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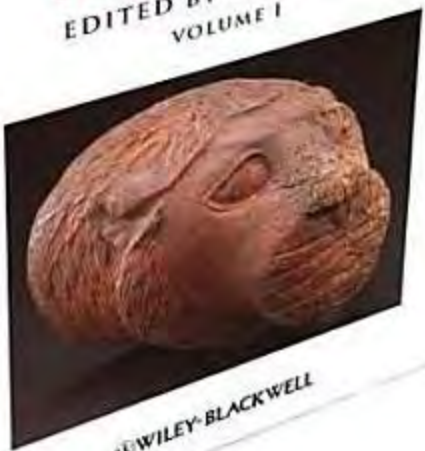
A COMPANION TO THE

ARCHAEOLOGY OF THE ANCIENT NEAR EAST

EDITED BY D. T. POTTS

VOLUME I



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A COMPANION TO THE ARCHAEOLOGY OF THE ANCIENT NEAR EAST

Volume I

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Contents

VOLUME I

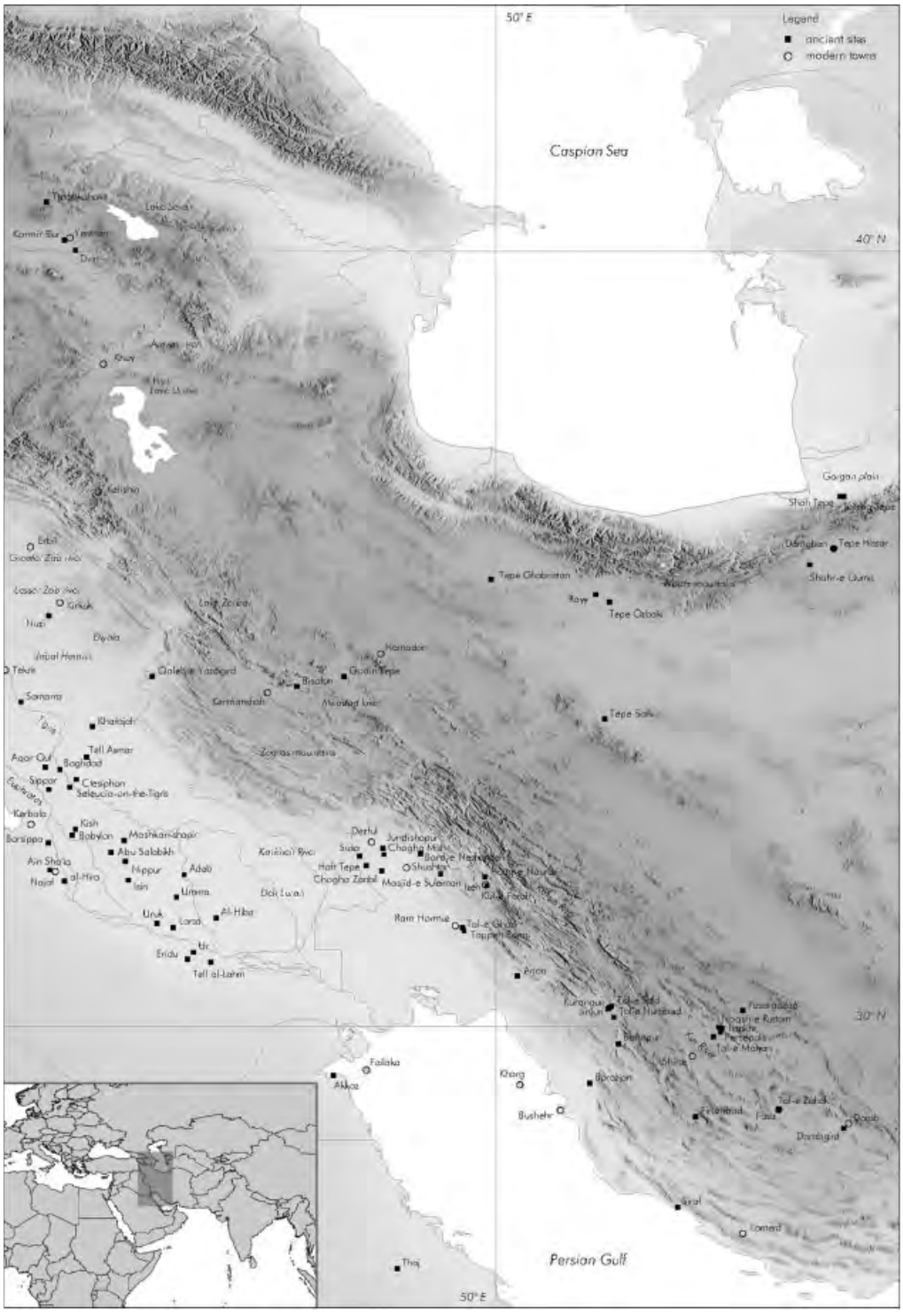
VOLUME II

Illustrations

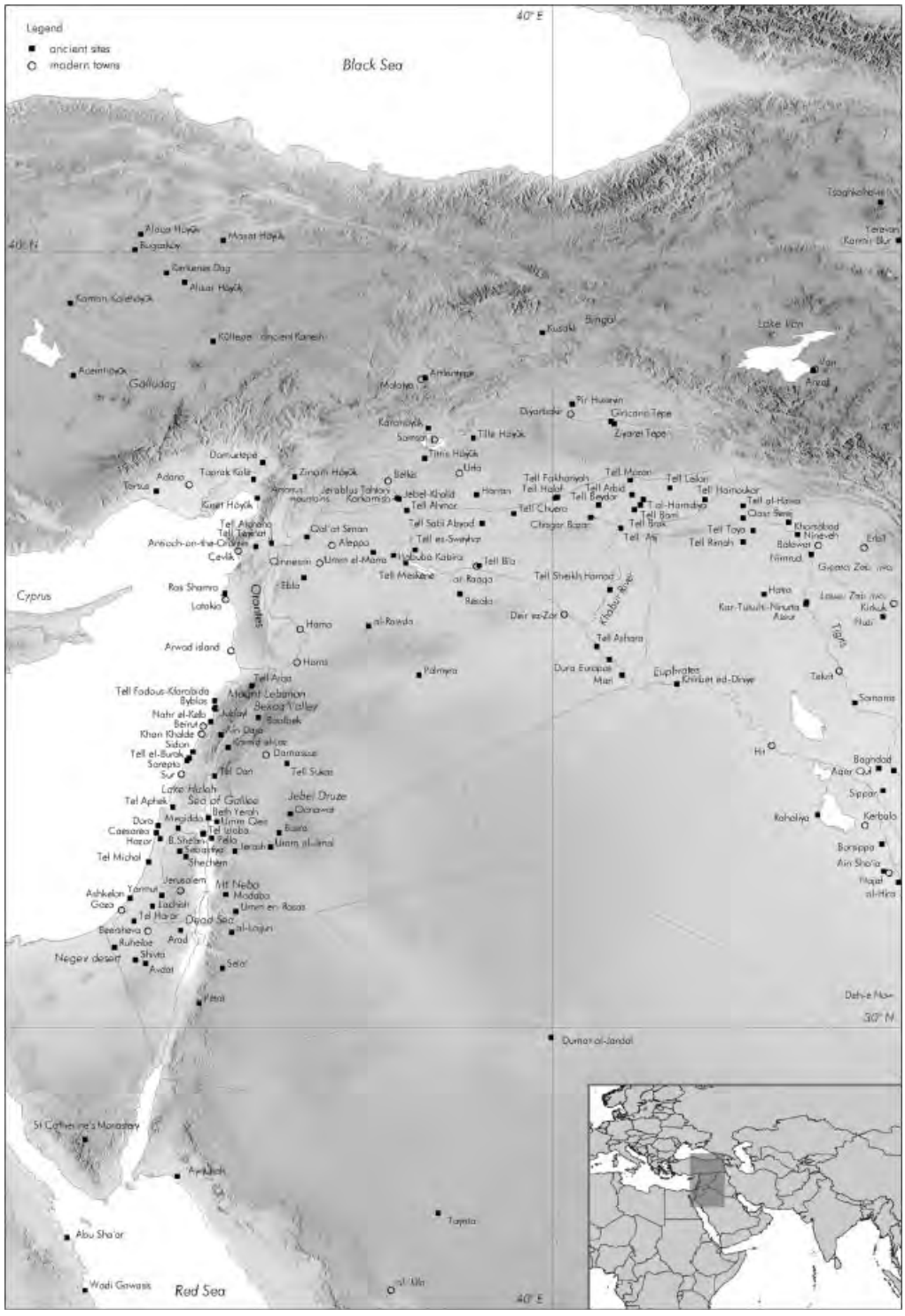
Tables

Illustrations

Tables



Map 1 Selection of sites and modern placenames mentioned in this volume (western region).



Map 2 Selection of sites and modern placenames mentioned in this volume (eastern region).

Map 3 Detail of sites located in the west.

Map 4 Detail of sites located in the east.

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Preface

Near Eastern archaeology is an expanding field. Although non-specialists may be forgiven for thinking that two Gulf wars, the overthrow of Saddam Hussein, the Soviet invasion and subsequent Taliban takeover of Afghanistan, or the Iranian Revolution must have slowed the production of knowledge about the archaeology and early history of this part of the world, this is only true up to a point. Revolutions, wars, embargoes, and diplomatic crises have always had an impact on the course of ancient Near Eastern research, but never have they stopped it entirely. In the mid-19th century the Crimean War temporarily brought a halt to fieldwork in Assyria, and the wars of the 20th and early 21st century have had a similar effect. But fieldwork is not essential for the appearance of new laboratory analyses or basic publications of already excavated material, any more than it is for the re-evaluation of old hypotheses or the generation of new ones. The sheer number of scholars engaged today in some aspect of Near Eastern archaeology is greater than ever, as is the annual output of books and articles in scholarly journals, and a quick look at the bibliography of these two volumes should dispel any notion of a slowing in the production of scholarship on ancient Near Eastern archaeology in recent years. Indeed, the explosion of knowledge and its diversity are perhaps the prime justifications for bringing out the present work.

Diversity takes many forms. It is obvious, from a quick look through the table of contents, that Near Eastern archaeology is characterized by a staggering diversity of subject matter and specializations; this *Companion* has been designed to reflect the enormous variety of Near Eastern archaeological scholarship by providing as comprehensive an overview as possible of the ancient Near East from the end of the last Ice Age to Late Antiquity. When this project was first conceived, a plan was drawn up that effectively covered the entire Near East, from the eastern Mediterranean to the Iranian Plateau, with chapters covering all the major chronological periods and many of the most important individual cultures. Although

58 contributions have been assembled in these two volumes, roughly half a dozen of those originally planned were never submitted by their authors. Thus, for a variety of reasons, topics that ought to be represented here – the Epipaleolithic and Neolithic of Iran, relations between the cultures of the Aegean and the Near East, stones and stoneworking, the major states of ancient South Arabia, the Phoenicians, and the archaeological signature and impact of the coming of Islam – are, unfortunately, missing. By the time the commissioned authors of these chapters withdrew, it was far too late to find replacements. If there are gaps, it is not for lack of trying to be as comprehensive as possible.

On the other hand, diversity is also reflected in authorship. Some countries have a long and very proud tradition of carrying out fieldwork and conducting research on one or more aspects of ancient Near Eastern archaeology and history, and there are certainly higher concentrations and a greater critical mass of scholars in some countries than in others. Nowadays, the community of scholars dedicated to these fields is far broader than at any time in the past. It is scattered from Japan and Australia across the Near East, Europe, and the Americas, and publishes in an enormous array of journals in many countries and with a wide range of publishers. One of my goals in devising the original list of topics and authors was to consciously assemble an authorship that fairly represented the diversity of views and approaches current in the world of ancient Near Eastern scholarship today. Not only senior scholars, but also younger ones and those in mid-career should be represented. Anglophone readers in particular, who may lack reading skills in French, German, or Italian, should be exposed to the different methods of scholars from non-English-speaking countries, including the countries of the Near East. As a result, the authorship of this *Companion* is drawn from Australia, Austria, Canada, Denmark, France, Germany, Iran, Italy, the Netherlands, Spain, the UK, and the USA. Were it not for the fact that some of those originally invited to contribute declined to do so and some of the commissioned authors were unable to submit their chapters, this list would be even longer and greater diversity would have been achieved. That the literature cited in the Bibliography is in a variety of European languages, as well as Turkish, Arabic, and Persian, is another fact of life. The world at large may be increasingly Anglophone, and scholarly publishing, particularly in the natural sciences, may be predominantly in English, but one look at the Bibliography will show that Near Eastern archaeology continues to be multilingual.

The work is divided into six sections. The first ("The Framework") provides basic background on the environment, history of excavation, origins of antiquities departments, antiquarianism, the antiquities trade and looting, and the political dimensions of archaeological praxis in the Near East today. The second ("Late Pleistocene and Early Holocene Hunters and Gatherers") presents the evidence from the Levant and Anatolia on the last hunter-gatherers and first agriculturalists and herders in the Near East. The third ("Developments in Farming, Animal Husbandry, and Technology") assembles a variety of chapters on themes and

topics that cross-cut chronological and regional boundaries, mainly to do with subsistence and important technologies. The fourth ("Varieties of Early Village and Town Life") examines the earliest towns and villages across the Near East, from the Mediterranean to the Iranian plateau. The fifth ("Bronze Age Cities of the Plains and the Highlands") continues in the same vein, focusing on cities in the ancient Near East. Finally, the sixth section ("The Archaeology of Empire") examines a range of ancient empires and their relations with neighboring regions, including the Indus Valley, Central Asia, the Caucasus, and Egypt. Chronologically speaking, the latest periods dealt with are the Byzantine and Sasanian, and archaeological manifestations of Christianity in both the eastern and western parts of the Near East are addressed in the final chapter. Many of the topics included here are not "standard" in surveys of the archaeology of the ancient Near East, either because those surveys truncate the timeframe, excising all periods after Alexander's conquest of the Achaemenid Empire, or because topics that do not fit strictly into neat boxes are eschewed. I hope that the diversity of topics presented here will demonstrate just how varied and vibrant Near Eastern archaeology is and can be, introducing those with a more prehistoric orientation to some of the extraordinary evidence from the later historic periods, and vice versa. Students, in particular, are generally fed on a diet of topics closest to the areas of interest of their teachers and often complete courses and degrees blissfully ignorant of entire domains of ancient Near Eastern archaeology and history. This *Companion* may help to correct such imbalances by making available authoritative expositions of a wide variety of subjects that are all too often ignored in other standard works.

