

A COMPANION
TO THE
ARCHAEOLOGY
OF THE ANCIENT
NEAR EAST

Volume I

Edited by

D.T. Potts

 WILEY-BLACKWELL

A John Wiley & Sons, Ltd., Publication

This edition first published 2012
© 2012 Blackwell Publishing Ltd.

Blackwell Publishing was acquired by John Wiley & Sons in February 2007. Blackwell's publishing program has been merged with Wiley's global Scientific, Technical, and Medical business to form Wiley-Blackwell.

Registered Office

John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

Editorial Offices

350 Main Street, Malden, MA 02148-5020, USA

9600 Garsington Road, Oxford, OX4 2DQ, UK

The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

For details of our global editorial offices, for customer services, and for information about how to apply for permission to reuse the copyright material in this book please see our website at www.wiley.com/wiley-blackwell.

The right of D.T. Potts to be identified as the author of the editorial material in this work has been asserted in accordance with the UK Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, except as permitted by the UK Copyright, Designs and Patents Act 1988, without the prior permission of the publisher.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Designations used by companies to distinguish their products are often claimed as trademarks. All brand names and product names used in this book are trade names, service marks, trademarks or registered trademarks of their respective owners. The publisher is not associated with any product or vendor mentioned in this book. This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold on the understanding that the publisher is not engaged in rendering professional services. If professional advice or other expert assistance is required, the services of a competent professional should be sought.

Library of Congress Cataloging-in-Publication Data

A companion to the archaeology of the ancient Near East / edited by D.T. Potts.

p. cm. – (Blackwell companions to the ancient world)

Includes bibliographical references and index.

ISBN 978-1-4051-8988-0 (hardcover : alk. paper) 1. Archaeology—Middle East. 2. Middle East—Antiquities. 3. Middle East—Civilization—To 622. I. Potts, Daniel T.

DS56.C585 2012

939'.4—dc23

2011034988

A catalogue record for this book is available from the British Library.

Set in 10.5/13 pt Galliard by Toppan Best-set Premedia Limited

Contents

VOLUME I

<i>List of Illustrations</i>	x
<i>List of Tables</i>	xvii
<i>Notes on Contributors</i>	xviii
<i>Preface</i>	xxviii
<i>Maps</i>	xxxii
I The Framework	1
1 Introduction to Geography, Climate, Topography, and Hydrology <i>T.J. Wilkinson</i>	3
2 Antiquarianism, Copying, Collecting <i>Mark B. Garrison</i>	27
3 Early Excavations (pre-1914) <i>Nicole Chevalier</i>	48
4 The Foundations of Antiquities Departments <i>Peter Magee</i>	70
5 The Political Dimension of Archaeological Practices <i>Reinhard Bernbeck</i>	87

6	The Antiquities Trade and the Destruction of Ancient Near Eastern Cultures <i>Oscar White Muscarella</i>	106
II	Late Pleistocene and Early Holocene Hunters and Gatherers	125
7	The Levant <i>Alan H. Simmons</i>	127
8	Anatolia <i>Klaus Schmidt</i>	144
III	Developments in Farming, Animal Husbandry, and Technology	161
9	The Beginnings of Cereal Cultivation and Domestication in Southwest Asia <i>George Willcox</i>	163
10	Fruit-Growing <i>Margareta Tengberg</i>	181
11	Animals in the Ancient World <i>Benjamin S. Arbuckle</i>	201
12	Fish and Fishing <i>D.T. Potts</i>	220
13	Lithic Industries During the Holocene Period <i>Steven A. Rosen</i>	236
14	Irrigation <i>Ariel M. Bagg</i>	261
15	Ceramic Production <i>Cameron A. Petrie</i>	279
16	Metallurgy <i>Lloyd Weeks</i>	295
17	Glass <i>Wendy Reade</i>	317
18	Textiles <i>Irene Good</i>	336

19	Watercraft <i>R.A. Carter</i>	347
IV	Varieties of Early Village and Town Life	373
20	The Northern Levant <i>Karin Bartl</i>	375
21	The Southern Levant <i>E.B. Banning</i>	396
22	Northern Mesopotamia <i>Stuart Campbell</i>	415
23	The Late Epipaleolithic, Neolithic, and Chalcolithic of the Anatolian Plateau, 13,000–4000 BC <i>Douglas Baird</i>	431
24	Southern Mesopotamia <i>Joan Oates</i>	466
25	The Arabian Peninsula <i>Philipp Drechsler</i>	485
26	The Iranian Plateau <i>Barbara Helwing</i>	501
27	Southwestern Iran <i>Abbas Moghaddam</i>	512
V	Bronze Age Cities of the Plains and the Highlands	531
28	Southern Mesopotamia <i>Jason Ur</i>	533
29	Northern Mesopotamia <i>Timothy Matney</i>	556
30	The Anatolian Plateau <i>Christoph Bachhuber</i>	575
31	Iran <i>Christopher P. Thornton</i>	596
32	The Northern Levant <i>Hermann Genz</i>	607
33	The Southern Levant <i>Timothy P. Harrison</i>	629

VOLUME II

<i>List of Illustrations</i>	x
<i>List of Tables</i>	xii
<i>Maps</i>	xiii

VI The Archaeology of Empire 647

34 The Akkadian Period: Empire, Environment, and Imagination <i>Augusta McMahon</i>	649
35 The Caucasus and the Near East <i>Adam T. Smith</i>	668
36 Central Asia, the Steppe, and the Near East, 2500–1500 BC <i>Michael D. Frachetti and Lynne M. Rouse</i>	687
37 The Ur III, Old Babylonian, and Kassite Empires <i>Marlies Heinz</i>	706
38 The Hittite Empire <i>Trevor Bryce</i>	722
39 Elam: Iran's First Empire <i>Javier Álvarez-Mon</i>	740
40 India's Relations with Western Empires, 2300–600 BC <i>Gregory L. Possehl</i>	758
41 Levantine Kingdoms of the Late Bronze Age <i>Peter Pfälzner</i>	770
42 Neo-Hittite and Phrygian Kingdoms of North Syria and Anatolia <i>Ann C. Gunter</i>	797
43 North Arabian Kingdoms <i>Arnulf Hausleiter</i>	816
44 Egypt and the Near East <i>Thomas Hikade</i>	833
45 The Assyrian Heartland <i>Friedhelm Pedde</i>	851
46 The Assyrians Abroad <i>Bradley J. Parker</i>	867

47	The Urartian Empire <i>Alina Ayzazian</i>	877
48	Iron Age Western Anatolia: The Lydian Empire and Dynastic Lycia <i>Christopher H. Roosevelt</i>	896
49	The Neo-Babylonian Empire <i>Heather D. Baker</i>	914
50	The Achaemenid Heartland: An Archaeological-Historical Perspective <i>Wouter F.M. Henkelman</i>	931
51	The Achaemenid Provinces in Archaeological Perspective <i>Lori Khatchadourian</i>	963
52	The Seleucid Kingdom <i>Lise Hannestad</i>	984
53	The Arsacid (Parthian) Empire <i>Stefan R. Hauser</i>	1001
54	Roman Rule in the Near East <i>Bettina Fischer-Genz</i>	1021
55	The Red Sea and Indian Ocean in the Age of the Great Empires <i>Steven E. Sidebotham</i>	1041
56	Byzantium in Asia Minor and the Levant <i>Basema Hamarneh</i>	1060
57	The Sasanian Empire: An Archaeological Survey, c.220–AD 640 <i>Ali Mousavi and Touraj Daryaei</i>	1076
58	Christianity in the Late Antique Near East <i>Cornelia Horn and Erica C.D. Hunter</i>	1095
	<i>Abbreviations</i>	1113
	<i>References</i>	1117
	<i>Index</i>	1380

CHAPTER ELEVEN

Animals in the Ancient World

Benjamin S. Arbuckle

1 Introduction

Animals were central to life in the ancient world, functioning as sources of food, raw materials, and transport, and as central symbolic referents (Collins 2002a, 2002b; Russell 2010). In this chapter I focus on the history of animal use in the ancient Near East with an eye toward addressing the origins of the economically important domesticates, how and for what purposes they were used, as well as the continued importance of hunting wild game from the Neolithic to the Iron Age.

