were deemed to represent high status in the Middle Anglo-Saxon period, the lower-limb bones recovered from rural sites may reflect the lower social position of these settlements and their occupants. Nevertheless, it is important to recognize that the inhabitants of these rural sites actually had a position *within* a community, something that was of fundamental importance in Anglo-Saxon society. Old English literature is preoccupied with the concept of community and frequently uses the imagery of the feast hall to express ideas about the maintenance of social order and rule (Magennis 1996). The coming together in a hall to collectively consume the body of a single deer would have been an important occasion, binding the participants together while simultaneously defining their social position through the allotment of specific portions. It may be for this reason that in the story of *Beowulf*, the king Hrothgar names his great feast hall *Heorot*, the "hart."

Marvin (2006) has highlighted the significance of this name, arguing that *Heorot* would have carried real meaning, demarcating the hall as a masculine space and symbolizing it as an arena for the cutting up and sharing of venison—rituals that would have been the food-based equivalent of the gift-giving that took place within the hall, where men pledged service to their lord or king in return for weapons, treasure, and land (Härke 2000:397). Generosity in gift-giving was deemed to be the mark of a good leader and it seems likely that open-handedness was desirable in terms of food as well as material goods. Indeed, the importance of the leader as a supplier of sustenance is indicated by the etymology of the word *lord*, which has been traced to *hlafweard*, meaning "loaf-keeper" (Shuman 1981:71).

In a situation in which the control and redistribution of foodstuffs were equated with power and authority, it stands to reason that the knives physically responsible for cutting up and sharing may have become iconic in their own right, symbolizing the distribution process. Studies of Anglo-Saxon grave goods have shown that knives are the most common object found in fifth- to eighth-century burials (Härke 1989). To some extent their ubiquity is to be expected because knives are utility tools and were presumably owned by all members of society to assist with daily tasks and for use in dining. That said, there are age- and sex-based variations in knife size (only adult men were accompanied by knives with a blade in excess of 128 mm) suggesting that these implements had more than a utilitarian function, perhaps playing a role in social display: this is corroborated by the prominent position in which they were worn, located on the belt where other display items were suspended (Härke 1989; Owen-Crocker 1986:43–48, 100–101).

The ownership and display of a large knife can be seen as a statement that the owner possesses both resources and the power and generosity to divide and redistribute them. It may be no coincidence, therefore, that at the point we see the appearance of deer body-part patterns indicative of venison redistribution, we also see the emergence of a male fashion for wearing particularly long knives. Knives with a blade length in excess of 130 millimeters are rare for much of the Early Anglo-Saxon period but are found regularly in the seventh and eighth centuries. Links between large knives and hunting are provided by the *seax*—a single-edged knife or short sword, some of which exhibit highly decorated blades more suggestive of ceremonial than functional use (Gale 1989:74). It has been argued that, rather than being a weapon of war, the seax was principally a hunting tool, employed for the ritual dispatch and unmaking of deer. Evidence from both anthropology and later medieval texts suggest that these ceremonial hunting tasks would have fallen to the highest-ranking

individuals among the party; it is fitting therefore that, as grave goods, seaxes are found almost exclusively with elite males. Graves of high-ranking males also contain the greatest proportion of drinking vessels that, Härke (1997:145) suggests, may symbolize hospitality and the feast. I would argue that the seax, as a tool of division and redistribution, may have carried similar connotations, perhaps gaining added significance from its use in hunting, which would have invoked concepts of land-ownership.

Hunting and land-rights are inextricably linked; just as venison was carved up and redistributed, so too was the land. Through the Middle Anglo-Saxon period, multiple estates were carved up as parcels of land were ceded in return for service (Faith 1997). Unlike venison, however, the gifting of territory is unsustainable and gradually land, and thus power, were carried permanently into the hands of the emerging aristocratic class (the thegns). This set in motion the transformation of Anglo-Saxon society, which is charted well by the zooarchaeological record.