As for conventions used in this work, a number of editorial decisions were necessary to harmonize usage across the chapters. Wherever possible, J.A. Brinkman's (1977) "middle chronology" has been used in assigning absolute dates to Mesopotamian rulers. As this is a work concerned largely with substance rather than chronology, no particular adherence to a position in the ongoing debate about absolute chronology (see, e.g., Gasche et al. 1998) in the ancient Near East is thereby implied. The convention throughout is to give dates for a king the first time he is mentioned in a chapter. Where dates are not given, this is because they are uncertain. Except where necessary, the use of "circa" (c.) has been avoided when citing absolute dates of reigns. Readers should realize, however, that the dates given by Brinkman are approximate. Similarly, BC (rather than B.C. or BCE) and AD (rather than CE) have been used. To avoid the repetitive, cumbersome usage of "cal BC" for calibrated radiocarbon dates, this qualification has been omitted. Unless otherwise noted, *all* radiocarbon dates cited here are calibrated. Cross-references to other chapters in this work are made where appropriate and referred to using Roman number I or II to indicate the volume in which they appear, followed by an Arabic numeral for the chapter. Thus, Ch. I.4 is Chapter 4 in Volume I; Ch. II.40 is Chapter 40 in Volume II; and so forth.

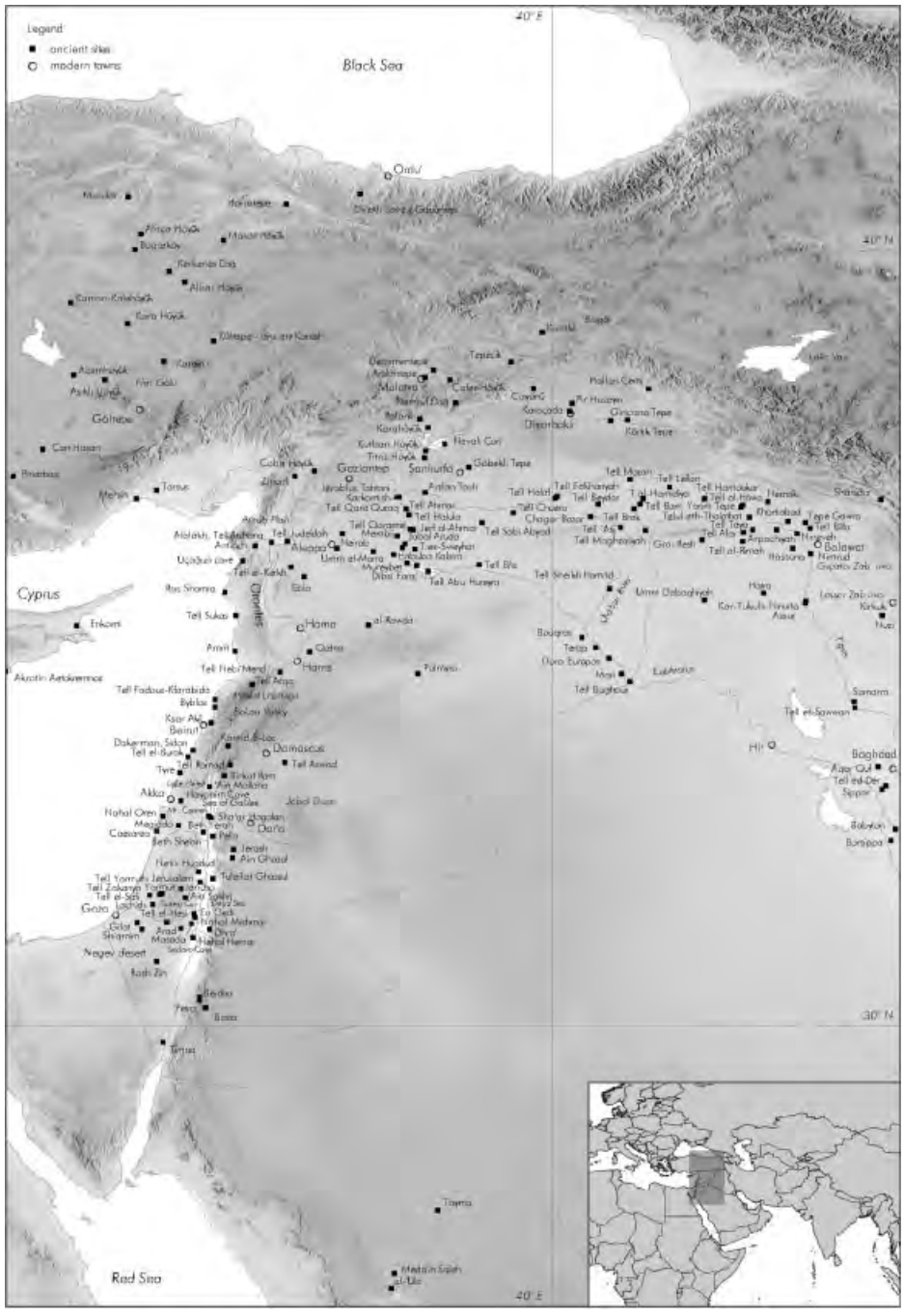
The spellings of placenames in general follow common usage in the English-speaking world. This means that names with the component Jebel or Jabal and

Tell, Tel, Tall, or Tal have not been altered but left in the form most widely used in the literature. As several systems exist for the transliteration of Arabic, Persian, Turkish, and Hebrew, no one representation of a name can easily be deemed authoritative. Similarly, in the transliteration of ancient names, the use of diacritics has generally been avoided on the basis that this is a work by and largely for archaeologists and the archaeology-reading public, not one that makes any pretense to satisfying philologists. For the most part, therefore, diacritics are not used when citing ancient sources or archaeological site and modern names. Thus, for the sake of simplicity, Assur is used rather than Aššur, and long vowels are not marked. An exception to this has been made in several chapters where Turkish names have been left with their diacritics intact as given by the authors, and in W. Henkelman's important chapter on the Achaemenid heartland. In the rare cases where Akkadian or Sumerian words are cited, the former are italicized while the latter are printed in boldface.

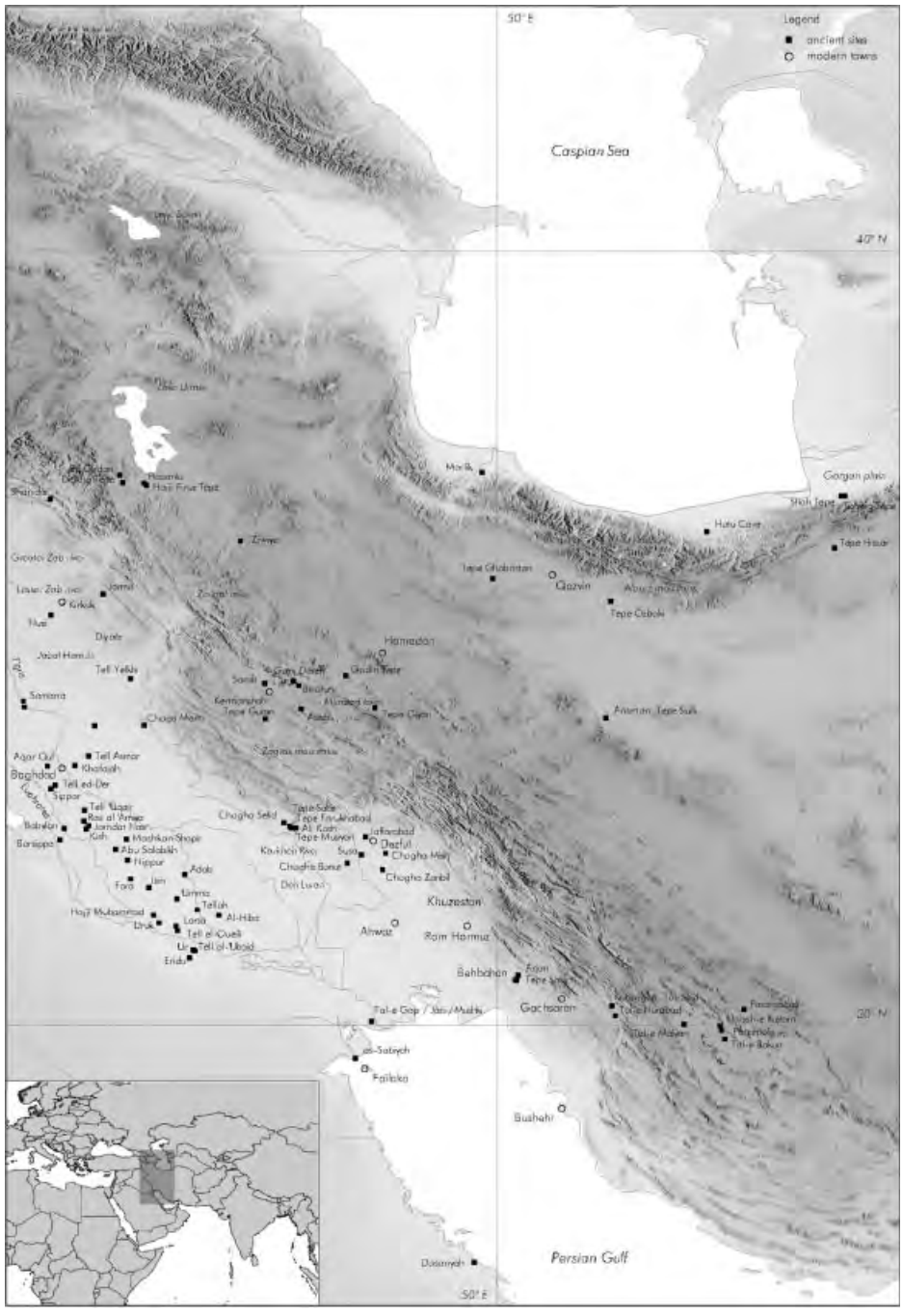
Providing adequate maps for a work of this breadth has proven to be a difficult task. To have a unique map for every chapter, noting the placenames mentioned in it, was unfeasible. As a compromise, two sets of maps, at different scales, have been prepared for each volume. Space and legibility dictated that not every placename mentioned in each volume could be included and I had to make some rather arbitrary decisions about which names to include and which to omit. In most cases, however, the context of the discussion in a given chapter gives a fair indication of where a place is located.

Finally, a number of people have helped me throughout this project. My editors at Wiley-Blackwell, particularly Haze Humbert and Galen Young, have answered my questions and tolerated delays beyond my control, while Sarah Dancy has coped fantastically with the immense job of copy-editing. The authors themselves are due a great vote of thanks, particularly those who were on time with their submissions. The entire work was delayed by more than 10 months as a result of late submissions and an often exasperatingly slow rate of delivery. The preparation of the Maps 1–4 in each volume was done by Thomas Urban (Dr. Th. Urban & Partner, Birkenwerder, Germany) using SRTM data (NASA/NGA/USGS). His help under significant time pressure was invaluable and greatly appreciated. For their help in compiling lists of placenames with their UTM coordinates I must thank three of my students, Amanda Dusting, Tom Ellicott, and Kat McRae, each of whom responded willingly to my cry for help when the task of assembling this data seemed insurmountable. Last but not least, my family has, as always, been a great support to me throughout what has often been a frustratingly long exercise. Hildy, Hallam, and Morgan bore the brunt of this, while Rowena only escaped by virtue of living on another continent.

D.T. Potts
Sydney



Map 1 Selection of sites and modern placenames mentioned in this volume (western region).



Map 2 Selection of sites and modern placenames mentioned in this volume (eastern region).

Map 3 Detail of sites located in the west.

Map 4 Detail of sites located in the east.

Abbreviations

AA	*American Anthropologist*
AAA	*Liverpool Annals of Archaeology and Anthropology*
AAAS	*Annales Archéologiques Arabes Syriennes*
AAE	*Arabian Archaeology and Epigraphy*
AAL	*Acta Archaeologica Lovaniensia*
AAnz	*Archäologischer Anzeiger*
AAS	*Anatolian Archaeological Studies*
ACSS	*Ancient Civilizations from Scythia to Siberia*
ADAJ	*Annual of the Department of Antiquities of Jordan*
AfO	*Archiv für Orientforschung*
AIUON	*Annali dell'Istituto Universitario Orientale di Napoli*
AJA	*American Journal of Archaeology*
AJPA	*American Journal of Physical Anthropology*
ÄL	*Ägypten und Levante*
AmAnt	*American Antiquity*
AMI	*Archäologische Mitteilungen aus Iran*
AMIT	*Archäologische Mitteilungen aus Iran und Turan*
ANES	*Ancient Near Eastern Studies*
ANET	Pritchard, J.B., ed. (1969), *Ancient Near Eastern Text Relating to the Old Testament*. Princeton.
ANRW	Temporini, H. and Haase, W., eds. (1972–), *Aufstieg und Niedergang der römischen Welt*. Berlin/New York.

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AnSt	*Anatolian Studies*
AO	*Ars Orientalis*
AoF	*Altorientalische Forschungen*
ARA	*Annual Review of Anthropology*
AWE	*Ancient West & East*
BA	*Biblical Archaeologist*
BAAL	*Bulletin d'archéologie et d'architecture Libanaises*
BAI	*Bulletin of the Asia Institute*
BaM	*Baghdader Mitteilungen*
BASOR	*Bulletin of the American Schools of Oriental Research*
BIFAO	*Bulletin de l'Institut français d'archéologie orientale*
BiOr	*Bibliotheca Orientalis*
BSA	*Bulletin on Sumerian Agriculture*
BSOAS	*Bulletin of the School of Oriental and African Studies*
CA	*Current Anthropology*
CAH	*Cambridge Ancient History*
CAJ	*Cambridge Archaeological Journal*
CHI	*Cambridge History of Iran*
CRAIBL	*Comptes-rendus de l'Académie des inscriptions et belles lettres*
CT	Cuneiform Texts from Babylonian Tablets in the British Museum
CQ	*Classical Quarterly*
CY	*Chroniques Yéménites*
DA	*Dossiers d'archéologie*
DAFI	*Cahiers de la Délégation archéologique française en Iran*
DaM	*Damaszener Mitteilungen*
DOP	*Dumbarton Oaks Papers*
EnIr	*Encyclopaedia Iranica*
EVO	*Egitto e Vicino Oriente*
EW	*East and West*
GJ	*The Geographical Journal*
IEJ	*Israel Exploration Journal*
IJAH	*Iranian Journal of Archaeology and History*
IJNA	*The International Journal of Nautical Archaeology*
ILN	*Illustrated London News*
IM	Iraq Museum
IrAnt	*Iranica Antiqua*
IstMitt	*Istanbuler Mitteilungen*
JA	*Journal Asiatique*
JAA	*Journal of Anthropological Archaeology*
JAE	*Journal of Arid Environments*
JAOS	*Journal of the American Oriental Society*
JAMT	*Journal of Archaeological Method and Theory*
JAR	*Journal of Archaeological Research*