2 History of Husbandry: Initial Domestication of Food Animals

Animals have been central to human subsistence and survival from the earliest days of our species (e.g., Brain 1981), but it was the process of domestication that fundamentally changed the relationship between humans and animals and expanded their roles within human societies. Once animals were brought into the *domus*, or domestic sphere, they became enmeshed in the economic, social, and symbolic lives of the communities in which they lived in new and central ways (Hodder 1990; Russell 2010).

One of the central problems in the history of ancient animal economies is how to understand their origins. Generations of archaeologists have focused on this

issue, representing as it does a major component of the “Neolithic Revolution” (Childe 1936; Braidwood and Reed 1957; Flannery 1973), and have developed an ever-growing range of methodologies to try to answer these questions (e.g., Ducos 1969; Meadow 1989; Helmer 1992; Zeder et al. 2006). Central among these include the identification of morphological changes associated with the process of domestication, including a decrease in body size and alternations in anatomical features including horns and dental/cranial proportions (Uerpmann 1979; Meadow 1989). Recently, it has been shown that there was a significant time lag between the initiation of management and the appearance of morphological, or phenotypic, changes in the earliest domesticated animals, especially in regions within the natural habitat of wild progenitor species (Zeder and Hesse 2000). In this case, culling practices associated with herd management, which focus on slaughtering young surplus males rather than the hunting of large adults, can be used to identify the transition from hunting to herding.

Archaeologists also look for the appearance of species outside their natural habitat (e.g., goats on the Mesopotamian plain) as a sign of human manipulation and domestication, while analysis of DNA is rapidly providing new insights into the geographic origins of the domestication process as well as the wild progenitors of modern domesticates (Zeder et al. 2006).

Economies utilizing domesticated animals, including first sheep and goats, followed by pigs and cattle, emerged early in the Holocene, during a time that witnessed increasing moisture levels in the Near East following the climate crisis known as the Younger Dryas (c.11,000–9600 BC) (Smith et al. 1997; Gulliksen et al. 1998). This period saw the appearance and spread of sedentary farmer-hunter communities throughout the Fertile Crescent region of southwestern Asia, including the southern Levant, northern Levant, and eastern Iraq/western Iran (Bar-Yosef and Meadow 1995). Although sedentary cultivator communities first emerged in the cultural period known as the Pre-Pottery Neolithic A (PPNA) (c.10,000–8800 BC), clear evidence for the widespread and intensive management of animals – i.e., domestication – does not appear until the following Pre-Pottery Neolithic B (PPNB) period (c.8800–6500 BC) (Bar-Yosef and Meadow 1995; Peters et al. 1999).

At the end of the PPNA, there is very little archaeological evidence for intensive management of animal populations, but by the end of the PPNB, productive economies based on domesticated cereals, pulses and fruits, and the four major Near Eastern food animals – sheep, goats, cattle, and pigs – had coalesced across large areas of the Fertile Crescent marking the beginning of an unprecedented expansion of people, technologies, and livestock across much of the Old World (Bar-Yosef and Meadow 1995; Harris 1996; Bellwood 2005; Zeder 2008a).

It is thought that the domestication of these four primary animal domesticates occurred at this time in response to stresses placed upon wild ungulate populations caused by the advent of sedentary agricultural villages, increasing human populations, and the concomitant need to secure a predictable supply of animal

resources (Tchernov 1993; Munro 2003). In addition, the availability of fodder in early agricultural communities as a means to support managed animals during seasons of scarcity may have encouraged and facilitated the process of animal domestication (Losch et al. 2006; Makarewicz 2007).

Among the food animals (dogs and house cats are discussed separately below), sheep and goats seem to have been the first taxa to cross the threshold from wild to domestic. This choice seems to be related to the combination of beneficial features possessed by these animals, including their relatively small body size (and therefore ease of manipulation, control, and transportation), tameability, gregariousness, hierarchical social structure, lack of territoriality, and relatively catholic dietary preferences (Driscoll et al. 2009).

Genetic studies indicate that domestic sheep (*Ovis aries*) derive from at least three wild populations of the Asiatic mouflon (*Ovis orientalis*) (Pedrosa et al. 2005; Meadows et al. 2007), the wild range of which once extended across the Taurus-Zagros arc from southwestern Turkey to Iran and down onto the northern Mesopotamian plain and into Syria as far south as Palmyra (S. Payne 1983; Uerpmann 1987).

Archaeological evidence suggests that sheep management appeared in the late 10th or early 9th millennium BC in the Taurus-Zagros foothills of southeastern Turkey and northern Iraq, a region with a long history of intensive exploitation of the mouflon (Peters et al. 2005; Zeder 2008b). In the 10th millennium, sheep were the dominant prey species at Hallan Çemi, Zawi Çemi, and Körtik Tepe (>40 percent of the mammalian fauna) along the eastern margin of the upper Tigris drainage (Arbuckle and Özkaya 2007; Zeder 2008b; Starkovich and Stiner 2009). In contrast, the very low frequencies of sheep at 10th-millennium sites to the west and south, including Göbekli Tepe, Çayönü (Round Phase), and Mureybet (<8 percent each) suggests that the earliest experiments with sheep husbandry occurred east of the upper Euphrates basin (Legge and Rowley-Conwy 2000; Hongo et al. 2004; Peters et al. 2005). Although culling practices focused on prime adults at Hallan Çemi and Zawi Çemi, a pattern often associated with hunting, at Körtik younger sheep were targeted, suggesting a reorientation of the goals and methods of sheep exploitation, and perhaps the emergence of low-intensity management of local wild sheep populations by the end of the 10th millennium.

Clear evidence for the emergence of sheep management appears in the mid-9th millennium BC. The earliest phases at Çayönü (Round and Grill Phases) provide evidence for the sporadic hunting of wild sheep, especially large rams, through the 10th and early 9th millennia. In the Channeled Building phase (8400–8200 BC), the appearance of smaller-sized sheep, a bias in favor of adult females, and a steady increase in sheep (and also goats) suggests that sheep management was initiated at Çayönü by this time (Hongo et al. 2002). This corresponds with evidence from Nevalı Çori on the upper Euphrates, where similar patterns suggest the initiation of management as a small component of the economy by the

mid-9th millennium. At Cafer Höyük, in the highlands of the upper Euphrates, Helmer (2008) has argued that sheep management also emerged (alongside continued hunting of the mouflon) in the Early PPNB, c.8600 BC. To the south, along the plans of the Middle Euphrates at Abu Hureyra 1, sheep (and also goats) increase in frequency in phase 2A (from 3 to 12 percent) (8600–7400 BC), which Legge argued indicates the beginnings of sheep husbandry at the site (Legge and Rowley-Conwy 2000).