LATE ANGLO-SAXON ENGLAND (MID-NINTH TO MID-ELEVENTH CENTURY)

Figure 17.1 shows that the representation of game animals doubles in high-status settlements dating to the mid-ninth to mid-eleventh century, suggesting that hunting was beginning to carry real social cachet. There is also clear from Anglo-Saxon documents, which appear in greater numbers from the mid-ninth century onwards (Marvin 2006:84–87). It seems that the new thegnly class, anxious about their *nouveau riche* status, went to great lengths to demonstrate their aristocratic credentials by engaging in ostentatious displays of hunting and falconry, evidenced by both the zooarchaeological and iconographic record for the period (Sykes 2011). However, for the thegns it was not enough simply to hunt more often; in order to maintain their social position they had to stop the lower classes from doing likewise. So, whereas it had previously been accepted that wild animals were *res nullius* (property of no one), the Late Anglo-Saxon elite established private game reserves and other restrictions that curbed the rights of peasants to take and consume wild animals (Sykes 2011). That their strategy worked is indicated by the zooarchaeological record, which demonstrates that the representation of wild mammals on rural sites drops substantially between the Middle and Late Anglo-Saxon period (Figure 17.1). Undoubtedly the lower classes were still involved with hunting, but their role seems to have become more peripheral: within Late Saxon texts there are frequent references to the peasant's hunting *duties* to

act as beaters/drivers, indicating that for most people hunting was becoming more a chore performed for others than a pleasure performed for themselves. Although hunting would still have brought communities together, the purpose seems to have been less a performance of group identity and more a display of royal or thegnly resources and their ability to muster manpower.

Practices of food distribution and consumption tend to mirror processes of procurement, so if hunting and hunting landscapes were becoming more socially exclusive, this is likely to have been reproduced in the distribution and consumption of venison. Certainly the skeletal representation data for Late Saxon deer assemblages suggest a change in the treatment of deer carcasses. Figure 17.4 demonstrates far less intersite variation in deer body-part patterns, particularly when the assemblages from elite settlements and religious houses are compared: both sites shows a good representation of most body parts, the meat-bearing elements and feet being equally abundant. In contrast to the preceding period, there is little evidence that portions were redistributed or given away. The only element that is less abundant than might be expected is the mandible, previously the signature of high-status assemblages. This reduced representation of jaws on elite sites is compensated by a rise in their frequency on rural settlements, where meat-bearing bones are scarce (Figure 17.4). Together with the overall reduction in game representation seen for lower-status settlements, this hints that the peasants were being excluded from hunting culture and presumably also the halls where venison was divided and consumed.

Privatization of the Late Saxon hall is alluded to in Old English literature; Magennis (1996) has demonstrated that depictions of the hall are overwhelmingly aristocratic in nature and show little interest in the lower social echelons or the world beyond the hall. While elite activities will always figure large in "high" literature, when viewed in conjunction with the zooarchaeological data it seems possible that the social exclusion evident in the texts may reflect more than literary tradition. The idea is supported by Gautier's (2006) study of Anglo-Saxon feasting, which concluded that the activities of the hall became less accessible and more hierarchical during the Late Saxon period. These changes were seemingly concomitant with wider transformations in the system of food rents—by the tenth and eleventh centuries food rents were increasingly being commuted for cash payments, so releasing landlords from the responsibility of hospitality and the public feasting it entailed (Stafford 1980). As the market economy developed, the functional necessity of communal feasting (as a mechanism for meat redistribution) would have been reduced as aristocratic households could obtain meat as required. More