JARCE	*Journal of the American Research Center in Egypt*
JAS	*Journal of Archaeological Science*
JCS	*Journal of Cuneiform Studies*
JEA	*Journal of Egyptian Archaeology*
JEOL	*Jaarbericht Ex Oriente Lux*
JESHO	*Journal of the Economic and Social History of the Orient*
JFA	*Journal of Field Archaeology*
JGS	*Journal of Glass Studies*
JIAAA	*Journal of Inner Asian Art and Archaeology*
JIES	*Journal of Indo-European Studies*
JIPS	*Journal of the Israel Prehistoric Society*
JMA	*Journal of Mediterranean Archaeology*
JNES	*Journal of Near Eastern Studies*
JOS	*Journal of Oman Studies*
JQS	*Journal of Quaternary Science*
JRA	*Journal of Roman Archaeology*
JRAS	*Journal of the Royal Asiatic Society of Great Britain and Ireland*
JRGS	*Journal of the Royal Geographical Society of London*
JRGZM	*Jahrbuch des Römisch-Germanischen Zentralmuseums, Mainz*
JRS	*Journal of Roman Studies*
JSGT	*Journal of the Society of Glass Technology*
JSS	*Journal of Semitic Studies*
JWP	*Journal of World Prehistory*
LA	*Liber Annuus*
MDOG	*Mitteilungen der Deutschen Orient-Gesellschaft*
MDP	*Mémoires de la délégation en Perse, Mémoires de la mission archéologique de Susiane, Mémoires de la mission archéologique de Perse, Mémoires de la délégation archéologique en Iran*
MeditArch	*Mediterranean Archaeology*
MUSJ	*Mélanges de l'Université Saint-Joseph*
N.A.B.U.	*Nouvelles Assyriologiques brèves et utilitaires*
NAPR	*Northern Akkad Project Reports*
NEA	*Near Eastern Archaeology*
OCP	*Orientalia Christiana Periodica*
OGIS	Dittenberger, W., ed. (1903–5), *Orientis Graecae Inscriptiones Selectae*. Leipzig.
OJA	*Oxford Journal of Archaeology*
Or	*Orientalia*
PBA	*Proceedings of the British Academy*
PEQ	*Palestine Exploration Quarterly*
PG	private grave, designation used in the Royal Cemetery at Ur
PNAS	*Proceedings of the National Academy of Sciences*
PPS	*Proceedings of the Prehistoric Society*

PSAS	*Proceedings of the Seminar for Arabian Studies*
PSI	*Pubblicazioni della Società Italiana per la ricerca del papiri greci e latini*
QI	*Quaternary International*
QR	*Quaternary Research*
QSR	*Quaternary Science Reviews*
RA	*Revue d'Assyriologie*
RB	*Revue biblique*
RDAC	*Report of the Department of Antiquities, Cyprus*
RlA	*Reallexikon der Assyriologie und Vorderasiatischen Archäologie*
SB	*Sammelbuch griechischer Urkunden aus Ägypten*
SCCNH	*Studies on the Civilization and Culture of Nuzi and the Hurrians*
SDB	*Supplément au dictionnaire de la Bible*
SEL	*Studi Epigrafici e Linguistici sul Vicino Oriente Antico*
SMEA	*Studi Micenei ed Egeo-Anatolici*
SRAA	*Silk Road Art and Archaeology*
StIr	*Studia Iranica*
SWJA	*Southwestern Journal of Anthropology*
TCL	Textes cuneiforms du Louvre
TÜBA-AR	*Turkish Academy of Sciences Journal of Archaeology*
UF	*Ugarit-Forschungen*
UVB	*Vorläufige Bericht über die von dem Deutschen Archäologischen Institut aus Mitteln der Deutschen Forschungsgemeinschaft unternommenen Ausgrabungen in Uruk-Warka*
VHA	*Vegetation History and Archaeobotany*
WA	*World Archaeology*
WMAH	Sauren, H. (1969), *Wirtschaftsurkunden aus der Zeit der III. Dynastie von Ur im Besitz des Musée d'Art et d'Histoire in Genf.* Naples.
WO	*Die Welt des Orients*
WZKM	*Wiener Zeitschrift für die Kunde des Morgenlandes*
YOS	Yale Oriental Series
ZA	*Zeitschrift für Assyriologie*
ZDMG	*Zeitschrift der Deutschen Morgenländischen Gesellschaft*
ZDPV	*Zeitschrift des Deutschen Palästina-Vereins*
ZOA	*Zeitschrift für Orient-Archäologie*

PART I

The Framework

CHAPTER ONE

Introduction to Geography, Climate, Topography, and Hydrology

T.J. Wilkinson

1 The Role of the Environment

In this chapter no attempt is made to detail the physical geography and environmental context for the entire Near East, because these are treated in key references on regional geography (e.g., Butzer 1971, 1995; Beaumont et al. 1976; Brice 1978; Fisher 1978; Sanlaville 2000). Emphasis is placed upon studies conducted over the past 15 years, and this study is intended to complement earlier reviews of the subject (e.g., Butzer 1995; Potts 1997a; Wilkinson 2003a; Cordova 2007); it also focuses upon topics that relate directly to human settlement, long-term historical trends and human responses to the environment. The narrative is primarily focused upon the Holocene, namely the last 10,000 years or so. The environmental framework extends beyond climate to include the physical geography of soil resources, the hydrology of ancient rivers, as well as trends in vegetation.

Debates concerning the interactions between past human societies and the environment continue to swing back and forth, and it is noteworthy that recent literature on this subject often revives earlier arguments of environmental determinism without any awareness of the original studies (Judkins et al. 2008). Around the turn of the 20th century, environmental determinism was a major intellectual movement which argued that the environment had a strong influence on human settlement, behavior, and even character (Huntington 1907). Elements of this persist in recent literature arguing for the forcing effect of climate

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on the rise and decline of settlements and states (e.g., de Menocal 2001; Staubwasser and Weiss 2006; Kennett and Kennett 2007) and suggesting that societal collapse and human evolution are driven by environmental factors. A second group, while acknowledging the significance of the environment, take a more nuanced approach that sees the environment as an important factor in decision-making, but only one of many social, economic, and political factors that influence human groups (e.g., Kuzucuoğlu and Marro 2007; Rosen 2007; Wossink 2009). Finally, a third group argues that melodramatic terms such as collapse are often exaggerated, whereas human societies show considerable long-term resilience to environmental shocks and stresses (McAnany and Yoffee 2010a). My own position is that although the environment does have a significant influence on daily life and the economy, this relationship is complex, intertwined and sometimes indirect.

2 Topography and the Role of Agricultural Basins

Contrary to popular misconception, the Near East is not mainly desert but, rather, consists of large areas of upland plateau (e.g., Anatolia and Iran, parts of Yemen), extensive sedimentary basins (e.g., Mesopotamia, coastal Palestine, and Khuzestan), straggling uplands (e.g., Palestine, Syria) as well as forbidding mountain belts (e.g., the Zagros and Alburz mountains of Iran; the Taurus and Amanus in Turkey; the Hajar Mountains of Oman and the Hijaz in Saudi Arabia) (see Figure 1.1). Between these, and forming part of the mid-latitude arid zone, extend the arid deserts of Jordan, Syria, and Arabia, as well as the semi-arid steppe to the north. The latter were particularly important as loci of so-called secondary state formation in northern Iraq and the Levant.

Early states of the 3rd and 2nd millennia BC and their characteristic settlement, the *tell* (Arabic meaning "mound"), were particularly concentrated in sedimentary basins, both the arid basins watered by the major river systems and those receiving sufficient rainfall for rain-fed cultivation. The latter were major hearths of prehistoric communities and of *tell*-based communities in the 4th, 3rd and 2nd millennia BC. Particularly significant for early states were the agricultural basins of the Khabur and Ghab (Syria), the Gorgan and Tehran/Qazvin plains (Iran), and the Amuq and the Konya plains (Turkey). Numerous archaeological mounds are concentrated in such plains, whereas in the neighboring uplands and valleys, Chalcolithic and Bronze Age settlements, although present, tend to be smaller and rather sparse. These basins were major centers for the cultivation of cereals and pulses as well as providing long-term pastoral resources for the large herds and flocks of Bronze Age cities. Whereas some basins extend over hundreds of square kilometers, others, such as the Titriş (southern Turkey) or the Mamasani plain (western Iran), provided sufficient land to support only a few small communities perhaps dominated by a single center. Nevertheless, their

Figure 1.1 Map of the area discussed in the text.

settlement history frequently extends back to the very earliest stages of domestication.

Deep, fertile soils, characterized by mature calcareous horizons, are ideal for cereals and legumes, and, if fallowed, provide an in-built buffer against shortfalls in precipitation. Because fine-grained basin soils retain moisture better than shallow, frequently coarse upland soils, they can be used for long-term cultivation or pasturage, hence their choice for early settlements. Nevertheless, they were not the only land available and over the past 2,000–3,000 years settlement has spread considerably into the uplands of the Levant, Upper Mesopotamia, and parts of Turkey. This has resulted not only in the selection of more environmentally unstable locations for settlement, but in greater soil erosion.

The agricultural basins did not exist in isolation but were linked together by major rivers, particularly the Tigris-Euphrates system. Consequently, areas of high agricultural productivity were linked to networks of communication as well as to other agricultural heartlands. In contrast, and particularly significant for the development of early states and economies, were agricultural basins that incorporated routes *within* themselves, as was the case in southern Mesopotamia,

where a network of rivers and artificial channels provided excellent, low-friction routes, ideal for the transport of bulk products.

In addition to the agricultural basins, the climatically marginal dry steppe of central and northern Syria was colonized intermittently during the early Bronze Age, a process that left its archaeological signature in the form of large, geometric *Kranzhügeln* and related sites. Given their climatically marginal location, it is not surprising that during periods of political weakness or climatic stress such steppe regions were deserted or perhaps reverted to extensive pastoralist use.

3 Rivers and River Systems

Middle Eastern rivers and lakes provide a long-term repository for environmental proxy records. However, because rivers tend to remove parts of their deposits, the terraces that flank the rivers provide only a partial record of the history of deposition and erosion. Whereas traditional assessments have been constrained by the lack of strata suitable for direct dating (Geyer and Monchambert 2003), new radiometric dating techniques on basalt flows interleaved with terrace gravels are pushing the chronology of the Euphrates and Orontes Rivers back to some 2–3 million years before present (BP), indicating that these river valleys are significantly older than originally thought (Demir et al. 2007).

The fertile riverine terraces provided extensive agricultural resources close to water and communications and therefore attracted large-scale settlement. However, rivers also provided recognizable boundaries and thus functioned as frontiers, as illustrated by the Syrian Euphrates in the Neo-Assyrian and Roman periods. Consequently, river valleys should not simply be seen as loci of sedentary communities. This tension between a valley's varied roles – in agricultural settlement, as the location of a boundary and as a corridor of movement – perhaps explains why some riverine corridors show oscillating patterns of human settlement, in one period acting as attractors, and in another being deserted. Hence, the Euphrates River in Syria and Turkey was a major locus of Early Bronze Age settlement during the 3rd millennium BC, with settlements frequently located on opposite banks of the river, presumably at crossing points (Wilkinson 1990). Equally though, river valleys such as that of the Sajur in northern Syria, were sparsely settled for much of the 4th and 3rd millennia BC, despite their apparent fertility, and only densely settled from the Iron Age onwards. Such examples are instructive in demonstrating that the environment should not be viewed as a single, monolithic resource, but as a set of potential resources affording opportunities that could be taken up at different times in different ways.

The Tigris-Euphrates river basin not only formed one hearth for the origins of agriculture, but was also a key for the urban revolution of the Early Bronze Age. As noted by Algaze, it formed "an enormous dendritic transportation

system" (2001: 204a) available to float the products of Anatolia, Iran, and Syria down to the Mesopotamian lowlands.

Many Middle Eastern rivers exhibit ephemeral flow and vary considerably in their geometry. They include braided gravel-bed channels, meandering single-thread channels within silt-clay flood plains, as well as rather straight channels with very gentle gradients. The last named class of channel is particularly common in the Mesopotamian lowlands, where it forms part of the anastomosing system of channels that thread back and forth across the alluvial plains.

At first glance, the southern Mesopotamian plains appear flat, bleak, and arid, presenting an austere vista broken only by linear palm gardens, upstanding canal banks, archaeological mounds, and occasional dune fields. Further scrutiny reveals occasional low alluvial levees which have built up over the millennia as a result of the preferential deposition of sand and silt along rivers and other channels. These ancient levees form substantial landscape features that stand up to five meters above the surrounding flood basins and may be five kilometers wide.

The Mesopotamian alluvial plains developed over the Quaternary period of geological history, with much fine clay, silt and sand being deposited over the past 10,000 years (i.e., the Holocene; Buringh 1960: 162). Nevertheless, parts of the plain date back to the Pleistocene period, and occasional islands of Pleistocene deposits have been recognized in the northern plains near Sippar, as well as further south near Tell Oueli and Larsa (Geyer and Sanlaville 1996), possibly taking the form of "turtlebacks" near Uruk (Pournelle 2003: 6 n3). Rather than forming a stack of fine-grained sediments, they accumulated episodically with periods of sedimentation punctuated by gaps or hiatuses. Sediments preferentially accumulated along river channels so that the channel became raised and the flood plain aggraded. Floods accumulate in basins that become sumps for clay deposition as well as fresh or brackish marshes. If a river shifted its channel, or the protective cover of vegetation was lost (because of lack of soil moisture), the soils would dry out and become vulnerable to wind erosion, with the eroded topsoil being incorporated into dunes of sand and silt-clay aggregates. As a result of the two contrasting processes of alluvial accumulation and aeolian degradation, parts of the archaeological record may be buried whereas, nearby, the very earliest archaeological sites are revealed (Wilkinson 2003a). Whereas one area may reveal a wide range of settlement back to the Ubaid period (6th/5th millennia BC), other areas are confined to more recent settlements of Parthian, Sasanian, and Islamic date. Although not as complex as the Mesopotamian lowlands, the Khuzestan plain of southwestern Iran also shows critical lateral variations in sedimentation that result in differential preservation of prehistoric sites (Kouchoukos and Hole 2003).

River channels and associated levees provided a focus for settlements and their associated palm gardens, and a source for irrigation water which often flowed down the levee slopes along a branching or trellised system of canals. The archaeological surveys of Robert McCormick Adams (1981) demonstrate how

settlements from the 4th millennium BC onward were preferentially sited along levees, and because many levees are associated with sites dating from prehistoric to Islamic times, it is clear that the associated channels formed long-term features of the landscape.

Whereas much has been made of the role of changing climate in the history of human settlement, rather less has been said about abrupt shifts in river channels known as avulsions (Gibson 1973). If the abrupt shift of a river channel occurred from the levee crest to a more convenient course, a king was often obligated to redirect flow back into the vacated channel or to dig new canals in order to guarantee the continued supply of water for irrigation (Cole and Gasche 1998: 14; cf. Potts 1997: 24–5a). Such abrupt shifts have been recorded in Mesopotamia in recent times, and hinted at in antiquity as, for example, when Sin-iddinam, king of Larsa (c.1849–1843 BC), stated that, "in order to provide sweet water for the cities of my country . . . [An and Enlil] commissioned me to excavate the Tigris [and] to restore it [to its original bed]" (Frayne 1990: 158–60). One of the roles of the king was to ensure that favorable conditions existed, and if a river shifted its course, it was necessary to try to shift it back again.