Once systems of sheep management emerged, they quickly spread via social networks through large portions of the “PPNB interaction sphere,” moving through the upper and middle Euphrates regions and west into central Anatolia by the late 9th millennium (Bar-Yosef and Belfer-Cohen 1989). In the latter region, at Aşikli Höyük, demographic evidence suggests that morphologically wild sheep were probably intensively managed by c.8200 BC (Buitenhuis 1997), and genetic studies suggest that local, central Anatolian mouflon populations may have been domesticated at this time (Bruford and Townsend 2006: 313). In addition, recent work on Cyprus shows that managed sheep were introduced thereby at least by the end of the 9th millennium (early phase A at Shillourokombos) (Vigne et al. 2000).

By the mid-8th millennium BC (Middle PPNB), improvements in management practices, stock, or both, perhaps combined with hunting pressure on wild ungulates, spurred the adoption of sheep management on a much larger scale than in previous periods, especially in the northern Levant (Figure 11.1). At Çayönü, the frequency of sheep (and goats) more than doubled to 54 percent at the beginning of the Large Room phase, while similar increases are evident along the upper Euphrates at Akarçay Tepe and Gritille, and on the middle Euphrates at Halula, where managed sheep first appear at this time (Monahan 2000; Sana Segui 2000; Hongo et al. 2004; Sana and Tornero 2008). In central Anatolia, managed sheep (and secondarily goats) dominated the animal economies at Suberde and Çatal Höyük beginning c.7500 BC (Russell and Martin 2005; Arbuckle 2008a).

Although precocious in the northern Levant, sheep management was late in penetrating the eastern and western wings of the Fertile Crescent. Sheep husbandry did not penetrate into the southern Levant until the early 7th millennium BC where its appearance was marked by the introduction of morphological domesticates (Horwitz and Ducos 1998; Horwitz et al. 1999). Similarly, archaeological evidence from sites Tepe Sarab, Tepe Guran, and Jarmo shows that sheep management in the central and southern Zagros only began in the Pottery Neolithic (early 7th millennium BC), almost 2,000 years after its emergence in the north (Zeder 2008b).

Genetic evidence indicates that domestic goats (*Capra hircus*) derive from the bezoar, or Asiatic wild goat (*Capra aegagrus*), and, like the sheep, the presence of multiple maternal lineages among domesticates suggests multiple wild founder populations originating in the Near East (Naderi et al. 2008). Unlike that of

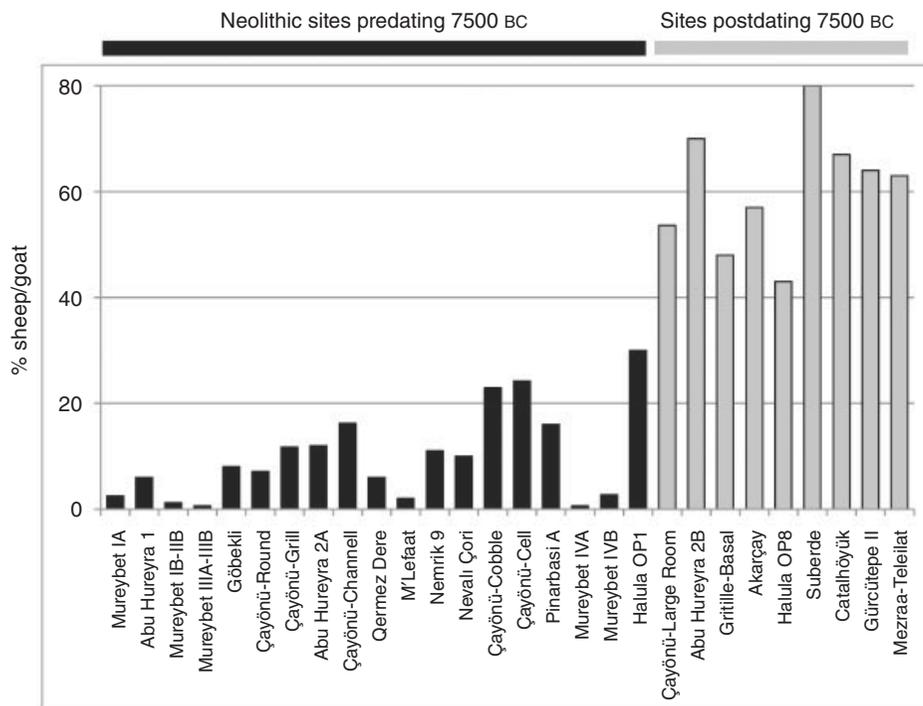


Figure 11.1 Frequencies of sheep and goats in Aceramic Neolithic period faunal assemblages in the northern Levant and Anatolia prior to and after 7500 BC.

sheep, however, the geographic center of goat domestication is less clear and may have involved several different regions within the Fertile Crescent, although genetic studies suggest eastern Turkey and Iran as key regions (Naderi et al. 2008).

In the Pleistocene and Holocene, the range of the bezoar extended over much of the same area of the Taurus-Zagros arc as the mouflon, although wild goats tend to inhabit higher elevations and broken terrain. The range of the bezoar did not extend far down into the piedmont regions of the Taurus-Zagros arc, although it has been identified in the rugged hills of northwestern Syria at relatively low elevations (c.500 meters) and may have extended into the rugged interior of Syria (S. Payne 1983; Griggo 2004). Unlike that of the mouflon, however, the bezoar's historical range extended into the southern Levant, co-occurring with the Nubian ibex (*Capra nubiana*) in southern Jordan and Israel (Hecker 1975; Uerpmann 1987).

Goat-hunting was a central activity in the Epipaleolithic of the western and central Taurus (Atici 2009; Kuhn et al. 2009) and also in the central and northern Zagros (Wasse 2001; Zeder 2008b). In the southern Levant, wild goats were heavily exploited in the Lebanon and Anti-Lebanon mountains (Kersten 1987;

Wasse 2001) and in southern Jordan, where a combination of bezoar and Nubian ibex dominate at Upper Paleolithic Madamagh and in the Natufian levels of Beidha (Perkins 1966). Thus, unlike sheep, goats were intensively hunted in multiple regions of the Fertile Crescent prior to domestication.

The earliest evidence of goat management comes from Tell Aswad, a site located in the steppic environment of the Damascus basin on the northern margin of the southern Levant, where goats were the dominant prey from the early PPNB through the Pottery Neolithic (Cauvin 1974; Helmer and Gourichon 2008). A combination of geographical location, the abundance of goat remains, and demographic profiles indicating a kill-off pattern focused on young males all suggest that goats were intentionally managed at Tell Aswad beginning in the early 9th millennium BC (Helmer and Gourichon 2008).

In southern Jordan, goats and Nubian ibex were heavily exploited at Beidha, where culling profiles and metric data indicating the selective culling of young males show that goats were managed on a large scale and at an early date. Although the phasing of the site remains problematic, the Early Neolithic levels II–VI (c.8200–7500 BC) of Beidha provide some of the earliest evidence of goat management in the southern Levant (Hecker 1975). Elsewhere in the region, clear evidence of goat management only becomes widespread after c.7500 BC (von den Driesch and Wodtke 1997; Horwitz et al. 1999).