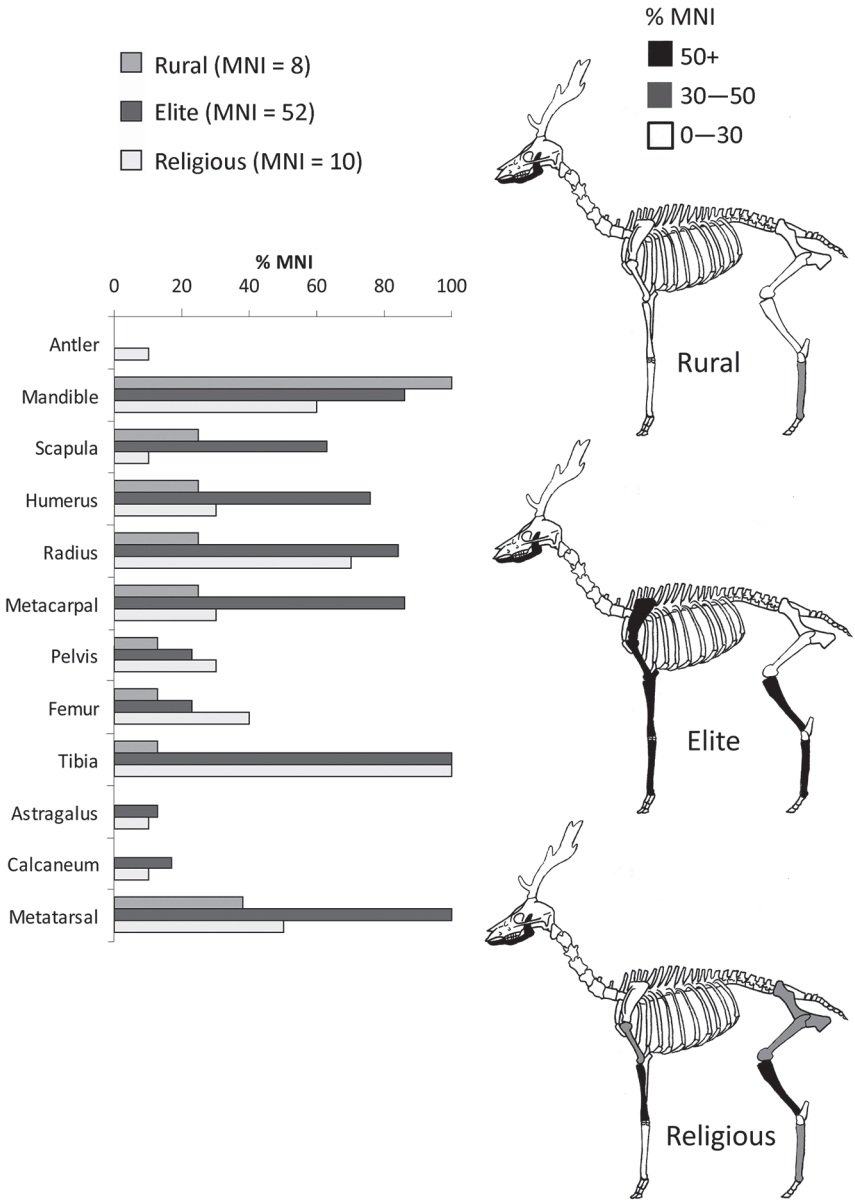

Figure 17.4. *Relative frequency of body parts of deer (red and roe) recovered from Late Anglo-Saxon period sites. Shown as a percentage of the minimum number of individuals (MNI). (Source: Sykes 2010a.)*

importantly, the need for feasting as a performance of social obligation and community order would also have diminished because, by the Late Anglo-Saxon period, everyone knew well their place and their duties—these were laid out formally within charters and documents such as the *Rectitudines Singularum Personarum* (Lemanski 2005).

It is interesting to note that in the period when food rents and meat redistribution were being abandoned in favor of monetary exchange, there is less tangible evidence for the symbolic significance of the knife. Although this may simply reflect the decline of the weapon-burial rite, it is clear that the seax fell out of fashion during the tenth century, perhaps suggesting that the "loaf-keeper's" ability to provide and redistribute resources in general and meat in particular was less of an issue now that power was displayed through social exclusion. Certainly depictions of knives are rare in Late Saxon art; for instance, although dress is illustrated in great detail in the Bayeux Tapestry (a 70-m-long textile that depicts the events surrounding the Norman Conquest of England), knives are not shown as part of the attire. In the tapestry the only clear depictions of knives are in the scene of the Norman's meal where three are shown laid at table, perhaps suggesting knives were beginning to be viewed as cutlery rather than personal appendages (Owen-Crocker et al. 2004:251). The main theme of the Bayeux Tapestry is, of course, the Norman Conquest of AD 1066, an episode that has long been held as a watershed in English history and, in particular, traditions of hunting and venison consumption (Sykes 2007a).

THE NORMAN PERIOD ONWARDS (MID-ELEVENTH CENTURY AND BEYOND)

Figure 17.1 would seem to confirm the widely held belief that inequality became more pronounced during the Norman period: there is a dramatic increase in the representation of wild animals on elite sites but no similar increase is indicated for lower-status rural and urban settlements. This pattern hints at exactly the type of unequal access to land and wild resources that would have accompanied the Norman introduction of Forest Law, which restricted deer-hunting rights solely to the elite (i.e., the Normans) (Sykes 2007a).

Shifts in the relative frequency of deer remains are again coincident with changes in anatomical representation but, for this period, the availability of data provides a far more detailed analysis of the skeletal patterning, allowing sides to be taken into consideration. Figure 17.5 indicates that high-status assemblages contain an even representation of bones from the left and right-hand

side of the body. Surprisingly, however, there is an almost complete absence of meat-bearing elements, particularly from the forelimb, and the assemblage is overwhelmingly dominated by foot bones, especially those from the hindlimb. Studies of multiphase assemblages indicate that hindlimb-dominated skeletal patterns appear for the first time in the late eleventh century: where dating permits, they first become apparent shortly after AD 1066, strongly suggesting the Normans as responsible for the change (Sykes 2007a).