Geomorphological studies suggest that avulsions were probably a significant factor in antiquity as well. They have been documented at Kut on the Tigris (Verhoeven 1998; Hritz 2004; Heyvaert and Baeteman 2008), as well as near Samarra (Adams 1965), and the overall branching tendency of the lower Tigris and Euphrates rivers suggests that avulsion may have been the dominant process in the development of the anastomosing Mesopotamian rivers (Wilkinson 2003a: 83–9). Others have argued that it was even a significant factor in the cyclical changes of Mesopotamian civilizations (Gibson 1973; Morozova 2004). The branching channels of the Euphrates near Tell ed-Der and Sippar (Iraq) provide a good example of a node of avulsion, off which the Irnina, Purattum (main branch), and Purattum (Kish branch) of the Euphrates (Purattum) branched during the 3rd, 2nd and 1st millennia BC (Cole and Gasche 1998; Heyvaert and Baeteman 2008). Dealing with the physical problems created by such channel shifts is also reflected in ritual and religious practice, and it is probably no coincidence that texts from the Sippar region, an early cult center of the river god, contain an unusually high number of references to it (Woods 2005).

Avulsions and branching river channels are not limited to the Mesopotamian plains, however. Major channel shifts have also been recorded in the Khuzestan (Moghaddam and Miri 2007) and Gorgan plains (Omrani Rekavandi et al. 2007, 2008) in Iran.

An additional by-product of human activity is salinization, a significant problem for agricultural production in southern Mesopotamia, parts of southwestern and northeastern Iran, and the Konya basin in Turkey. Saline soils contain soluble salts in such quantities that they interfere with the growth of most crop plants, and salinization is the principal soil-forming process in central and southern Iraq

(Buringh 1960: 83). In southern Iraq the high salt content of river waters, high levels of evaporation, low soil permeability, raised water tables, low gradients, and application of too much irrigation water result in poor drainage and a progressive build up of salts which reduces crop yields. Fortunately, salt accumulations are mitigated by traditional crop husbandry. By fallowing the land every second year, vegetation growth is able to lower the water table so that accumulated salts are leached away by the next flush of irrigation waters, thereby reducing, but not eliminating, salinization. The old theory that salinization in southern Mesopotamia led to a shift from the cultivation of wheat to salt-tolerant barley, reduced cereal production, and perhaps led to the abandonment of cities has been widely criticized (Postgate 1992: 180–1; Powell 1985). Nevertheless, soil scientists have demonstrated that salinization is endemic in southern Mesopotamia and its eradication is difficult (Buringh 1960). Consequently, at a local level salinization must have posed significant problems for ancient agriculturalists.

Although the major rivers of the Middle East formed an enduring part of everyday life, those ancient communities that relied upon them for their livelihood also needed to deal with the instabilities inevitably associated with them. In addition to avulsion and salinization, these included the 3rd millennium BC mega floods characteristic of the Euphrates river (Oguchi and Oguchi 1998) and riverine incision that left flood plains high and dry, thereby making floodwater farming impossible (Rosen 2007: 177). Humans were agents in the creation of instabilities by narrowing rivers, thereby raising water levels and increasing the risk of flooding, and encouraging rivers to stay in their present channels. Levees were raised so that if a channel break did occur, the resultant flooding could be devastating. River banks were weakened by digging canal off-takes and over-irrigation encouraged the elevation of water tables and associated salinization. Finally, clearing woodland increased run-off to rivers, increasing chances of flooding.

However, humans could mitigate natural processes by irrigating to ensure against drought years, by employing fallow to accumulate soil moisture as insurance against seasons of low rainfall, by using fallow to lower the water table and limit the affects of waterlogging and salinization, and by investing in check dams across seasonal *wadis* to limit incision. The overzealous management of natural processes could result in problems which would either impact the communities themselves (e.g., salinization), or affect downstream communities, as occurred with water abstraction, avulsion, or deforestation near the headwaters of major rivers. Such problems may have been exacerbated by increasing population, overambitious kings or the use of natural resources as a weapon in times of conflict (Cole 1994). Ignoring land management practices such as fallowing may have pushed a theoretically sustainable system of agriculture toward a threshold where either two or three dry years (in the rain-fed north) or the annual application of irrigation water (in the irrigated south) would have precipitated agricultural failures that would not have happened if traditional, sustainable practices had been employed.

4 Climate and Climatic Change

The pioneering studies of Lamb (1977) and Butzer (1958) assembled a wide range of evidence indicating that over the last 10,000 years the climate has varied through cycles of increased moisture, heat, and storminess. Unfortunately, since the late 1960s a new orthodoxy has suggested that, over the past 6,000 years, and for perhaps virtually the entire Holocene, the climate has been essentially stable (Raikes 1967). This stable Holocene scenario was reinforced by initial interpretations of the Greenland ice cores, which indicated a much less tempestuous Holocene than had prevailed during the preceding glacial phases (Anderson, Goudie, & Parker 2007: 148–149). The earlier studies have now been vindicated, as investigations away from the polar regions have demonstrated the true variability of the Holocene climate. In addition to minor fluctuations, six episodes of "rapid climate change" have been identified over the last 8,200 years (Anderson, Goudie, & Parker 2007: Fig. 1.2). However, the definition of what constitutes a climatic "spike" is subjective, and their effect on past human activity in the Near East remains hotly contested (Weiss et al. 1993; Butzer 1997; Zettler 2003; Kuzucuoğlu and Marro 2007).

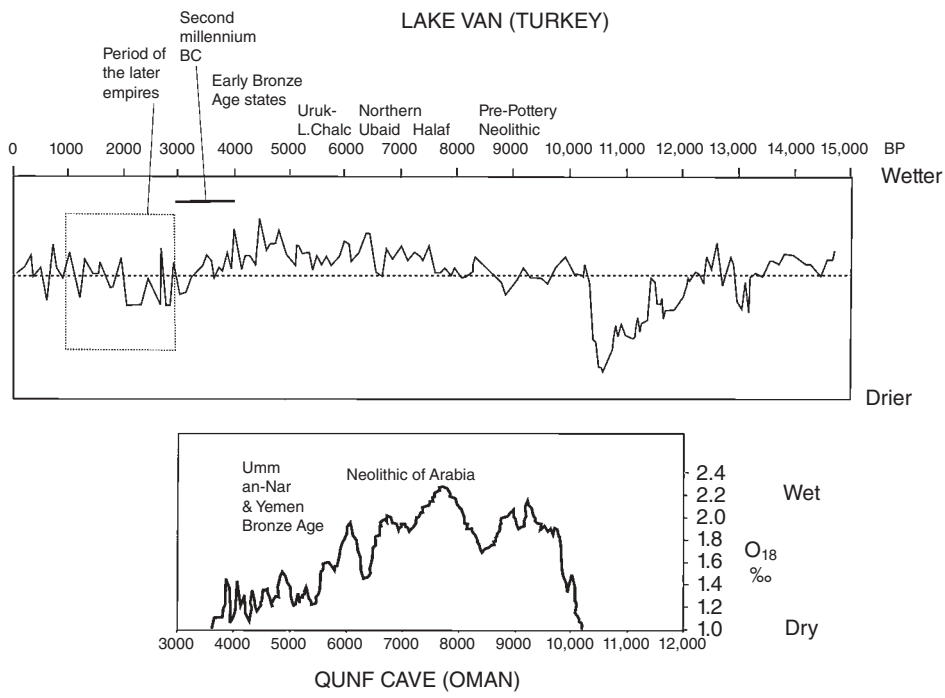

Figure 1.2 Reconstruction of wetter and drier periods in the climate record of Lake Van (Turkey) and Qunf Cave (Oman).

Thanks to a substantial increase in the budget for environmental research during the past 30 years, as well as an increase in the number and sensitivity of techniques of analysis, the amount and geographical distribution of climate proxy records has increased tremendously.

Butzer (1978: 6–11) defined three broad paleoenvironmental zones within the Middle East:

- a northern highland perimeter consisting of Anatolia, Armenia, Kurdistan and Iran which receives much of its rainfall in winter;
- the hills and plains of the Fertile Crescent including the Levant and Mesopotamia;
- the desert belt of northeastern Africa and Arabia, the southern parts of which receive most rainfall (when it occurs) as summer monsoonal rain.

The Arabian desert, an ancient feature extending back millions of years, falls within the warm desert zone of the northern hemisphere (Anderson, Goudie, & Parker 2007: 121). As a result of differences in the earth's orbital parameters and the amount of solar radiation received, the Sahara, Arabian, and North Indian deserts received significantly more rainfall between about 10,000 and 6000 BP than they do today. Warmer ocean temperatures in the tropics were associated with a strengthened monsoonal system and greater atmospheric moisture (Kutzbach and Liu 1997; Brooks 2006). On the other hand, the northern highland perimeter and Fertile Crescent steppe receive significant precipitation in winter from depressions moving along the path of westerly circulation. It is noteworthy that the flow of the Tigris-Euphrates and tributaries, which fall within the first two regions, shows a partial correlation with the so-called North Atlantic Oscillation which governs the path of mid-latitude storm tracks and precipitation within the Mediterranean region (Cullen et al. 2000).

However, climate changes in the region are not simply a result of variations in the westerlies to the north versus the monsoonal system to the south. Recent high-resolution studies of lake sediments from Nar Gölü (central Turkey) show links to both the north Atlantic and Indian Ocean monsoons (Jones et al. 2006: 364; Cordova 2007: 130) so that increased summer aridity in central Turkey correlates with periods of enhanced Indian monsoonal rainfall (Jones et al. 2006: 363). In other words, drier conditions in the eastern Mediterranean can be linked to a regionally complex monsoon evolution which itself is related to patterns of upper atmosphere airflow in the sub-tropics (Staubwasser and Weiss 2006).

Because we lack tools for directly measuring climatic warmth or moisture, it is necessary to employ so-called proxy records – i.e., indirect indicators such as pollen, carbon/oxygen isotopes, and micro-organisms in lake sediments that vary according to climate. The most common proxy tools used include lake sediments, soils, and caves for carbon and oxygen isotope studies; lakes and marshes for palynology; and rivers for records of long-term hydrology. In addition, the

surrounding seas and oceans provide long-term proxy records, especially for ocean temperature, patterns of global circulation, and continental river discharges. No technique provides a simple and straightforward record of the past environment because each record will have accumulated under different circumstances, so that breaks in the sequence may occur. For example, lake records have the great advantage of (frequently) providing continuous records of sedimentation from which the proxy indicators can be sampled. By contrast, rivers and *wadis* are characterized by spatial variability and a tendency for the river to remove earlier deposits creating gaps and discontinuities. Nevertheless, some lake sediments are remarkably discontinuous, Lake Konya being a particularly good example (Fontugne et al. 1999); others show considerable variations in the rate of sedimentation, which needs to be allowed for when computing the proxy records. Moreover, indicators such as carbon and oxygen isotopes are themselves formed within a complex geochemical environment, so that each record must be interpreted on its own merits (Jones and Roberts 2008: 37). Although precipitation and evaporation are generally seen as driving the hydrological context of these isotopes, the source area of the rainfall and the temperature of the lake water itself are significant. Consequently, identifications of wetter and drier phases in climatic records must always be regarded cautiously (Jones and Roberts 2008; Develle et al. 2010).

Pollen provides a record of past vegetation, but accounts vary according to pollen productivity as well as the size and catchment of the lake or marsh. Frustratingly, most lakes are located within the moister parts of the Middle East, hence many early sites in north Syria and Mesopotamia are far away from the nearest proxy climate record. However, the mere existence of lakes in areas where today the environment is arid, such as a Green Arabia that was rendered more verdant as a result of strengthened monsoon circulation (McClure 1978; Lézine et al. 2007; Parker et al. 2004), provides an indication of periods of increased atmospheric moisture.

Bearing the above caveats in mind, the following places provide valuable records of climate change for the Middle East (see Figure 1.1 above):

- Lake Van (Lemcke and Sturm 1997; Wick et al. 2003) and Eski Acigöl (Roberts, Reed et al. 2001) in Turkey;
- the Beqaa valley and mountains of Lebanon (Develle et al. 2010; Verheyden et al. 2008; Hajar et al. 2010);
- the Ghab valley in Syria (Yasuda et al. 2000);
- the Dead Sea (Neumann et al. 2010; Migowski et al. 2006; Leroy 2010) and Soreq Cave (Bar-Matthews et al. 1997; Bar Matthews and Ayalon 2011) in Israel, Palestine, and Jordan;
- Qunf Cave in Oman (Fleitmann et al. 2003);
- Hawa and Dhamar lakes in Yemen (Lézine et al. 2007; Davies 2006);
- Awafi lake in the United Arab Emirates (Parker et al. 2004);

- Lakes Zeribar, Miribad, and Almalou in Iran (Snyder et al. 2001; Djamali, de Beaulieu, Andrieu-Ponel et al. 2009: 1372).

Of these, Lake Van provides a valuable record of westerly circulation within Anatolia, and Qunf Cave acts as a sensitive indicator of monsoonal circulation in southern Arabia (see Figure 1.2). The Van record, which derives from annual laminations corresponding to seasonal deposition of silt, can be summarized as follows (Lemcke and Sturm 1997; Wick et al. 2003; Kuzucuoğlu 2007: 468):

- From approximately 5500 BC (later Neolithic) until around 3050 BC (beginning of the Early Bronze Age) the climate was moister than that of today.
- There followed a transition from 3050 to 2050 BC with increasing aridity interrupted by drier phases at 2400 and 2150 BC and generally drier conditions in the final quarter of the millennium.
- After 2050 BC (from the Middle Bronze Age), conditions remained drier, becoming similar to the present day around 1 BC.

Despite regional variations, there is some consensus on the broad trends in climate change for the northern Near East (Robinson et al. 2006: 1535; but see Roberts et al. 2011 for a variant chronology):

- The Late Glacial Maximum (23,000–19,000 BP) was cooler and more arid than the present day, but Lake Lisan, the predecessor of the Dead Sea, was high due to an excess of water supply from precipitation, runoff and groundwater discharge over evaporation.
- Localized warming trends followed, but the cold episode of the Younger Dryas (12,700–11,500 BP) ushered in a millennium or so of cold, arid conditions. Lake Lisan dropped significantly and large deposits of salt accumulated.
- The Early Holocene, from c.9500 to 7000 BP, was the wettest phase in the last 25,000 years in the Levant and eastern Mediterranean, and the margin of the Negev Desert migrated significantly further south; the level of the Dead Sea was relatively high.
- A brief moist episode followed around 5000 BP, after which the climate became significantly drier; there is consensus that the climate of the northern Near East became drier during and especially after the Early Bronze Age (c.4200 or 4000 BP) but the details vary depending upon the record.