The sequence at Çayönü shows that large male goats were hunted in very small numbers in the upper Tigris drainage throughout the 10th and early 9th millennia BC (Round and Grill Phases). A shift toward the selective culling of young males and an increase in the frequency of goats indicate the beginnings of management in the late 9th and early 8th millennia (Cobble-paved Phase, or Middle PPNB) (Hongo et al. 2002).

Since the natural habitat of the bezoar is not generally thought to have extended far from mountainous terrain, their presence on the northern Levantine plains has often been cited as evidence of early domestication. Goats are absent at PPNA Göbekli Tepe, on the Urfa plain, but present in significant but small numbers at mid- to late 9th millennium Nevali Çori, where they outnumber sheep (Peters et al. 2005). Nevali Çori is located 3 kilometers south of the Euphrates and the presence of goats at the site (although accounting for only about 6 percent of the fauna), the appearance of individuals smaller than morphologically wild *Capra* from the uplands, a cull focused on juveniles, and an increase in goats (and sheep) through time are all suggestive of early, small-scale management. Further south, along the middle Euphrates, goats appear for the first time in small numbers at Abu Hureyra in phase 2A (c.8200 BC) (Legge and Rowley-Conwy 2000). Based on a suite of biometric, demographic, and geographical evidence, Legge argued that the goats at Abu Hureyra represent a small, managed population.

Goat management was practiced in a geographically limited area in the 9th millennium. Goats are absent from the fauna at Pınarbaşı A on the Konya plain,

suggesting that they were not being managed in this region c.8400–8000 BC (Martin et al. 2002), while metric data from Aşıklı Höyük (8200–7500 BC) suggest an emphasis on large males, which is more characteristic of hunting than herding. Evidence from Cyprus suggests that, although goats were transported to the island by the late 9th millennium, they were exploited as wild stock for hunting (Vigne et al. 2000).

In the Zagros, the early management of morphologically wild goats has been identified at Ganj Dareh c.7900 BC (Zeder and Hesse 2000). The presence of a classic hunting pattern at the nearby site of Asiab, which dates to the early 9th millennium BC, suggests that goat management began in the central Zagros at this time (Bökönyi 1977).

Evidence of goat management becomes more widespread by the mid-8th millennium BC (Middle PPNB), appearing in the earliest levels of Tell Halula, at Ali Kosh in western Iran, and along the Turkish Euphrates at Akarçay and Gritille a few centuries later (Monahan 2000; Sana and Tornero 2008; Zeder 2008b). On the Konya plain (central Anatolia) morphologically domestic goats are present by c.7400 BC (Russell et al. 2005).

Since early goat management has been identified on the eastern flanks of the Anti-Lebanon mountains, where there is a long tradition of intensive exploitation of the bezoar, it is likely that this region, or perhaps the adjacent southern portion of the central Taurus, was the site of the initial experiments with intensive management in the early 9th millennium BC (Wasse 2001). However, there is currently little consensus as to whether goat management diffused from this core region or was initiated independently in the southern, central and eastern portions of the Fertile Crescent.

Recent archaeological and genetic evidence has also provided insights into the domestication of cattle and pigs. Genetic studies indicate that the Near East was one of the major ancient centers for the domestication of both these important taxa (Beja-Pereira et al. 2006; Larson et al. 2007). Archaeological evidence indicates that both cattle and pigs were brought under widespread management by the end of the PPNB, but the origins of this process remain somewhat unclear (Zeder 2008a).

The earliest evidence of intensive cattle management comes from the middle Euphrates valley, with recent evidence suggesting that the domestication process may have begun as early as for sheep and goats (Helmer et al. 2005; Peters et al. 2005). Basing their evidence on a decrease in the size of males between the PPNA and Early PPNB at several sites along the upper and middle Euphrates, Helmer et al. have pushed the origins of cattle management back to the mid-9th millennium, while sex ratios showing a heavy bias toward females at Jerf el-Ahmar suggest that some form of cattle management may have been practiced along the Euphrates as early as the PPNA (Gourichon and Helmer 2003: 278; Helmer et al. 2005). Cattle were also transported to Cyprus by the end of the 9th millennium (Vigne et al. 2003) suggesting that a form of (wildlife) management

had begun at an early date, although the disappearance of cattle from the island by the end of the PPNB suggests that management may have been minimal (Horwitz and Ducos 2005). At Çayönü, in the upper Tigris drainage, cattle smaller than PPNA aurochs first appear in small numbers in the mid- to late 9th millennium BC (Channeled and Cobble Paved Phases) but a large-scale decrease in the size of the cattle population is only evident in the late 8th millennium (Large Room Phase) (Hongo et al. 2002).

Wild boar were intensively hunted along the upper Tigris drainage in the Late Epipaleolithic and PPNA, and were transported to Cyprus in the 10th millennium – i.e., prior to domestication (Hongo et al. 2004; Starkovich and Stiner 2009; Vigne et al. 2009). At Çayönü, in the PPNA and Early PPNB (10th/early 9th millennia BC), large-sized and predominantly adult boar were exploited, whereas in the late 9th and early 8th millennia (Middle PPNB), both body size and culling age declined, suggesting an increase in the intensity of management of the local pig population. Finally, by the late 8th millennium (Late PPNB), culling focused primarily on young and small-sized domestic pigs. These patterns suggest that pig husbandry developed gradually, incrementally, and locally at Çayönü over a period of almost three millennia, from intensive hunting to intensive management (Ervynck et al. 2001).

Despite the history of early manipulation, clear evidence of morphologically domestic pigs and cattle becomes widespread only in the late 8th millennium BC (Late PPNB) in the northern Levant (Peters et al. 1999; Hongo et al. 2004; Peters et al. 2005). Both cattle and pig management appear even later in the southern Levant, Zagros, and central Anatolia, where these domesticates were not adopted until the 7th and 6th millennia (Grigson 1989; Haber and Dayan 2004; Horwitz and Ducos 2005; Arbuckle 2008b; Zeder 2008a; Arbuckle and Makarewicz 2009).

It is not until a very late stage in the domestication process, in the mid- to late 7th millennium BC (Final PPNB/Pottery Neolithic), that morphologically domesticate sheep, goats, cattle, and pigs are widely brought together to form integrated and highly productive domestic animal economies across the Fertile Crescent (Buitenhuis and Caneva 1998). This final stage in the development of Neolithic economies saw the expansion of herding technologies throughout much of the Near East and also marked the beginning of a period in which agropastoral economies spread rapidly into both Europe and Central Asia (Harris 1996; Bellwood 2005).