Interpretation of these post-Conquest patterns is facilitated by the many later medieval documents that relate to hunting, their abundance reflecting the elite's preoccupation with the chase. This passion for hunting was condemned by twelfth-century moralists, such John of Salisbury, who complained that "in our days, the scholarship of the aristocracy consists in hunting jargon" (*Policraticus* 1.4, I.23, trans. Keats-Rohan 1993). He was referring to the strict social etiquette and Gallicized terminology that, following the Norman Conquest, came to surround elite hunting and, in particular, the *chase par force de chien*. According to later medieval hunting manuals, the *chasse par force* was a wide-ranging hunt of day-long duration in which a single deer was stalked, killed, and excoriated—skinned, disemboweled, and butchered—in a ritualized and formulaic manner. Certain parts of the carcass were given to particular people: for instance, the "*corbyn* bone" (possibly the pelvis) was cast away at the kill site as an offering to the *corbyn* (raven), the right shoulder was given to the best hunter, and the left shoulder was presented to the forester or parker as his fee. Only the haunches, and perhaps the skin (with feet still attached), were taken back to the lords' residences (Sykes 2007a).

The historical evidence for the gifting of venison correlates exceptionally well with the zooarchaeological data. Figure 17.5 shows that deer assemblages from parkers'/foresters' residences are typified by an overrepresentation of forelimb elements from the left-hand side of the body, suggesting that the occupants of these sites were regularly receiving their allotted portions of venison. There is even zooarchaeological evidence for the hunters' portion, indicated by the fact that right-sided scapulae are the only postcranial bones that are well represented on rural settlements, where most of the hunters would have lived (Sykes 2007b).

With the major cuts of meat redistributed, individual portions of the venison (a word that derives from the Anglo-Norman *venesoun*, literally "the product of hunting") were also redistributed at the dining table according to rank. The prized liver and testicles were reserved for the lord but persons of lower standing were offered offal, or "umbles"; the saying "to eat humble [umble] pie" is derived from the social humiliation attached to the consumption of