The Dead Sea and Soreq Cave provide excellent, long-term records that are complemented by high-resolution records of tree rings from sub-fossil tamarix trees within Sedom Cave near the Dead Sea. Carbon and nitrogen isotopes, extracted from the cellulose of tamarix tree rings, show a gradual but fluctuating

drying from 2265 to 1930 BC and maximum aridity between 2000 and 1900 BC (Frumkin 2009: Fig. 7). This relatively precise record, which corresponds to a significant drop in the level of the Dead Sea (Frumkin 2009: 326), provides an indicator of annual drought that would have been experienced by local communities.

By the Roman, Arsacid, and Sasanian periods (c.247/238 BC to 651 AD) conditions fluctuated around those of today, and again, detailed records provide evidence of specific fluctuations. For example, a comparison of Mediterranean Sea cores with the Soreq Cave isotope record suggests humid phases at c.1200 BC, 700 AD, and 1300 AD, and drier phases at 100 BC, 1100 AD, and 1700 AD (Bar-Matthews et al. 1997; Schilman et al 2002; Rosen 2007: 90). When compared with high-resolution proxy records from Nar Gölü in central Turkey, there is some overlap, specifically in humid intervals at 560–750 AD and 1000–1350 AD and a dry phase from 1400 to 1950 AD (Jones et al. 2006). Moreover, because the warm, humid phase of 1000–1350 AD and the dry, cool phase after 1400 AD fall within the medieval warm phase and the Little Ice Age, as known from historical sources, there is good reason to view these as credible.

Although such comparisons provide grounds for optimism, when these records are compared with the environmental crises noted by Michael the Syrian, the correspondence of climatic peaks and troughs are difficult to reconcile. This is partly because the textual records mention not only occasional droughts, but also frequent swarms of locusts and episodes of bubonic plague as well as cold winters, the latter often having a devastating effect on flocks and herds (Widell 2007). Although even fine-grained climate proxy records are difficult to harmonize with historical records, in part because very different types of record are being compared, they take us significantly beyond the previous generation of coarse-grained proxy records.

Whereas most proxy records from lakes and marshes are located far from major centers of Neolithic and Bronze Age settlement, calcareous accretions in archaeological sediments, although lacking the fine resolution of, for example the Van sequence, have the advantage of providing a proxy record from within core areas of settlement. Calcareous coatings on stones at Neolithic Göbekli Tepe provide a proxy record for upper Mesopotamia, a core region for the domestication of plants and animals as well as early state development (Pustovoytov et al. 2007). The two main periods of coating formation date to the Early (10,000–6000 BP) and Mid-Holocene (6000–4000 BP). Fluctuations of the oxygen and carbon isotopes suggest that whereas the Early Holocene coatings accumulated within a climate of rising temperature, in the Middle-Holocene both rate of growth and isotopic signatures of coatings imply maximum humidity between c.6000 and 4000 BP (Pustovoytov et al. 2007: 325). Although there is some discrepancy in the timing of the Middle-Holocene moist phases in the Göbekli and Van data, both agree that after 4000 BP (i.e. around 2000 BC) the climate of the Fertile Crescent became significantly drier.

Climate proxy records from the desert belts include that from Qunf Cave in southern Oman (Fleitmann et al 2003) where oxygen isotopes (δ^{18} O) from the growth rings of a stalagmite which grew from 10,300 to 2700 and from 1400 to 400 BP have been documented with a time resolution of 4–5 years. The isotopic record showed four main features:

- a rapid increase in monsoonal precipitation between 10,300 and 9600 BP;
- high monsoonal precipitation between 9600 and 5500 BP;
- a long-term decline in precipitation from 8000 to 2700 BP; and
- cessation of stalagmite formation at 2700 BP and regrowth from 1400 to 400 BP.

The latter growth phases are within the δ^{18} O range of modern stalagmites and are therefore equivalent to the present-day climate. Although records from paleolakes and oceanic sediments do not entirely agree with the Qunf Cave evidence, the general pattern of a moister Early and mid-Holocene is clear. A variant date comes from al-Hawa (Yemeni desert), where the onset of the wet Early Holocene began at c.12,000 BP (Lezine et al. 2007: 247), and the lakes in the Yemen highlands where it began at c.11,000 BP (Davies 2006; Parker 2009). In contrast, at Awafi in the UAE well to the north of Qunf Cave, the lake sequence started significantly later, at c.8500 BP, the onset of wet conditions there being related to the northward migration of the Inter-Tropical Convergence Zone (Parker et al. 2004).

Despite their location in different latitudinal zones, the trend of the isotope records from Qunf and Soreq is broadly similar but with differences in detail, especially during the later periods. The challenge now is to interpret the settlement and historical records in light of these records in a way that allows for the often idiosyncratic behavior of human populations.

5 Vegetation

The vegetation record in the Middle East derives mainly from carbonized plant remains and palynology. The representativeness of plant remains on archaeological sites is biased by their deliberate selection by humans. Thus, they do not necessarily reflect the totality of plant life in a given locale. On the other hand, pollen sequences are usually limited to those species present around lakes and marshes, which are not always in the vicinity of major archaeological sites (Miller 1998). Despite these biases, thanks to pioneering research by Van Zeist and Bottema (1991), together with more recent palynology, we now have a broad idea of the pattern of vegetation within the northern mountain fringe, and Fertile Crescent and Iran. According to Roberts and colleagues, the range of tree cover around the Mediterranean basin contracted during glacial phases and the Late

Glacial Maximum when much of the region was dominated by herb species such as Artemisia and various chenopods (Roberts, Meadows, & Dodson 2001: 632). Tree species such as European oak, *Pistacia*, and olive survived only within limited areas such as the southern Levant.

During the Early and Middle-Holocene the herbaceous Late Glacial steppe was replaced by sub-humid forest and, depending upon location, by broad-leaved, deciduous trees. However, forest re-advance was slow during the Holocene and pollen sequences from eastern Turkey and western Iran suggest that tree pollen approached modern values only by 7000–5000 BP, perhaps because its spread was inhibited by the drier, Early Holocene climate (Roberts, Meadows, & Dodson 2001: 632). However, in parts of the southern Levant where deciduous rather than evergreen oaks prevailed, the typical winter rainfall regime may have been replaced by summer rain (Roberts, Meadows, & Dodson 2001: 632).

The archaeobotanists Gordon Hillman and colleagues have employed rainfall and temperature levels, together with the distribution of present vegetation, to reconstruct the potential vegetation cover of semi-arid northern Syria (Hillman 2000). Their maps suggest that park woodland and woodland steppe extended into what is today the denuded and treeless north Syrian steppe. Such reconstructions suggest that massive loss of natural vegetation occurred during the Holocene and that grasslands and park woodlands were replaced by an essentially desertified steppe. This picture is now supplemented by carbonized wood (charcoal) analyses which reveal a much richer vegetation in the Bronze Age than today: riverine vegetation was more diverse, and oak park woodland occupied many parts of the northern Fertile Crescent, roughly along the line of the Turkish/Syrian border as well as in northern Syria (Deckers and Pessin 2010: 220–1). "Massive degradation including deforestation," as a result of both human and climatic impacts, the latter indicated by a northward shift of the Pistacia-woodland steppe, has caused the present virtually treeless landscape (Deckers and Pessin 2010: 225). In the Khabur basin, which is today devoid of trees, oak park woodland was still present as late as the 3rd century AD (Deckers and Riehl 2007: 347).

Historical sources also provide a strong case for human removal of woodland. For Mount Lebanon, textual records demonstrate how the original cedar and coniferous woodland was probably destroyed in part as a result of expeditions of the Assyrians and the Akkadians before them (Rowton 1967; Mikesell 1969).

Particularly convincing evidence of the loss of woodland and the appearance of orchard cultivation derives from small lakes with local catchments. The pollen diagram from the small crater lake of Birkat Ram, in the occupied Golan heights (Schwab et al. 2004), which covers the last 6,500 years, shows the first significant human impact on vegetation in the Chalcolithic with a decline in deciduous oak (see Figure 1.3). During the Middle and Late Bronze Ages and Early Iron Age, when the area was sparsely settled, woodland regenerated. This was followed by a sharp drop in deciduous oak in the mid-1st millennium BC, or slightly later, perhaps as a result of ore-smelting and land clearance associated with settlement

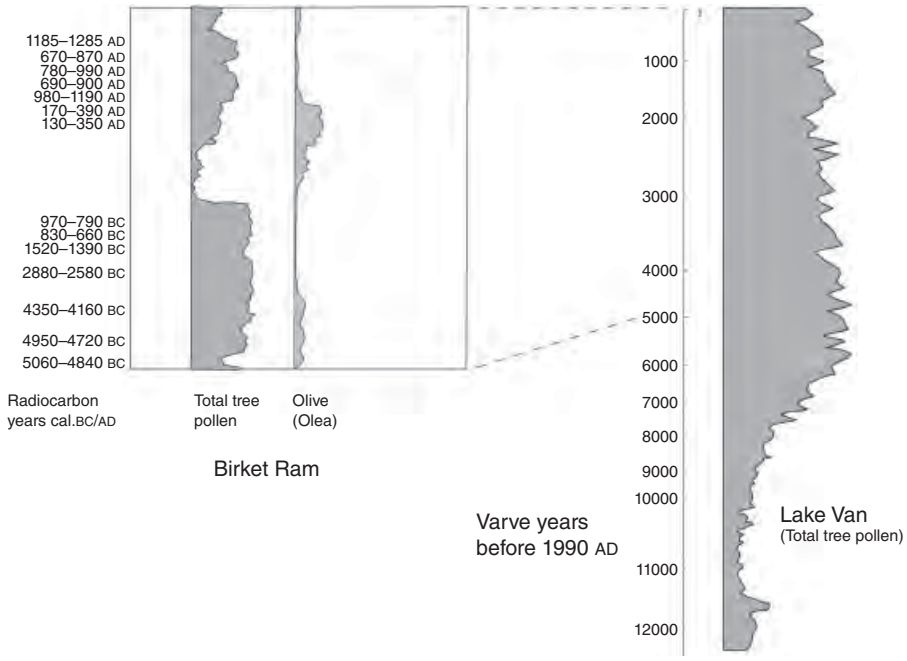

Figure 1.3 Pollen diagrams from Birkat Ram (Golan Heights) and Lake Van (Turkey).

and agriculture (Dar 1993). The rising sedimentation rate at this time probably resulted from higher soil erosion associated with increased settlement. Human impact on vegetation structure is evident from the curves of olive and grape pollen which expanded rapidly during the Hellenistic, Roman, and Byzantine periods, after which olive production collapsed. There was then regrowth of evergreen oak, a characteristic feature of other pollen charts in the region (Baruch 1986). Overall, the woodland decline and associated growth of olive and grape between the 3rd/4th centuries BC and the 7th century AD appear to reflect the characteristic settlement pattern of the Levant when many upland or formerly marginal areas were settled and prospered, in part as a result of increased trade in olive oil and wine (Wilkinson 2003a: 128–50). This pattern is associated with the development of *maquis* (evergreen shrubs) and *garrigue* (perennial scrub) vegetation on many uplands as well as desertification in drier areas (Wilkinson 2003a: 150).

Despite the long settlement record of the Near East, human impacts on vegetation are less clear than might be expected, in part because Neolithic impacts often occurred before vegetation had stabilized following the last glaciation (Roberts 1998: 188). Nevertheless, the removal of oak woodland is indicated in the Ghab valley (Syria) during the Neolithic (Yasuda 2000), whereas clearance shows up in pollen diagrams by the 3rd millennium BC (Roberts, Meadows, & Dodson 2001: 634). A conspicuous clearance horizon is the so-called Beyşehir

phase, which appears in southwestern Turkey c.3200–1250 BP (1250 BC and 800 AD) (Bottema and Woldring 1990; Eastwood et al. 1998; Roberts 1998: 188). In the Berakat basin, also in southwestern Turkey, this phase is dated c.2230–1550 BP, during a period of local Hellenistic and Roman settlement (Kaniewski, Paulissen, De Laet et al. 2008), and is associated with increased burning of woodland, as well as polyculture and significantly increased soil erosion, presumably resulting from forest clearance and agriculture (Kaniewski, Paulissen, De Laet et al. 2008: 234).

A similar phase of vegetation change recorded in the small Lake Almalou at 2500 meters in northwestern Iran shows high *Cerealia*-type pollen corresponding presumably to cultivation and mobile pastoralist activity. These episodes more closely relate to historical rather than climatic phases, under the Achaemenid empire (539–330 BC) and during a phase of large-scale fruit tree cultivation in the Sasanian period (c.240–640 AD) (Djamali, de Beaulier, Andrieu-Ponel et al. 2009: 1372).

The propagation of tree crops was not restricted to the later empires because Sumerian texts from the Ur III period (2100–2000 BC) demonstrate that around Garshana and Zabala in southern Mesopotamia, in addition to the expected date palms and tamarisks, some 25,000 pine trees were recorded, as well as olives, apples, and other fruit trees (Heimpel n.d.). Together with others such as box, these trees must have been introduced from the surrounding mountains or more temperate regions, much as the later Neo-Assyrian kings introduced foreign plants to their parks and gardens.

Cultivated food crops reflect the prevailing environment and give us an idea of how societies coped with climatic fluctuations. Land use and crop yields are influenced by rainfall, fallowing practices, and soil quality, and if the last two factors remain constant in a given region, changes in drought-tolerant crops can be compared to climate proxy records. In order to determine relationships between crop plants and Late Holocene aridity, Riehl (2008) used carbonized plant remains to infer how the proportion of crop types changed according to rainfall as indicated by climate proxy curves. Stable carbon isotopes extracted from barley from seven Bronze Age sites provided a proxy for ancient moisture, with low $\Delta^{13}C$ (in semi-arid environments) indicative of moisture stress and high $\Delta^{13}C$ of moisture availability or irrigation (Riehl 2008: S45). Middle and Late Bronze Age grains exhibited lower $\Delta^{13}C$ values, which is in line with proxy records from Soreq Cave and Lake Van which also indicated less moisture in the 2nd millennium. In addition, drought-susceptible plants such as flax, garden pea, grapes, lentils, and free-threshing wheat were less evident or absent during the Middle as opposed to the Early Bronze Age. Moreover, the replacement of garden pea (*Pisum sativum*), present in the Early Bronze Age, by vetch (*Vicia ervila*) during the Middle Bronze Age may relate to drier conditions (Riehl 2008: S49).

These analyses provide insights into how human communities may have responded to a drier climate in the late 3rd and early 2nd millennium BC, but

they do not supply evidence of dramatic societal collapse. This is because we do not know about farming practices during phases of non-occupation, which are unaccounted for in these data. The changing crop types probably reflect coping strategies that were adopted by the population, which apparently included the adoption of more drought-tolerant plants during the 2nd millennium BC, as well as increased use of barley as fodder. As a result of these changes and a shift toward animal husbandry, parts of the population could continue to farm, whereas others adopted increasingly pastoral lifestyles (Wilkinson, Christiansen, Ur et al. 2007: 66).