Following the domestication of sheep, goats, cattle, and pigs, specific geographic regions within the Near East developed locally and regionally distinctive animal economies focused on unique combinations of domestic taxa, supplemented by hunting native wild fauna (see below). Figure 11.2 shows the average frequencies of sheep and goats (combined), cattle, and pigs from a sample of 88 Bronze Age sites in six regions of the Near East. Although sheep and goats are

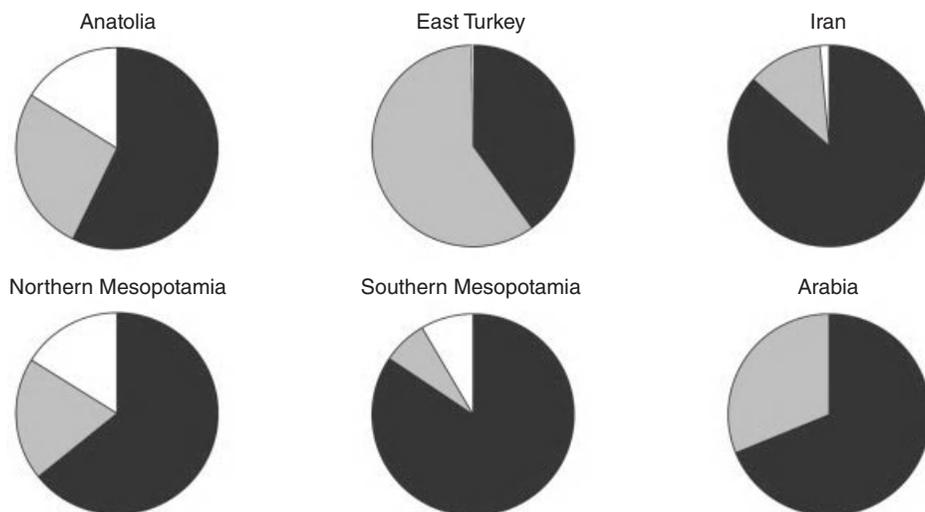


Figure 11.2 Frequencies of the main domesticates from a sample of 88 Bronze Age sites across six regions within the Near East. Black = sheep and goats; grey = cattle; white = pigs.

the most abundant taxa in each region, there is considerable regional variability in the composition of herding economies, and in many cases these patterns extend back to the Neolithic. For example, pigs, which have received an enormous amount of attention due to dietary prohibitions in later periods (e.g., Hesse and Wapnish 1998), were central to animal economies in Mesopotamia and Anatolia, especially in rural contexts, while they were rarely utilized in eastern Turkey, Iran, and Arabia. Cattle, while important in all regions, were paired with sheep and/or goats to form particularly important components of pastoral economies in highland eastern Turkey and Arabia. These patterns of livestock preference reflect a combination of factors, including the ecological realities of each region. Because of physiological limitations, pigs and sheep do not fare as well in hot, arid environments as do goats and cattle. However, cultural preferences and histories also play a role in patterns of preference. Pig husbandry is not well suited to the mobile systems of pastoralism historically practiced in the highlands of Iran and eastern Turkey (Zeder 1998). However, there was a long history of pig exploitation in the upper Euphrates valley, beginning in the PPNA, which carried on well into later periods (Hongo et al. 2004). Similarly, sheep husbandry began in the upper Tigris drainage and a preference for mutton and sheep milk was retained across northern Mesopotamia for millennia before the spread of wool economies made sheep management a ubiquitous part of ancient economies (Helmer et al. 2007).

3 Self-Domesticates: Dogs and Cats

Although they represent two of the earliest domesticates, dogs and cats followed a very different pathway to domestication compared with barnyard animals. Dogs (*Canis domesticus*) derive from Eurasian wolves (*Canis lupus*), but there is little consensus as to when and where this process was initiated and, in fact, it probably occurred more than once (Verginelli et al. 2005; Pang et al. 2009). Both archaeological and genetic evidence indicate that wolves were the only animal domesticated prior to the Neolithic (>10,000 BC). The earliest dog remains come from the Natufian culture of the southern Levant (12th millennium BC) (Davis and Valla 1978; Dayan 1994), but genetic studies suggest that initial domestication may significantly pre-date this (Vilà et al. 1997; Leonard et al. 2002). Initially, dogs were kept for security, as hunting (and later herding) aids, and as occasional food sources (Deniz 1975: 291; Collins 2002b: 249). It has been suggested that wolves initiated the first stage of their own domestication, closely associating themselves with hunter-gatherers and their settlements. Eventually, some of these populations became incorporated into human settlements and, through taming, intensive socialization, and population isolation, eventually diverged from their wolf progenitors (Crockford 2000; Driscoll et al. 2009).

Cats are also self-domesticates, although, unlike dogs, they emerged in the context of early Neolithic villages. Comprehensive genetic studies indicate that all domestic housecats (*Felis catus*) derive from the Near Eastern wildcat (*Felis silvestris lybica*) (Driscoll et al. 2009). Unlike other early domesticates, house cats do not perform useful tasks and their domestication likely resulted from colonization of human settlements, followed by toleration and then acceptance as a part of Neolithic village life. Archaeological evidence suggests that this process occurred very soon after the founding of agricultural villages, as cats were intentionally transported as part of the “Neolithic package” to the island of Cyprus and beyond by the Middle PPNB (Vigne et al. 2004).

4 The Development of Secondary Products

The stimulus for the domestication of the first barnyard animals is thought to have been related to increasing access to “primary” or “postmortem” animal products – i.e., resources like meat, fat, bone, and skin that come from an animal after it has been slaughtered. However, in historic periods in the Near East domesticates were primarily used for their renewable, or secondary, products, such as milk and fiber (wool and hair) and for use in traction. In an influential argument, Andrew Sherratt (1981, 1983) proposed that secondary product economies emerged suddenly in the Near East in the 4th and 3rd millennia BC, in what he described as the “secondary products revolution,” fueling the rise of complex political systems.

Subsequent archaeological research has pushed the advent of secondary products considerably earlier than Sherratt's model (cf. Greenfield 2010; Halstead and Isaakidou in press). In particular, analysis of chemical residues within ceramic vessels has identified the use of bovine dairy products in the earliest pottery-using cultures in central and northwestern Anatolia and in north Syria in the 7th millennium BC (Evershed et al. 2008). Based on a detailed analysis of culling ages, some researchers push the initiation of dairy production back even further, into the PPNB, arguing that sheep, goats, and cattle were used for milk in some of the earliest herding economies in the northern Levant (Helmer et al. 2007; Vigne and Helmer 2007). However, for much of the Near East, dairy production was probably practiced at low levels until the Chalcolithic and Bronze Ages, when texts indicate the widespread domestic use of dairy products (Green 1980; Zettler 1987; van Driel 1993; Widell 2003).

The use of large mammals – first cattle and then camels, donkeys, horses, and various equine hybrids (see below) – for traction is difficult to identify archaeologically, although the presence of so-called “traction pathologies” in the lower leg and foot bones may suggest chronic load-bearing or pulling (Bartosiewicz et al. 1997; Isaakidou 2006; Rossel et al. 2008). The presence of traction pathologies among cattle dating to the late 6th and even the 8th millennium BC suggests that cattle were regularly harnessed and used for pulling ploughs and/or sledges in early agricultural communities (Isaakidou 2006; Helmer and Gourichon 2008; Halstead and Isaakidou in press). In prehistoric periods, archaeological evidence indicates that cows (rather than bulls or oxen) were used for traction (in addition to being sources of milk and meat) in small-scale agricultural economies (Bogaard 2005; Isaakidou 2006), while oxen (castrated bulls raised specifically for labor), which are more powerful but also much more expensive to maintain, only became widespread in the more intensive agricultural economies of the Bronze and Iron Ages (Potts 1997a: 82; Isaakidou 2006; Arbuckle 2009; Greenfield 2010). In addition, donkeys and, later, camels were likely domesticated specifically for their labor capacities and these beasts of burden become central to both agricultural production and long-distance trade in the Bronze and Iron Ages.