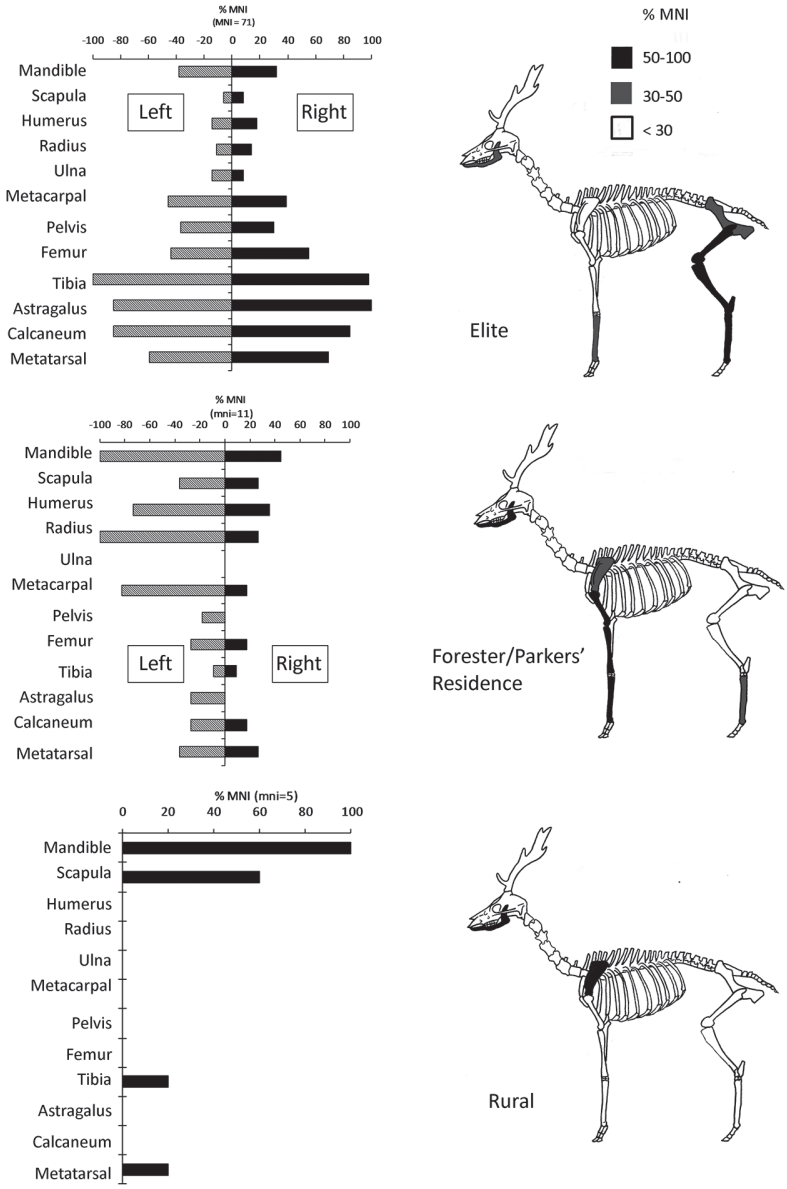

Figure 17.5. *Relative frequency of body parts of deer (red, roe, and fallow deer) recovered from elite sites, forester/parkers' residences, and rural settlements dating to the Norman and later medieval period. Shown as a percentage of the minimum number of individuals (MNI). (Source: Sykes 2007b.)*

these poorer cuts (Goody 1982). Once again, it is important to recognize that inequality should not always be equated with social division because, although it is clear that venison was being used to define social position, its communal consumption must simultaneously have served to create community.

Despite this, there were sections of society who were excluded from hunting or who objected to the social group that practiced it. For those not permitted to hunt, poaching provided an exciting alternative, with the distribution and consumption of ill-gotten venison carrying its own cachet, either as a statement of defiance or in terms of social emulation. Historians have shown that members of the aristocracy were active poachers, launching raids on the parks of their rivals (Birrell 2001), but the discussion below concentrates on evidence pertaining to the lower classes of rural and urban society.

It was an established unwritten rule that venison was priceless—a perk of office or something that was gifted as a demonstration of royal or aristocratic largesse—and it certainly should not be bought or sold (Birrell 1992:114). One way of undermining feudal control was then, simply to sell gifted portions. Historical evidence demonstrates that underpaid and disgruntled forest workers were occasionally caught fencing their share (and more) on the urban black market and this is supported by the archaeological evidence (Birrell 1982:16; Manning 1993:28–32). Figure 17.6 shows the skeletal representation patterns for deer from urban sites; the overriding impression is that they do not conform to the structured anatomical patterns seen for other site types. It would seem that venison percolated into towns through a variety of mechanisms, some legitimate but perhaps the majority illicit. Individuals (keepers or hunters) may have brought a shoulder here or a haunch there, but a few complete carcasses must also have arrived—this is suggested by the presence of at least some mandibles and foot bones but also the pelvis, an element that ought to have been discarded had the unmaking rituals been observed.

The acquisition, manhandling, and distribution of a whole carcass would have been beyond a single individual, requiring a substantial amount of collusion and cooperation to smuggle and offload it without detection. We must surely be looking at zooarchaeological evidence for the organized poaching gangs that operated out of urban taverns and alehouses, where they also consumed and sold their bag. Although often undertaken for commercial ends, we should not assume that this type of hunting was without ritual—the success of these gangs was that they had their own codes of conduct that, for them, legitimized their actions and tied them together. Within the safety of the tavern, the communal consumption of their ill-gotten venison, together with the drinking, storytelling, and general bravado it entailed, would have

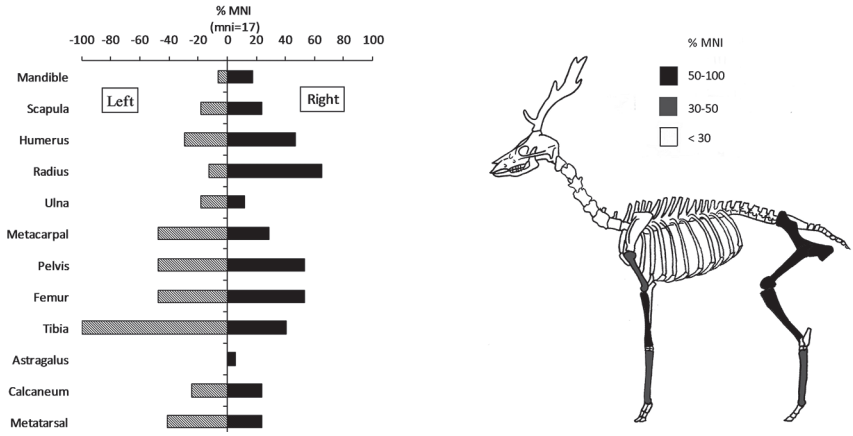

Figure 17.6. *Relative frequency of body parts of deer (red, roe, and fallow deer) recovered from urban sites dating to the later medieval period. Shown as a percentage of the minimum number of individuals (MNI). (Source: Sykes 2007b.)*