6 Sea-Level Rise

One of the most dramatic changes in the ancient Near Eastern environment was the rise in sea-level caused by the melting of polar ice caps after 18,000 BP, which flooded the fringing continental shelf. Because the Middle Eastern seas form part of the global ocean system, the rise in sea-level was roughly synchronous throughout the region. However, being partly cut off from the oceans, the Caspian and Black Seas were independent and rose and fell to the tune of local river-flow, rainfall, and evaporation. The Caspian continues to rise and fall dramatically and over the last millennium has swept inland more than 12 kilometers to obscure the Sasanian Gorgan Wall (Nokandeh et al. 2006; Omrani Rekavandi et al. 2007, 2008; Sauer et al. 2009). In contrast, the dramatic flooding of the Black Sea basin by the rising Mediterranean c.7150 BP has resulted in its own flood myth (Ryan et al. 1997; but see Aksu et al. 2002).

Another possible origin for the flood myth derives from the flooding of what is now the Persian Gulf between Arabia and Iran. During the Late Glacial Maximum (21,000–18,000 BP), when sea-level was c.120–130 meters below the present level, the entire floor of the Gulf was dry. The plain formed by the extension of the Tigris and Euphrates rivers was dotted with occasional lakes and marshes, together with widespread desert extending some 1,000 kilometers from southern Mesopotamia to the Straits of Hormuz (Vita Finzi 1978: 258; Wilkinson 2003a: 22–3; Kennett and Kennett 2007). The river draining the present floor of the Gulf, dubbed by some the "Ur-Schatt River" (Kennett and Kennett 2007: 233–5), received tributaries from the Zagros to the north and the Arabian interior to the south to form a vast extended Tigris–Euphrates basin that incorporated much of the present Middle East (Wilkinson 2003a: Fig. 2.3). This flooded gulf is important to the settlement history of the region because not only would it have been the locus of long-term human activity during the Late Pleistocene, but any inhabitants would have been rudely evicted by the rapid transgression that swept northwards up the Gulf in the Early Holocene into neighboring parts of Iran, Arabia, and Mesopotamia, perhaps contributing to founder populations there.

The Holocene transgression was at times rapid, especially in areas where the terrain was very gentle. In such locations it translated into horizontal shoreline movements of up to 1 kilometer per year (c.10,000 BP) with a long-term average of 140 meters per year (Teller et al. 2000: 303; Kennett and Kennett 2007: 235–6). To deal with the challenges of rapidly shifting marine and land-based resources, coastal communities would have needed to be mobile and adaptable. Needless to say, the dramatic pace of the transgression in the Gulf has encouraged claims for this being the original Noah's flood (Teller et al. 2000; Kennett and Kennett 2007).

Of particular significance in the development of early states is the location of the head of the Persian Gulf. Investigations of de Morgan (1900b), Larsen and Evans (1978), Sanlaville (1989) and Aqrawi (2001) suggested that during the 5th–4th millennia BC this was located near modern Nasiriyah. Since then, a Belgian group has shown that in the lower Khuzestan plains of Iran the coastline transgressed rapidly across the shelf beneath during the initial Early Holocene rise of sea-level, forming a low-energy, tidal embayment by the Early and Middle Holocene (Baeteman et al. 2004; Gasche 2005). Following the stabilization of sea-level after c. 5500 BP and under more arid conditions, alluvial and coastal *sabkhas* (salt flats) started to extend and aggrade. When the sea-level rise decelerated, riverine alluviation extended the coast to the south from c. 2500 BP to its current position (Heyvaert and Baeteman 2007). Because Heyvaert and Baeteman found no evidence to support a sea-level as high as 1–2 meters above present levels, as suggested by Sanlaville (1989), it appears that the sea did not create a large marine gulf extending inland from Nasiriyah. Rather, the various borehole and geomorphological records suggest that when marine conditions penetrated c.200 milometers inland toward Nasiriyah and Amarah in southern Iraq (or 80 kilometers in Khuzestan) around 4000 BC, lower Mesopotamia probably formed a complex mosaic of narrow estuaries, marsh, lagoons, and intertidal flats (both brackish and fresh), as suggested by Adams (1981: 16; cf. Sanlaville 1989; Aqrawi 2001; Heyvaert and Baeteman 2007; for further discussion of how this ill-defined limit actually related to the economies of the cities of Ur, Telloh, and al-Hiba, cf. Potts 1997a and Pournelle 2007).

In the Red Sea, the Early Holocene transgression flooded old land surfaces and associated shell middens, whereas off the coasts of Israel/Palestine and Lebanon numerous Neolithic sites were submerged. Recent off-shore investigations have demonstrated the extraordinary potential of these submerged landscapes (Galili et al. 1993; Bailey et al. 2007).

Not only was the Early Holocene flooding of the continental shelf a significant event for the inhabitants of the time, it has been argued that, combined with increased aridity, sea-level fluctuations contributed to a complex range of human responses which themselves led to early state development (Kennett and Kennett 2007: 248). Although it is difficult to separate cause and response mechanisms

in such complex cases, it is clear that sea-level rise was a major factor in the development of prehistoric communities.

7 The Significance of Wetlands

In contrast to the present landscape, the prehistoric Near East appears to have included many enclaves of remarkably verdancy, including wetlands. Despite the lack of preservation of true wetland sites, sites with some degree of organic preservation or in the proximity of marshy areas are being increasingly recognized. In addition to the remarkable submarine Neolithic sites off the coast of Israel (Galili et al. 1993), Çatal Höyük, Tell Oueli, and prehistoric sites in the Amuq plain (southern Turkey) all developed in proximity to marshes. To what degree wetlands were a significant factor in the formation of prehistoric communities and early states is unclear, but they were probably particularly significant in areas around the head of the Gulf near the zone inundated by the Early Holocene sea-level rise (Pournelle 2007).

Wetlands appear to have played a significant role in the development of urban and later societies in Sumer (southern Iraq). This was not simply by contributing to economic sustenance, but also through the relationship of wetlands and river channels to belief systems and religious practice. Marshlands and the network of anastomosing channels were often associated with specific deities, while the Euphrates itself was worshipped, with particular devotion to the river gods attested between Mari and Hit, e.g. around Sippar, west of Baghdad, where the ancient course of the Euphrates bifurcated and was prone to abrupt channel changes or avulsions (Woods 2005; Heyvaert and Baeteman 2008). However, Late Holocene desiccation has not only reduced the evidence of wetlands, it has made it easier to diminish their significance in the development of early communities.

Wetlands continued to be of significance as late as Sasanian and Islamic times and in Mesopotamia marshes were formed as a result of the activities of Babylonian kings as well as the discharge of excess water from canals or their ultimate breakdown (Cole 1994; Adams 1981; Eger 2008).

8 Geoarchaeology, Erosion, and Settlement

Although there is a long history of investigations that have contextualized Middle Eastern societies within their geological environment, it was not until the 1950s and 1960s that Butzer (1958), Vita-Finzi (1969), and others developed models for the genesis of alluvial fills. Late Quaternary cycles of stream aggradation and incision not only provide the context for many communities in the rain-fed zone,

they also reflect the combined effect of humans and climate. However, region-wide chronologies are rare (Cordova 2008: 443). Whereas Butzer saw a fine-grained temporal record and more complex interrelations between humans and the environment, Vita-Finzi focused on region-wide climatic change as a driving factor behind fill development. Rosen (1986), Brückner (1986), Goldberg (1998), and Cordova (2000) have taken an approach similar to that of Butzer, and in recent studies have focused upon the complexity of the relationship between humans and the environment as well as the role of humans in mediating some of the affects of climatic change (Rosen 2007). Not only are geoarchaeological studies important for understanding the history of soil erosion, land degradation also provides the context for understanding the sustainability of ancient settlements (Cordova 2007).

Alluvial (of rivers and *wadis*) and colluvial (slope) fills are complex and spatially variable. Broad lowland basins do not accumulate sediments uniformly; rather, the rate of accumulation varies from place to place so that areas around the basin perimeter may accumulate deep sediments, whereas those distant from sediment sources may receive little deposition. Hence, pessimistic statements about the depth of alluvial accumulation in areas such as the Marv Dasht plain of Iran should not be extrapolated across the entire region (Brookes et al 1982). Rather, as in the case of the Amuq plain (southern Turkey), sediments accumulated as a patchwork of alluvial fans, lacustrine deposits, alluvial fills, and anthropogenic sediments, all accumulating at different rates, or, in some cases, not at all (Casana and Wilkinson 2005). In addition, basins such as that of the Kur River (Iran) have received significant input in the form of aeolian loess in addition to alluvial and lacustrine deposits, with the result that prehistoric sites are not deeply buried (Kehl et al. 2009). The message again is that local sequences are extremely important.

Although the notion that "alluvial sequences are environmentally driven but culturally blurred" (Macklin and Lewin 1993) also holds for many parts of the Middle East, it is often difficult to tell whether it was humans or environmental events that were the primary contributor to alluvial fills. Many geoarchaeological studies, understandably, emphasize the geomorphological evidence and under-represent the settlement record. Moreover, a focus on valley floor records at the expense of the valley slopes that supplied the sediments for alluvial fills means that such studies supply only a partial record of the sediment contribution area (Beach and Luzzadder-Beach 2008). However, the analysis of geoarchaeological records in tandem with quantitative studies of the amount and distribution of settlement provides a clearer idea of cause and effect relationships between human settlement and associated physical responses at the local level. Thus, in the Levant and northern Syria the significant dispersal of settlements across the landscape, onto slopes and some uplands, that occurred during the 1st millennium BC, and especially during the Hellenistic to Early Islamic periods, was associated with a loss of stabilizing vegetation, increased soil erosion, and more flashy flow condi-

tions, which themselves contributed to alluvial fills (Wilkinson 2003a: 146–50; Hill, J.B. 2004; Casana 2008). Nevertheless, vegetation loss and human disturbance associated with such settlement phases simply provide the preconditions for soil erosion and mass movements. If the number and intensity of storms increase, soil erosion will exceed the capacity of the flow to remove the sediment, thereby resulting in an accumulation of alluvial fills.

Clearly, both human factors and climate are contributory factors to the development of alluvial fills, but their relative contribution depends on local circumstances. For example, in northern Jordan the history of soil development and climate are important for understanding long-term landscape degradation (Lucke et al. 2005: 65), whereas in the highlands of southwest Arabia, increased human settlement during a relatively dry climate initiated phases of soil erosion that followed long-term, stable soil development in a relatively moist climate (Wilkinson 2005). Both human agency and climatic events are increasingly viewed as the combined force that led to the present, degraded landscape of the Near East.

9 Humans and Environmental Change

A perennial question of history and geography is: how are humans influenced by the environment, or alternatively, to what degree have humans had a significant impact on the environment? The Near East has become one focus of this debate, particularly with reference to societal collapse resulting from drought that led to famine and ultimately political or demographic collapse. In addition to cycles of dynastic rise and fall, certain periods, including the collapse of Akkadian settlement in northern Syria and collapse in the eastern Mediterranean c.1200 BC, continue to be seen, by some, as driven essentially by climatic fluctuations (Weiss et al. 1993; deMenocal 2001).

Although it is clear that the environment provides opportunities and constraints for agricultural productivity, equally, changes in settlement do not necessarily fall in lockstep with environmental proxy records. One well-known fluctuation, the 8200 BP event, which triggered a cooler, more arid climate, illustrates this conundrum. One group argues that this event caused major disruptions of Neolithic cultures in the Levant, northern Syria, and the eastern Mediterranean, and perhaps triggered the spread of early farmers out of the Near East into Greece and Bulgaria (Weninger et al. 2006). On the other hand, a Dutch team infers a number of cultural responses to the stresses imposed by a phase of cooler, arid climate. At Neolithic Tell Sabi Abyad in northern Syria, which was occupied throughout the 8200 BP event (dated to c.6225 BC), Neolithic life continued despite the fact that the site was in a climatically marginal location (Akkermans et al. 2010). Although cultural continuity was manifest at the site throughout the Neolithic, during the 8200 event several cultural changes occurred, including the replacement of pig husbandry by cattle, increased use of

spindle whorls indicative of textile production, and a decline in the circulation of stone axes. The Dutch team argues that not only were such changes synchronous with the cool, dry event, but the climate had an indirect rather than a direct effect on material culture change (Akkermans et al. 2010). The implication of this study, supported by more than 100 radiocarbon determinations, is that stresses imposed by climatic events impelled communities to make changes to their way of life, but that these communities were resilient and successfully made appropriate adjustments.

Nevertheless, in some cases the buffering mechanisms that enabled communities to cope with shortfalls in food may have been removed as a result of climatic change, thereby making communities more vulnerable to such events. For example, in Palestine at the end of the 3rd millennium BC the environmental crisis took the form of river incision that left flood plains high and dry. The resultant loss of potential for floodwater farming removed a buffering mechanism that had enabled previous communities to survive particularly dry years (Rosen 2007: 177; Cordova 2008).

Alternatively, in a similar environment in northern Syria, rain-fed farming was sustainable through most dry years if biennial fallow was practiced. However, if fallow was violated and cropping was annual (perhaps to sustain increasing populations or growing towns), soil moisture was reduced, thereby jeopardizing the annual cereal crops (Wilkinson 1994). In addition, the drier environment of the late 3rd and early 2nd millennia BC may have encouraged a shift from wheat to barley, increased pastoral nomadism or, in parts of southern Syria, irrigation (Riehl 2008; Braemer et al. 2009). In addition, during the early 2nd millennium BC, Mari letters indicate competition over water between upstream and downstream settlements in the Balikh Valley (Dossin 1974).

By the use of multiple proxy records, together with measurements of carbon isotope analysis of grains from the sites of Ebla and Qatna in Syria, Roberts et al. (2011) have developed a climatic record that can be related to cultural sequences. Their record suggests that the earlier Holocene moist period was followed by a three-millennium-long climatic transition punctuated by three drier stages: at the end of the 4th millennium BC, the end of the 3rd millennium BC, and between 1200 and 850 BC (Roberts et al. 2011: 151). Although these appear to relate to phases of settlement decline, the authors also point out that the consequences of climatic change varied from region to region depending upon the sensitivities of those communities to drought (Roberts et al. 2011: 152). Such local variation is evident archaeologically at climatically marginal sites like, for example, Tell es-Sweyhat and Tell Mozan in northern Syria, both of which continued as significant settlements through the later part of the 3rd millennium BC (Danti and Zettler 2007; Pfälzner 2010).

Over the last 3,000 years, when much of the Near East was incorporated into extensive territorial empires, the developing infrastructures were capable of providing a buffer of support in times of need (Rosen 2007: 171). This is illustrated

by the colonization by Middle and Neo-Assyrian kings of the Syrian steppe, which, although mainly sustained by rain-fed cultivation, was associated with the spread of irrigation systems which became more common during the 1st millennium BC and AD (Wilkinson 2003a). Although the adoption of irrigation could be seen as an adaptation to a drier climate, in this case it was a result of imperial policy, either to make the desert bloom or to garner greater tax revenues.