Although domestic animals were used for dairy and traction as early as the Neolithic, there is little evidence for the use of animal fibers at such an early date. Although the hair of many mammals, including camels, horses, rabbits, dogs, and even humans, has been used to make textiles, sheep wool and secondarily goat hair have historically dominated economies in the ancient Near East (Barber 1991). Primitive domestic sheep did not have a woolly fleece but instead, like their wild progenitor the mouflon, exhibited a coat of coarse, brittle hairs (kemps), with only a thin undercoat of fine wool (Ryder 1960, 1983; Barber 1991). The European mouflon, a feral sheep thought to be descended from primitive Neolithic domesticates, exhibits this type of 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 spread from the Near East into Europe in the early 6th millennium BC (Ryder 1983; Chessa et al. 2009). Although wool from the earliest domestic sheep was not spinnable, their seasonally molted, fine undercoat could have been plucked and felted or simply used as padding or stuffing, although there is no archaeological evidence for felt textiles in the Near East until the Bronze Age (Barber 1991: 217; but see Anthony 2007).

By the 2nd and 3rd millennia, textual and iconographic sources attest to the presence of woolly sheep and the importance of woolen (and secondarily goat hair) textile industries, particularly in southern Mesopotamia (Waetzoldt 1972; Payne 1975; Green 1980; Sherratt 1981; Postgate and Ryder 1983; McCorriston 1997; Algaze 2008; Frangipane et al. 2009). Assyrian Colony-period texts from Kültepe in central Anatolia document the regular movement of a variety of fine and coarse woolen textiles between southern and northern Mesopotamia and Anatolia and also reveal the presence of local, central Anatolian wool textile industries (Dercksen 1996; Richmond 2006; Van de Mierop 2007: 97; Michel 2008; Veenhof 2010). At the same time, Linear B texts indicate large-scale production of woolen textiles at palatial centers on Crete (Killen 1984; Halstead 2001). Iconography from Early Bronze Age Mesopotamia, including the famous Standard of Ur, indicates the presence of developed breeds of both sheep and goat with long, narrow staples of wool and hair at this time (Roaf 1990a: 92).

Algaze (2008) has argued that the woolen textile industries at the center of Bronze Age Mesopotamian economic and political dominance were also likely present in the 4th millennium BC (cf. McCorriston 1997; Keith 1998; Pollock 1999: 109; Anthony 2007). This is corroborated by the Archaic texts from Uruk which refer specifically to “wool sheep” (Green 1980; Szarzynska 2002) and apparent increases in the frequency of sheep in western Iran and northern Mesopotamia (Davis 1984; Pollock 1999); in addition, the earliest wool textiles appear in the archaeological record at this time, although on the northern margin of the Near East (Shishlina et al. 2003).

Sudo (2010) has further pushed the use of wool back into the 5th millennium BC, interpreting a decrease in the size of spindle whorls during the Ubaid period as evidence for the increasing use of fine wool over coarse flax. The rarity of sheep (and goats) at sites such as Tell Oueili in southern Mesopotamia suggests that this was not a southern invention but was instead developed in neighboring, upland regions to the north and/or east (Desse 1983). Finally, Helmer has adduced culling patterns of adult sheep and goat at Ras Shamra (western Syria) to suggest that the regular use of sheep and/or goats for fiber had begun in that region as early as the 7th millennium BC (Helmer et al. 2007).

Although there is only indirect evidence for the use of primitive sheep wool and goat hair prior to the 4th millennium, they may have been used on a household scale since the Neolithic. Evidence of the widespread and intensive production of wool and woolen textiles, and therefore of woolly sheep, increased dramatically in the Near East in the 4th millennium, corresponding to the rise

of complex societies and the commodification of textiles across major portions of the region.

5 Later Domesticates and Imports

Following the domestication of the original Near Eastern “barnyard complex” of sheep, goat, cattle, and pig, there was a long pause before the appearance of any new domestic taxa. However, processes were at work on the periphery of (and perhaps within) the Near East that led to the appearance of additional, important domesticates in the Chalcolithic and Bronze Ages. The most dramatic and important of these was the domestication of equids, which resulted in fundamental changes in Near Eastern economies, warfare, and political systems.

In the Holocene, steppic regions of southwestern Asia were home to four species of equids including true (caballine) horses (*Equus ferus/caballus*) and three types of asses: African wild asses (*Equus asinus*), hemionos (*Equus hemionus*), and the now extinct European wild ass (*Equus hydruntinus*) (Uerpmann 1987). Although all these species were hunted in the Holocene, only the first two were domesticated, though not in the Near East.

Although the processes of horse and donkey domestication are poorly understood, recent archaeological and genetic studies point to the 4th millennium as the key period for both species (Clutton-Brock 1992a; Levine 1999; Levine et al. 1999; Vila et al. 2001; Olsen et al. 2006; Anthony 2007; Ludwig et al. 2009). Domestic horses first appear on the western Eurasian steppes where they were used for riding, meat, and milk, and they had spread into the Near East by the 3rd millennium BC (Zeder 1986; Gilbert 1991; Anthony 1991, 2007; Outram et al. 2009). Although there are earlier finds of horses from late Chalcolithic sites in eastern Turkey and northern Iran, the recently recognized presence of Holocene wild horse populations in Anatolia means that their status – wild versus managed – remains unclear (Boessneck and von den Driesch 1976; Meadow 1986a; Bökönyi 1991; Mashkour 2002; Vila 2006; Arbuckle 2008b, 2009).

Descended from the wild ass (*Equus asinus*), donkeys were domesticated in North Africa (from at least two wild populations) and, like the horse, appeared in the Near East in the 3rd millennium (Beja-Pereira et al. 2004; Vila 2006; Rossel et al. 2008). Although there are some claims for domestic donkeys in both northern and southern Mesopotamia in the 4th millennium, the ancient range of the wild ass likely extended from northeast Africa across southwestern Asia to the Arabian peninsula, which, combined with the difficulty of distinguishing the bones of donkeys from those of hemionos, makes these claims difficult to assess (Uerpmann 1991; Mashkour 2002; Vila 2006; Uerpmann and Uerpmann 2008b; Potts 2011).

In addition, hybrids born from crossbreeding multiple species of equid were also widely used in the ancient Near East. In the 3rd millennium, iconographic,

textual, and archaeological evidence from Mesopotamia and Iran suggests that hemiones were regularly crossed with domestic donkeys, producing a highly valued hybrid known as a kunga (Sumerian *anše BARxAN*) which was used to pull four-wheeled war carts as depicted on the Standard of Ur (Zarins 1978; Postgate 1986; Gilbert 1991; Clutton-Brock 1992a; Becker 2008; Weber 2008). Other equine hybrids, including the mule, have been identified in Late Bronze Age deposits in Iran, Iron Age Anatolia, and on Mesopotamian reliefs, and were widely used in the Roman period (Zeder 1986; Clutton-Brock 1992b; Toplyn 1994; Hongo 1996).