cemented the fraternity in much the same way it did for legitimate hunting groups. The difference between the two was simply that they were on opposite sides, each viewing one-another with contempt.

Moving on to the less-colorful side of poaching, Birrell (1996) has shown that peasants used a variety of methods—such as the setting of traps or the collection of dead, wounded, and diseased animals—to obtain venison. Few of these constituted true hunting but they were, nevertheless, an effective way of obtaining venison illegally. A classic example of peasant poaching comes from the village of Lyveden, a settlement where poaching is attested by both the historical (Birrell 1982:21) and zooarchaeological (Grant 1971) record. The animal-bone assemblage from the site contained not only a heavily butchered red deer skeleton that was "hidden" down a well but also a range of other deer bones from all parts and sides of the body, a pattern in no way suggestive of the unmaking procedure. In this case it would seem that the butchery of the deer was governed more by the need for stealth, to avoid capture by patrolling foresters, than to play out any kind of social performance. But, again, we should not see peasant poaching and venison consumption as devoid of social significance. While it is often stated that peasants poached as an act of desperation, because they were hungry, it seems wholly unlikely that this was generally the case: Manning (1993:20) has found little evidence to support such assumptions. By the later medieval period hunting and venison consumption

had become mainstream popular culture, and their significance would not have been lost on rural peasants. Birrell (1996:84) has shown that they too had a sense of occasion and sought to include venison on their festive menus, with deer often being taken specifically for these events, the poachers gifting the venison throughout their community, an action that mimicked aristocratic redistribution.

Whether for reasons of defiance or emulation, the poaching, redistribution, and consumption of venison allowed lower classes, both rural and urban, to engage with and participate in wider social practice—it was important to them.

CONCLUSION

The medieval period lasted for more than one thousand years and no single chapter can adequately address all aspects of the dramatic social and economic change that took place within the timeframe. However, by concentrating on the specifics of venison procurement, distribution, and consumption I hope this chapter has demonstrated that zooarchaeology can provide detailed information about social dynamics and the negotiation of social identity.

It seems clear that inequality should not always be viewed in negative terms because, in many respects, community does not exist without it—even in the least hierarchical societies there is internal ranking. As was seen for both the Middle Anglo-Saxon and later medieval periods, inequality equated with social order, and the redistribution of venison was an important mechanism for the definition and maintenance of internal social relations. However, although the overarching motivation for venison redistribution was similar in these two periods, the actual cuts of meat deemed to represent high and low rank varied considerably: heads being a trait of elite settlement in the Middle Anglo-Saxon period but a mark of low-status settlement in the later medieval period. This serves as a reminder that studies of inequality need to pay close attention to both the specific context of the data but also the wider social setting. Without this, it would be easy to misconstrue the evidence, suggesting "high-status" venison consumption instead of, potentially, low-status desperation in the case of the Early Anglo-Saxon period or, for the later medieval period, poaching and illicit trafficking of venison on urban sites. This latter case is an interesting example of how, in situations of genuine social exclusion, it is possible for the excluded to become empowered simply by subverting culturally accepted rules. Indeed, in the case of poaching it was possible for the venison from a single animal to be consumed in different social settings with entirely different meanings, depending on the methods of procurement.

How then, can zooarchaeologists ever hope to disentangle such complexity? The answer is that they cannot, or at least not on the basis of bones alone. I believe that the days of specialization are over and that we must cast our net wide if we are to understand past societies. For the historic period, we cannot work in isolation from documents, and for the prehistoric period we have to use all the evidence we can get. It is not necessarily easy, but it is rewarding.

Acknowledgments. I should like to thank the editors for inviting me to contribute to such an interesting volume. This chapter is, essentially, a concatenation of all my articles on medieval hunting, and I am grateful to the anonymous reviewer for enhancing the clarity of the final argument.

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