A compelling example of the advantages of expanded infrastructure comes from Antioch (Syria) where, in 362 AD, a poor grain harvest coincided with a huge build-up of troops to fight the Sasanian army. The resultant increase in grain prices and famine was eventually mitigated by the Roman emperor Julian (360–363 AD), who ordered grain imports from Chalcis and Hierapolis near Aleppo. If these towns had been under different kings, such a solution would have required negotiation or may have been impossible. Significantly, the grain was imported from the arid Membij region to verdant Antioch, an expedient made possible by the construction of numerous water-supply systems by previous Hellenistic and Roman administrations (Wilkinson et al. 2007).

It should be emphasized that disruptions in human sustenance do not result simply from runs of dry years. Other factors include rainfall fluctuation, cold years (that kill livestock), dust storms, locust plagues, mega-floods, and river avulsions (Widell 2007). Not only did coping strategies vary from polity to polity, some – such as the huge irrigation systems of the Sasanians – may have been vulnerable to erosion, floods, and lack of maintenance, so that if they were severed, the construction required may have been too much for later communities to manage.

10 Conclusions

By the Roman/Arsacid period much of the landscape of the Near East was a product of human action. This was not simply a result of the destruction of forests and associated soil erosion. Marshes were formed by the discharge of excess canal flow into flood basins and river flow was depleted by the withdrawal of water for irrigation (Wilkinson 1998a). Not only do pollen records identify a spike in orchard development from the Levant to western Iran during the late 1st millennium BC and early 1st millennium AD, Sumerian texts describe the range of trees introduced into southern Mesopotamia. These texts demonstrate that human management not only intensified the production of trees native to the area, it also brought about changes in species composition as well.

Although the history of the Near East was one of resource depletion, pollen sequences demonstrate that vegetation denudation varied geographically depending upon population levels and the scale of fuel-intensive industries such as mining (Barker 2000). It is now evident that increased social complexity, larger cities, and increased populations developed in the face of a drier, Late Holocene climate. Although, in general, technological and organizational developments

enabled Near Eastern civilizations to outpace such environmental challenges, populations did adapt, move, and even change their lifestyle, sometimes under or sometimes despite the human agents or kings who led them.

GUIDE TO FURTHER READING

For the physical geography of the Near East, see Fisher (1978) and Sanlaville (2000). A more specialized, but archaeologically relevant, work on Syria is Wirth (1971). A broad account of the archaeological landscape and environments of the Near East is provided by Wilkinson (2003a). Although none of the following books is dedicated to the environment in its entirety, Adams (1981), Potts (1997a), and Algaze (2008) describe and discuss the significance of the environment for Mesopotamian civilization. Van Zeist and Bottema (1991) remains a fundamental work on the vegetation history of the region. Different approaches to the eastern Mediterranean environments are provided by Bottema et al. (1990) and Grove and Rackham (2001). The debate concerning Early Bronze Age collapse is particularly well captured in Kuzucuoğlu and Marro (2007) as well as Rosen (2007). An earlier collection of essays on the subject is Dalfes et al. (1997). See also Zettler (2003). For the Quaternary period in Saudi Arabia, see Al-Sayari and Zötl (1978) and some useful insights on the environment of the Arabian peninsula can be found in Petraglia and Rose (2009). Finally, among the large number of papers on Quaternary and environmental topics, the following provide useful reviews of broader interest: Miller (1998), Roberts et al. (2001), Brooks (2006), Robinson et al. (2006), Kennett and Kennett (2007), Kuzucuoğlu (2007), and the papers in the special edition of the journal *The Holocene* 21/1 (2011).

CHAPTER TWO

Antiquarianism, Copying, Collecting

Mark B. Garrison

1 Introduction

The ruling elite of the cultures of the ancient Near East were intimately aware of and interested in their past. This is a sweeping statement that requires all sorts of qualifications based upon time, space, and the inherent limited nature of the surviving archaeological and textual data. Nevertheless, a recurring aspect of the ideological superstructure that one encounters in the surviving evidence from ancient Sumer, Akkad, Assyria, Elam, and Persia is the need to articulate a connection to the past. At its basest level, this connection to the past served to legitimate social and political power. There are, however, many other possible reasons why the elites, and the sociopolitical structure devised to support them, actively sought ties to the past.

This chapter frames the topics of antiquarianism, copying, and collecting within the context of sociopolitical power structures. It seeks to articulate antiquarianism, copying, and collecting as part of the material process of the production of ideas, beliefs, and values in social life. This particular perspective is informed by contemporary theoretical concepts about the nature, formation, and maintenance of power. The chapter limits itself spatially to the regions of Sumer, Akkad, Assyria, Elam, and Persia. Some attempt will be made to explore these phenomena throughout the 3rd–1st millennia BC; space constraints will limit by necessity any attempt at a comprehensive treatment of these topics.

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Edited by D.T. Potts.

The terms antiquarianism, copying, and collecting are broad ones, and different commentators will have different ways of defining them as well as different methods of recognizing the phenomena in the material record. Of the three, copying is probably the most straightforward. Antiquarianism and collecting, on the other hand, pose some challenges, as regards both their definitions and our ability to recognize these phenomena in the surviving archaeological and textual record from the ancient Near East. The phenomena may, moreover, be quite closely connected; e.g., a *copied* text of an Akkadian royal inscription may be part of a *collection* of similar texts, the existence of which is reflective of an *antiquarian* desire on the part of the individual or group assembling the texts to possess objects and texts associated with the Akkadian imperial enterprise.

2 Copying

The most recognizable and widespread form of copying was that conducted in the scribal schools. It has often been stated that scribes saw themselves as responsible for the preservation of their cultural heritage. For scribes, this meant copying texts. Scribes (Sumerian **dub-sar**) were trained, at least in the Old Babylonian period (early 2nd millennium BC), in a scribal school (Sumerian É.DUB.BA.A, Akkadian *bīt ṭuppi*). The existence of scribal schools in later periods is less well attested, and Joannès (2004: 190) states that in the 1st millennium BC there was no such thing as a collective school, scribes having been trained by a single teacher in his home.

Whether in a school setting or in individual tuition, the scribal curriculum seems remarkably similar throughout the ancient Near East, whatever the language or dialect spoken at a particular location (Michalowski 1995: 2282). Once scribes had acquired basic training in sign forms, they received language training by the copying of lists. There were four types of list: sign, vocabularies, syllabaries, and grammatical. Many lists were bilingual: Sumerian and Akkadian.

Advanced students, few in number and considered specialists, progressed to copying works of literature. The term literature is a notoriously difficult one within the context of the ancient Near East, where, for example, texts were not categorized into such genres as literary and non-literary (Lambert 1957; Rochberg-Halton 1984; Moran 1995; Black et al. 2004: xix–xxx; Joannès 2004: 195). We speak today of a "canon of texts" to indicate texts that were "copied over generations with set wording and sequence of component parts" (Van de Mieroop 1999: 27). Today, many of these texts qualify as literary (e.g., epics, myths, hymns), while others do not (e.g., omens, lexical lists). Omens in fact constitute the largest group of texts in the canon. This concept of a canon of texts is useful in distinguishing a particular type of long-term copying in opposition to other types of textual copying, such as the production of hundreds or thousands of royal inscriptions in a relatively short period of time. The copying

of works in the canon is today probably the most well-known aspect of scribal copying as a phenomenon. Interestingly, within the context of the Old Babylonian scribal school, which is our only source for much of Sumerian literature, this "copying" of literature appears to have been from dictation, not from written texts (Walker 1987a: 34–5; Black et al 2004: xlviii–l).

Scribes could also go on to specialize in specific styles/fields and copy texts in those disciplines. After their training, most scribes went on to careers that did not involve copying of literary works, instead finding positions as administrators; a small percentage of scribes worked for private individuals or firms. Only a handful found employment as scholars, who, among other activities, copied literary texts. Scribes who worked in some connection with the palace also often copied.

We do not know exactly when the phenomenon of scribal copying started. One assumes that the practice must date back to the beginnings of writing in southern Babylonia. Lexical lists, lists of words arranged by theme or by the shape of the cuneiform signs, appear already in the Archaic texts from Uruk in the late 4th millennium BC (Civil 1995: 2305–14).

In addition to providing a method by which to teach future scribes the art of writing and literacy, the scribal curriculum, including the literature chosen for copying, was a process of indoctrination, a method by which this most important class of social workers was molded and formed (Michalowski 1995: 2283; Black et al. 2004: xliii). The ability to read and write was exceptionally limited in all periods in the ancient Near East. Because scribes possessed this specialized knowledge, they may be considered to have held one of the most important social positions in society. Not only did they provide the manpower to perpetuate the administrative machinery, but in many cases they headed the institutional organizations of power, the state apparatus (Visicato 2000: 233, 241–3 for the Early Dynastic and Akkadian periods). Writing was a "tool for managing wealth, for proving ownership" (Black et al 2004: xl). The training and cultural indoctrination of the scribe was, thus, of critical importance to the maintenance of power.

By the Old Babylonian period, the native language of scribes was probably Assyrian or Amorite (Pearce, L.E. 1995: 2270). Nevertheless, scribes learned Sumerian, the literary and religious language of Babylonia, and copied a wide array of Sumerian texts. Some copies were bilingual, in Sumerian and Akkadian. In this manner Sumerian literature survived down to the end of the 1st millennium BC, many hundreds of years after Sumerian had died out as an actively spoken or administrative language. Indeed, the practice of copying Sumerian texts lasted for some 3,000 years.

The high point of the scribal academy occurred in the Old Babylonian period (early 2nd millennium BC), although most scholars infer that the foundations of the scribal curriculum were established in the Neo-Sumerian period (2112–2004 BC) (Michalowski 1995: 2284). Many Sumerian literary compositions survive

owing to the energy and productivity of the Old Babylonian scribal schools. Scribes copied Sumerian literary texts as a method of improving their knowledge of Sumerian grammar and syntax. The types of Sumerian literary texts preserved in this manner include divine and royal hymns, proverbs, mythological texts, law codes, and dialogues. Some of the most well-known works of Sumerian literature exist in copies from the Old Babylonian period, including the Sumerian king-list, the *Curse of Agade*, *The lamentation over the destruction of Sumer and Ur*, *Inanna's descent to the netherworld*, *Inanna and Enki*, the epics centered on Lugalbanda, and the epics centered on Gilgamesh.

The most famous surviving work of literature from the ancient Near East, the *Gilgamesh Epic*, was, by what may now be taken as a scholarly consensus, created from both Sumerian and Akkadian source material in the Old Babylonian period (Tigay 1982; cf. Azize and Weeks 2007 for recent research on the epic and its contexts). This early version of the epic, surviving only in fragments, is known today as the Old Babylonian Version and it focused upon the theme of Gilgamesh's concern about death and his desire to overcome it. By the second half of the 2nd millennium BC, the Old Babylonian Version had spread across the ancient Near East via scribal copying (with modifications to the wording of the epic). Translations of into other languages also took place. Sometime in the late 2nd millennium BC, a new version of the epic, today known as the Standard Version, was generated. This is ascribed by tradition to the scholar Sin-leqe-unninni and continued to be copied down to the 1st century BC (Moran 1995: 2330). The text survives primarily in copies from the Nineveh "libraries" of Assurbanipal (668–627 BC).

Royal inscriptions were sometimes copied. Here again, the best-known examples are the Old Babylonian copies of inscriptions on Akkadian royal statuary. The colophons (see below) on many of these Old Babylonian copies also sometimes give precious information on the nature of the statues and their physical settings (Buccellati 1993; Cooper 1990; for all known Akkadian royal inscriptions, including the Old Babylonian copies, see Frayne 1993; on the copies themselves, see Hirsch 1963).

While scribes held prominent positions in all periods of centralized political power, those who functioned as scholars per se were especially influential at court in the Neo-Assyrian and Neo-Babylonian periods (see, e.g., Parpola 1970: 1–77 for letters from scribes to Esarhaddon [680–669 BC] and Assurbanipal), another high point of scribal copying (although, by the 1st millennium BC monolingual Sumerian copies were exceptionally rare; Michalowski 1995: 2288). At this time the canon appears to have undergone significant modification. The Assyrian and Babylonian kings of the 1st millennium BC created large libraries (see below). Portions of those libraries have been found at Nimrud and Nineveh. In the reigns of the Assyrian kings Sargon II (721–705 BC) and Sennacherib (704–681 BC), the palace scribe Nabu-zuqup-kenu stated in many of his colophons that he

traveled to various cities to consult original texts so as to make copies for the royal library (Pearce, L.E. 1995: 2273).

In addition to royal libraries, temples and private individuals amassed collections of copied texts (see below). The problem of establishing the correct versions of texts that existed in multiple copies appears to have become an issue in the 1st millennium BC, and there seems to have been some competition among libraries to create authoritative redactions (bringing or putting into a definite form a text based upon conflicting source material).

Scribes of all periods often included colophons (from the Greek *kolophon*, "summit," "finishing touch") at the end of texts that they had copied. Colophons typically included three types of information: the name of the scribe, the date, and the name of the town in which the tablet was written. Many colophons are longer and give such information as a catch-line, name and number of a tablet in a series, number of lines copied, source of the copy, names of the owner of the copy, extended genealogy of the scribe who wrote the text, reasons for making the copy, curse or blessing, and disposition of the copy.

Based upon the present state of our knowledge, there appears to be no evidence for the wholesale copying of works of art such as occurred in the Mediterranean during the Roman period, when an industry in the creation of copies and pastiches of Greek statuary existed. Much of the Roman phenomenon was driven by the desire of elite patrons to own specific works of art linked to famous Greek master artists (e.g., Praxiteles) and to deploy statuary within the home as a means of constructing social identity. Neither phenomenon – signed works of art or exceptional social mobility – was a feature of the cultural landscape of the pre-Hellenistic Near East.

While there does not appear to have been wholesale copying of works of art in the ancient Near East, there is plentiful evidence of the revival of specific themes, iconography, and styles of visual imagery in many periods – i.e., the systematic revival of older imagery rather than simply the perpetuation of imagery from one period to the next via craft workshops. Our best evidence for this is provided by the imagery on stamp and cylinder seals. As stone was not found in the riverine environs of Babylonia, large-scale, free-standing statuary and relief must always have been rare and, not surprisingly, such sculpture does not survive in large quantity. Quality stone for carving was available in Assyria and the highlands of Elam (southwestern Iran, later Persia). Both Assyrian and Achaemenid Persian palaces deployed large stone architectural relief; both areas also are known for their rock-reliefs. Nevertheless, in all these areas (Babylonia, Assyria, and Persia) seals are numerically the most significant medium for the survival of visual imagery.