Wherever their origin, horses and donkeys appear in the Near East in small numbers at least by the Early Bronze Age, where they were likely symbols of prestige and wealth; donkeys were occasionally incorporated into elite funerary rituals and bred with tamed hemiones (Zarins 1986; Vila 2006; Weber 2008). Some of the very earliest domestic donkeys have evidence of extensive traction pathologies, indicating that they functioned as elite beasts of burden from an early date (Rossel et al. 2008). By the Late Bronze Age both horses and donkeys became more common across the Near East; speedy two-wheeled chariots pulled by horses replaced four-wheeled carts pulled by hybrids in Mesopotamia, while donkey caravans plied long-distance trade routes across the Near East (Postgate 1986; Dercksen 1996; Veenhof 2010).

Domestic camels were a relatively late addition to the Near Eastern economic complex but, because of their unparalleled ability to transport heavy loads in hot, dry environments, they became an important component of the transport sector in semi-arid regions, including Arabia, north Syria, Iran, and parts of Anatolia, in the Iron Age and later periods (Potts 2004a). There are two varieties of domestic camel. One-humped or dromedary camels (*Camelus dromedarius*) originated in the Syro-Jordanian and Arabian deserts and, although the domestication process may have begun as early as the 4th millennium BC, domesticates were clearly present in the latter region only by the end of the 2nd millennium BC (Köhler-Rollefson 1996; Peters 1997; Peters and von den Driesch 1997; Uerpmann and Uerpmann 2002). Two-humped Bactrian camels (*Camelus bactrianus*), in contrast, originated in eastern Central Asia and spread west into Iran by the beginning of the 3rd millennium and into Assyria and Anatolia by the 1st millennium BC (Peters and von den Driesch 1997; Potts 2004a; Uerpmann and Uerpmann 2008b; von den Driesch et al. 2008).

Of the two types, archaeological evidence indicates that domestic dromedaries appeared first and were more abundant in the ancient Near East. Although they were part of the Pleistocene fauna at sites in eastern Jordan and central Syria, they are absent in Neolithic assemblages in the region (S. Payne 1983; Uerpmann 1987; Clutton-Brock 1989a; Griggo 2004). Dromedaries, perhaps domestic, appear in very small numbers in northern Iran by the late 4th/early 3rd millennium and in Armenia, eastern Iran, and the upper Tigris drainage in the 3rd millennium (Early Bronze Age), where they may have been used for transport,

meat, and hair (Compagnoni and Tosi 1978; Meadow 1986c; Peters and von den Driesch 1997; Mashkour 2002; Berton and Mashkour 2008). Dromedary remains have been identified at sites from the Khabur to the Amuq and the southern Levant in the Late Bronze Age, indicating their expanding use in east-west caravan traffic and, finally, are present in Anatolia and across the entire Near East in the 1st millennium when their representation in faunal, iconographic, and textual corpora indicates considerable influence in the economic and military sphere (van Buren 1939; Vogler 1997; Hongo 1998; Hesse and Wapnish 2002; Baker 2008; Becker 2008). Both species reached Troy in western Anatolia by the Roman period where dromedaries and dromedary-Bactrian hybrids have been identified (Uerpmann 1999: 113).

Although the Near East was a major center for domestication of taurine cattle (*Bos taurus*), another strain of wild cattle was independently domesticated in South Asia, resulting in the humped zebu (*Bos indicus*) (Bradley and Magee 2006; Chen et al. 2010). Zebu are powerful and resilient animals that are better adapted to arid conditions and low quality grazing than taurine cattle (Meadow 1984a). As a result, zebu bulls were widely imported and cross-bred with taurine cattle in East Africa and the Near East, producing improved hybrid breeds (Loftus et al. 1994; Bradley and Magee 2006).

Although the difficulty of distinguishing between the skeletal remains of taurine and zebu cattle makes it difficult to say when zebu first appeared in the Near East, thoracic vertebrae with bifurcated neural processes as well as figurines of humped cattle have been used to identify their early importation into the Near East. A combination of skeletal and figurative evidence suggests that zebu appeared on the eastern margin of the Near East, in Iranian Sistan, in the early 3rd millennium and in eastern Arabia and southern Mesopotamia by the mid-3rd millennium BC, probably via the Gulf (Matthews 2002a; Potts 1997a: 257). By the mid- to late 2nd millennium, zebu had spread into northern Mesopotamia, where they are evident at Tell Brak, and the southern Levant and Egypt, where they are depicted in New Kingdom wall paintings (Clason 1978; Wapnish and Hesse 1988; Nicolotti and Guerin 1992; Brewer 2002; Houlihan 2002). Zebu are rarely depicted in Anatolia and then only in the Iron Age but continued to exist in that region through the Byzantine period (Matthews 2002a; Arbuckle 2009).

Although difficult to identify archaeologically, zebu have had an important impact on the development of breeds of Near Eastern cattle following their initial appearance in the Bronze Age. Modern genetic studies suggest as much as a one-third introgression of zebu genes into modern Near Eastern cattle populations (Bradley and Magee 2006).

Despite the widespread use the water buffalo (*Bubalus bubalis*) in the Ottoman period, its history in the ancient Near East is very poorly known and there is some debate as to whether it formed part of the native fauna of the region at all (Uerpmann 1987). A single report of water buffalo remains from north Syria in

the Halaf period suggests they were present in small numbers in the Euphrates valley in the 6th millennium BC, while several representations on cylinder seals dating to the late 3rd millennium suggests they were present in southern Mesopotamia in the Old Akkadian period, when texts occasionally refer to them as exotics (van Buren 1939: 74; Uerpmann 1986; Potts 1997a: 258; Foster 2002: 286). Domestic water buffalo appear in the Near East as imports in the Iron Age and skeletal remains have been identified at both Boğazköy and Kaman-Kalehöyük in central Anatolia (Hongo 1997). They then reappear in larger numbers in the medieval and Ottoman periods and are still widely used in southern Iraq (Hongo 1997; Ochsenschlager 2004; Casabonne 2006).

6 Hunting in the Ancient Near East

Following the domestication of livestock, the role of wild taxa as subsistence resources slowly declined, especially after the four early domesticates were integrated into highly productive pastoral economies in the Final PPNB/Early Pottery Neolithic. However, in post-Neolithic periods wild mammalian taxa continued to play important economic and symbolic roles in ancient Near Eastern societies (Zeder 1994) when wild game functioned in two main ways: (1) as a supplemental food source; and (2) as a means for elites to express their power and dominance.

Although the domestication of livestock transformed animal economies, hunting large game remained socially and economically important activities – facts likely responsible for initial resistance to the adoption of cattle and pig management (Arbuckle and Makarewicz 2009). Although the use of prodomestic species (i.e., sheep, goat, cattle, and pig) increased dramatically in the PPNB and Pottery Neolithic (Figure 11.3), the exploitation of wild game remained a central activity in some regions well into the Bronze Age and even the Iron Age (Tsahar et al. 2009).

On the steppes of northern Syria and northern Iran, hunting of gazelle and hemione remained dominant economic activities in the Chalcolithic and Bronze Age (Bökönyi 1973; Zeder 1994; Mashkour 2002). Another equid, the extinct European ass (*Equus hydruntinus*), was intensively hunted in central Anatolia through the Chalcolithic and into the Iron Age in Iran, when it seems to have become extinct (Buitenhuis 1997; Mashkour 2002; Carruthers 2003; Arbuckle 2008b). In the eastern Arabian peninsula, wild resources from both the desert and the Gulf were heavily exploited in the Bronze Age, when remains of domestic cattle and goats are outnumbered at many sites by those of wild dromedary, Arabian oryx (*Oryx leucoryx*), dugong (*Dugong dugon*), and sea turtles (*Chelonia mydas*) (Beech and Al-Husaini 2005; Uerpmann and Uerpmann 2008b; von den Driesch et al. 2008). In the southern Levant gazelle, along with rare desert taxa including ibex (*Capra nubiana*), Arabian oryx, and hartebeest (*Alcelaphus buse-*

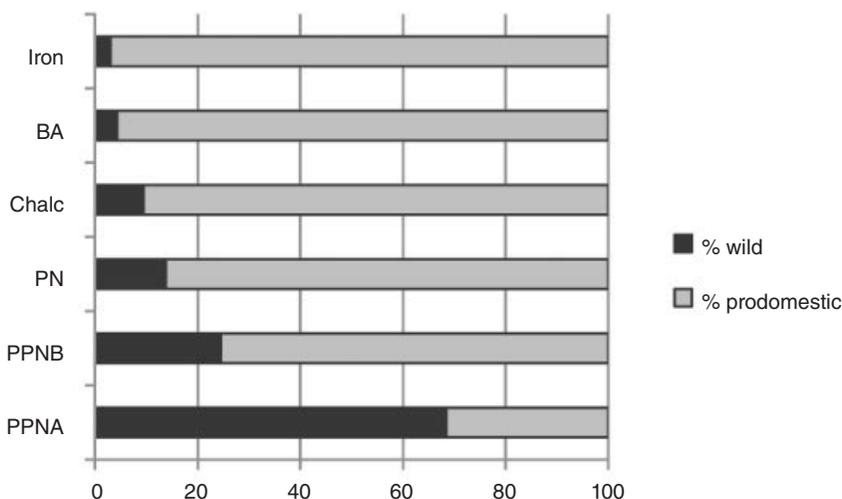


Figure 11.3 Changing frequencies of prodomestic taxa (including sheep/goat, cattle, pigs) and wild taxa (gazelle, deer, wild equids, hare) in faunal assemblages from across the Near East in the PPNA, PPNB, Pottery Neolithic (PN), Chalcolithic (Chalc), Bronze Age (BA), and Iron Age.

laplus), were also occasionally hunted (Hesse and Wapnish 2002; Alhaique and Gopher 2005; Makarewicz 2005; Tsahar et al. 2009).

Similarly, deer-hunting continued to be an important activity in western Anatolia in the Neolithic and Chalcolithic (Crabtree and Monge 1986; Buitenhuis 2008; Gündem 2009) and deer are notably abundant at Bronze Age Boğazköy and Phrygian Gordion, suggesting the importance of hunting as an elite activity. Texts reveal that the Neo-Assyrian king Assurnasirpal II (883–859 BC) foddered 500 stags in order to provide venison for a single banquet (Lambert 1960a: 42).

Representing mastery over the forces of nature as well as an opportunity to display the skills of a war leader, royal hunts and the capture and display of dangerous and exotic beasts have been regular parts of elite, particularly royal, practice in Anatolia and Mesopotamia at least since the 3rd millennium (Caubet 2002; Foster 2002; Hamilakis 2003). Iconography, texts, and faunal remains indicate that elites regularly engaged in, and boasted of, the hunting of large game including deer, wild boar, equids, and – occasionally – elephants, as well as large carnivores including lions, leopards, and bears in the Bronze and Iron Ages and used elaborate hunting expeditions to support claims to rulership (van Buren 1939; Clutton-Brock 1992b: 85; Collins 2002b; Foster 2002: 285; Houlihan 2002). It is perhaps no accident, then, that the earliest Hittite text includes reference to a successful hunting expedition by King Anitta and his return to the city of Nesa with a large number of dangerous and exotic beasts, including lions,

to be displayed in a royal game preserve in support of his claims to leadership (Collins 2002b: 250).

Big cats, including both Asian lions (*Panthera leo*) and leopards (*Panthera pardus*), whose ranges historically extended across the Near East, were especially prized by elites as symbols of power. The connection between big cats and elites is reflected in an increase in their representation in faunal assemblages in the Bronze Age associated with the rapid spread of state-level societies. With a few exceptions (Stampfli 1983; Peters et al. 2005), the remains of lions do not regularly appear in Holocene faunal assemblages in the Near East until the Bronze Age. Moreover, the number of big cat remains found at Late Bronze Age Boğazköy is as large as the number from all Neolithic sites in the Near East combined, emphasizing the close association between elite status and the symbolism of killing, capturing, and displaying the remains of these cats (von den Driesch and Boessneck 1981).

Some of the most dramatic royal boasts concerning hunting can be found in Assyrian royal inscriptions including one from the 13th century in which Tiglath-pileser I (c.1114–1076 BC) boasts of capturing and killing bull elephants on a hunting expedition to the Khabur river and Harran plain, as well as the slaughter of more than 900 lions (van Buren 1939; Foster 2002: 285). Although textual references to elephant-hunting have long been known, and iconography occasionally shows live elephants being given and received as tribute to and from Mesopotamian and Levantine rulers (Houlihan 2002; van Buren 1939), archaeological evidence confirming the presence of Syrian elephants (*Elaphus maximus*) between the Khabur river and Cilicia in the Late Bronze and Iron Age has only recently emerged from excavations at Tell Sheikh Hamad, Kinet Höyük, and Sirkeli Höyük (Vogler 1997; Ikram 2003; Becker 2008). If these remains represent remnant wild populations, then their absence from prehistoric faunal assemblages in the region is curious, perhaps suggesting that the 2nd millennium elephant populations hunted by Neo-Assyrian kings were intentionally stocked in order to provide truly elephantine prey for royal hunting expeditions.

7 Conclusions

Animals were central to the societies of the ancient Near East, providing the food, labor, raw materials, and symbolism that fueled the development of cultures in all periods and in all regions. The roles of animals relating to economy, religion, literature, politics, and warfare could each be the subject of book-length reviews, and since it is impossible to cover all, or even most, aspects of the complex relationship between humans and animals, I have chosen in this chapter to emphasize the historical development of animal husbandry in the region that witnessed its very birth, and secondarily the importance of hunting in Near Eastern economic

and political history. From here, it is left to the reader to further explore details of the diverse and undeniably important relationships that bind humans and animals together in the history of the ancient Near East.

GUIDE TO FURTHER READING

Collins (2002a) provides a very readable and thorough examination of the role of animals in Bronze Age Near East focused on literary sources. This edited book includes chapters dealing with animals in various types of literary sources from Egypt, Anatolia, and Mesopotamia. Despite being a bit outdated, Barber (1991) is still the most exhaustive study on the use of wool in the ancient world. For useful recent reviews of Sherratt's "secondary products revolution," see Greenfield (2010) and Halstead and Isaakidou (2010). For detailed studies of faunal assemblages from around the Near East, see the *Archaeozoology of the Near East*, volumes I–VIII, which are the proceedings of the Archaeozoology of the Near East and Adjacent Areas (ASWA) meetings which occur every two years. For current reviews of the methods and results of studies of early animal and plant domestication, see Zeder et al. (2006), which combines the latest results from zooarchaeology and genetics.