Akkadian art provided the visual models that were most often emulated in later periods. The exact reasons for this are unknown, but it is clear that ancient Akkad was held in high esteem in later periods (on Akkadian kingship, see, e.g., Liverani

1993c; Franke 1995; Nigro 1998; Hansen 2003). Three phenomena may account for this: the virtuosic carving of much of the art from the Akkadian period, the importance of Akkadian art as the first iteration of a true Sumero-Akkadian culture, and the renown that the Akkadian kings held as paradigms of worldly power.

The Old Babylonian period appears to have been a particularly rich time for the revival of Akkadian visual idioms in glyptic (Collon 1986; al-Gailani Werr 1988; Haussperger 1991; Colbow 1995). This is perhaps not surprising given that the Old Babylonian period was also the high point of the scribal academy. The study of Old Babylonian glyptic poses many challenges, not least of which is the exceptional rarity of dated and contextualized material from the capital Babylon. Often we are hard-pressed to understand the significance of the combination of particular design elements on Old Babylonian seals. Nevertheless, while we may not be able to "read" Old Babylonian glyptic to our satisfaction, the revival of certain elements from the Akkadian period is clear. Examples of such Akkadianisms include the paired nude hero and bull-man; the nude hero and/or the bull-man in contest with bulls, lions or caprids; and the presentation of a worshipper before a seated deity (on Akkadian glyptic, see Boehmer 1965; for the Akkadian nude hero in particular, see Costello 2010). With regard to the compositions involving the nude hero, Old Babylonian glyptic shows a revival of both the continuous frieze of overlapping figures of Late Early Dynastic glyptic and isolated, paired combatants that are characteristic of Akkadian glyptic. The Akkadian convention of depicting the hero or bull-man holding the lion or bull inverted is also common in Old Babylonian glyptic. In combat scenes, one arm of the nude hero and the bull-man is often bent with the elbow pointed upward, a distinctive Akkadian mannerism. There are also a few examples of the bull-man holding a standard, the nude hero holding a vase, and the nude hero in a kneeling position holding an animal over his head, all staples of the Akkadian repertoire. One of the most striking aspects of the revival of the Akkadian nude hero in the Old Babylonian period is his depiction with a frontal face and three locks of hair on each side of his head. The frontal-faced bull-man of the Akkadian period is also commonly depicted. Notable also is the depiction of the frontal face of the lion as it bites down on the arm of the hero or the haunch of another animal, a convention seen in both Late Early Dynastic and Akkadian glyptic. Stylistically, there exists a strain of carving in Early and Middle Old Babylonian glyptic that clearly seeks to revive the deeply modeled and agitated musculature of high Akkadian glyptic.

These revivals of compositional, iconographic, and stylistic aspects of the glyptic imagery of the Late Early Dynastic and Akkadian periods are so specific that they simply cannot be the result of random chance; rather, one must imagine that, at the beginning at least, artists and patrons consulted actual examples of Akkadian (and perhaps, to some extent, Late Early Dynastic) glyptic and systematically copied aspects of their composition, iconography, and style.

Two other periods are notable for exhibiting a penchant toward revivalism in the visual arts, the Neo-Assyrian and the early Achaemenid Persian. The most famous examples from the Neo-Assyrian period occur in Neo-Assyrian monumental relief from Sargon II's palace at Khorsabad. On Façades *a* and *n* of the palace were colossal, frontal-face heroes modeled on the Akkadian frontal-face hero (Botta and Flandin 1849: vol. 1, Pls. 30, 41 [Façade *n*, one of the two surviving slabs with heroes, now Louvre AO 19862] and 46–47 [Façade *a*, one surviving slab with a hero]). The Khorsabad colossi cradle a lion in one arm and hold a curved weapon in the other hand. The one from Façade *a* (now Louvre AO 19861) has three locks of curly hair on either side of his head and wears a short garment with tassels. All three surviving colossi from Khorsabad have completely frontal upper torsos and heads. The three locks of hair on either side of the head and the frontal upper torsos and heads are clearly revivals of conventions used in depicting the hero in Akkadian glyptic. The same may be true of the manner in which the heroes cradle the lions in the crook of their elbows and the frontal face of the lions. Such archaizing features are in fact rare in Assyrian monumental sculpture. Their appearance at Khorsabad may be connected to Sargon II, who seems to have cultivated "Akkadianism" at his court (Garrison 2010: 154–5). His very name, Sargon (Akkadian *šarrukin*, "legitimate king"), is an obvious reference to the legendary Akkadian king of the same name. Moreover, the famous *Legend of Sargon* may have originated under the patronage of Sargon II (Lewis 1980: 104–7).

Similar revivalisms occur in Assyrian glyptic. A seal in the British Museum (Collon 2001: no. 201), for example, shows a kneeling, frontal-face hero who holds a lion above his head. The seal is testament to the still-vibrant appeal of Akkadian imagery.

A remarkable synthesis of the Sumero-Akkadian visual tradition took place in the early Achaemenid period during the reign of Darius I (522–486 BC) (Root 1979). This synthesis is especially prominent in the glyptic arts as preserved in the Persepolis Fortification archive (Garrison and Root 2001). Here, the visual models were Neo-Assyrian (and to a lesser degree Neo-Babylonian) rather than Akkadian (Garrison 1991). While much of this phenomenon probably represents the perpetuation of long-lived and still active seal-carving traditions, in some cases the Persepolitan examples are remarkable in their adherence to Assyrian visual conventions. The most famous example of such is the seal of the head administrator of the system represented by the Fortification archive, Parnaka, most likely the uncle of Darius I. His second seal (PFS 16*) is a striking, Assyrianizing product (Garrison and Root 2001: 92–4; 2010: 165–8). Moreover, the Elamite texts on two of the tablets sealed by PFS 16*, PF 2067 and PF 2068, state that, on June 6, 500 BC (Darius' 22nd year, 3rd month, 16th day), PFS 16* replaced Parnaka's earlier seal. These texts suggest that the actual cutting of PFS 16* occurred not long before this date. It is noteworthy that such an exceptional Assyrianizing product could be produced in southwestern Iran some 200 years

after the fall of the Assyrian palaces and at a time when a fully developed Achaemenid court glyptic art was already well established at Persepolis.

3 Collecting

A considerable body of theoretical literature has grown up around the concept of collecting. This literature is part of a broader research focus, material cultural studies, which is concerned with the role of material culture in modern consumer societies, specifically the construction of human identity through the production and consumption of objects. As an object-driven phenomenon, one that attempts to understand the relationship between humans and the material world, the theoretical literature in material culture studies is of obvious interest to the archaeology of the ancient Near East. Collecting studies have sought to explore questions surrounding why and how individuals and institutions collect and how collections (i.e., groups of objects) may function/contribute in the process of the construction of individual and group identities.

One of many outcomes from this burst of scholarly investigation into the phenomenon of collecting has been a debate over the definition of the term itself. In the only monographic treatment of collecting in the ancient Near East, Thomason (2005: 4) offers as a starting point a very broad definition of a collection as "a group of objects that are stored together at any single time or place and are possessed by an individual or institution (whether familial, social or political)." She refines this definition with the following requirements: (1) collections require sorting and curating reflective of selection and choice; (2) collections hold social, political, and ideological value; and (3) collections "may be used to examine the subjective narratives of identity created by those individuals and institutions that collect" (2005: 6).

From an archaeological perspective, and in dealing with cultures divorced in time and space from our own, an extension of the question of how to define collecting concerns how to recognize it in the archaeological (and in some cases textual) record. A very broad definition such as the one offered above could conceivably be applied to a wide variety of phenomena that would not traditionally be identified as collecting. The most obvious, and the most difficult cases, are those involving funerary and temple hoards. One supposes that in a very real way individual tombs from the Royal Cemetery at Ur reflect a rather extreme case of the collecting of bodies and material objects (Woolley 1934; the tombs are much-discussed: see, e.g., Pollock 1991, 2007; Sürenhagen 2002; Cohen 2005). At what point, however, do funerary assemblages become collections rather than simply artifacts that have been charged with religious and social significance within the context of burial? Another example, from a temple setting, is the famous hoard of Early Dynastic dedicatory statues found in the Abu temple at Tell Asmar (Frankfort 1939b; Aruz 2003: 58–61). Does the burial of these

statues in the temple represent the final act of their "curation," or simply a convenient and ritually correct manner of disposing of them?

Another limiting factor in the discussion of collecting in the ancient Near East is bias in the data caused by the traditional focus of archaeological research on elite buildings (i.e., palaces and temples). While the archaeological revolution of the 1960s heightened an awareness of the need for an archaeology of all levels of a culture, and while much excavation of non-elite structures and cemeteries has since occurred, the great bulk of the excavated archaeological record relevant to collecting comes from elite contexts. It is, thus, much easier to recognize collecting by elites than collecting by individuals of lower socioeconomic standing in any particular culture.

Employing a very broad definition of a collection as "a group of objects that are stored together at any single time or place and are possessed by an individual or institution" opens up a tremendously large amount of data that can be used to discuss collecting in the ancient Near East. The few examples that follow may serve as an introduction to some of the types of evidence that are available.

Thomason (2005: 68–75) highlights the Royal Cemetery at Ur as the earliest recognizable example of royal collecting in the ancient Near East. She identifies in the objects and actions in the tombs the following phenomena that are indicative of collecting: conspicuous consumption, the "enclaving" of objects, and the use of objects in the construction of relationships between the past and the present and for the construction of group identities. The artifacts are valuable (and thus desirable) not only for their artistic craftsmanship, but also for the precious materials employed in them. Materials such as gold, lapis lazuli, semi-precious stones, indeed, any type of stone, were at all times rare in ancient Sumer and Akkad.

A common trope in royal inscriptions from the Akkadian period onward is the listing of precious and/or rare commodities, raw material and sometimes workmen acquired by the king from distant lands, generally as part of his building programs or military campaigns, but also simply by way of trade (Thomason 2005: 75–82). Such texts span 2,000 years, from Sargon of Akkad (2334–2279 BC) to the Achaemenid Persian kings (c.550–330 BC). For instance, Darius I boasts in his so-called "foundation charters" from Susa (most famously DSf 22–58) that

> this palace that I built at Susa, from afar its ornamentation was brought . . . the cedar timber, this – a mountain by the name of Lebannon . . . the yaka-timber was brought from Gandara and Carmania. The gold was brought from Sardis and from Bactria . . . The precious stone lapis-lazuli and carnelian . . . was brought from Sogdiana. The precious stone turquoise, that was brought from Chorasmia . . . The silver and ebony were brought from Egypt. The ornamentation with which the wall was adorned, that from Ionia was brought. The ivory . . . was brought from Ethiopia and from Sind and from Arachosia. The stone columns . . . a village by name Abiradu, in Elam . . . were brought. The stone-cutters . . . these were Ionians and

> Sardians. The goldsmiths . . . were Medes and Egyptians. The men who wrought the wood . . . were Dardians and Egyptians. The men who wrought the baked brick . . . were Babylonians. The men who adorned the wall . . . were Medes and Egyptians. (Kent 1953)

Of course, the primary purpose of Darius' Susa foundation charter and related texts from other periods was not documentary – i.e., to provide an eye-witness transcript of the building materials and workmen used in the construction of any one structure – but ideological, reflecting the far-flung lands and peoples brought under imperial domination (Root 1979: 7–9; Briant 2002: 166–9, 177–8, 908). Thus, one must proceed with caution. The conspicuous consumption reflected in all these types of texts, whether factually true or not, does provide, however, some evidence for the types of objects and materials that royalty considered worth acquiring or, in some sense of the word, collecting.

A rare and early glimpse into the collecting of objects to be dedicated to a deity is found in the well-known Sumerian hymns of Gudea of Lagash (c.2100 BC) inscribed on large clay cylinders, known today as Gudea cylinders A and B (Edzard 1997: 68–101; the texts have been often discussed, see Suter 2000: 71–159 for a recent overview). The texts address Gudea's rebuilding of the Eninnu at Girsu, the god Ningirsu's temple complex. In Cylinder B (cols. xiii–xiv) Gudea enumerates some of the gifts that he gave to Ningirsu, including chariots, weapons, and ritual objects. Raw materials, including copper, tin, slabs of lapis lazuli, and carnelian, also featured prominently.

While excavating at Susa, the lowland capital of ancient Elam, French archaeologists in the 19th century discovered a trove of Akkadian and Babylonian monuments and records (Harper et al. 1992: 159–82). These monuments, some of the most famous to have survived from the ancient Near East, included several reliefs of Sargon of Akkad, fragments of several statues of Manishtushu (2269–2255 BC), the Victory Stele of Naram-Sin (2254–2218 BC), and the Stele (Codex) of Hammurabi (1792–1750 BC). Because these monuments were excavated in the 19th century, precise information about their exact find-spots is lacking. They were discovered as part of massive digging operations undertaken by the French archaeologists on one of the large mounds of Susa, the Acropole mound. At times, this involved actual tunneling. The few excavation photos that exist show a chaotic scene. It was clear that the archaeological context of the monuments was not Akkadian or Old Babylonian, but late 2nd millennium BC. A few of the monuments – e.g., the Victory Stele of Naram-Sin and a statue of Manishtushu – carried Elamite inscriptions that had been added to them, stating that they had been taken away from Babylonia by the Elamite king Shutruk-Nahhunte I as booty from his Babylonian conquests in c.1158 BC. A few Elamite texts on clay tablets also survive concerning these Babylonian campaigns by Shutruk-Nahhunte I, as well as his son Kudur-Nahhunte (for these campaigns, see Potts 1999: 233–8). The texts highlight the seizure of the cult statue of Marduk and its

removal from Babylon to Susa. The statue itself does not survive, and, indeed, was captured and taken back to Babylon about 35 years later by Nebuchadnezzar I (1125–1104 BC).

These texts, and at least those Akkadian and Babylonian monuments with added Elamite inscriptions, represent yet another aspect of royal collecting, i.e. the appropriation of monumental sculpture and other objects from conquered territories as symbols of victory and imperial domination. Like the lists of materials used in royal building discussed above, the enumeration of objects appropriated from conquered territories was a literary trope of royal inscriptions. For instance, some 500 years after Shutruk-Nahhunte I, Neo-Assyrian kings boasted of returning stolen statues found in Susa to Babylonian cities (or in some cases carting them off to Assyria!). Such texts as these are, of course, highly rhetorical and need not reflect a lived experience. One remarkable aspect of the case of Shutruk-Nahhunte I is the fact that we have not only texts describing the seizure of the monuments, but a few of the monuments themselves. Indeed, the Elamite inscriptions that Shutruk-Nahhunte I added to the Stele of Naram-Sin and the statue of Manishtushu show clearly that he knew exactly what he had seized: the *zu-h-mu-tú* (*suhmutu*) ^{I}*Na-ra-am-*^{d}XXX-*ir-ra*, the "stele of Naram-Sin" (König 1965: no. 22) and the *ṣa-al-mu* ^{I}*Ma-an-iš-du-uz-zu-me*, the "statue of Manishtushu" (König 1965: no. 24a).

As mentioned above, the exact archaeological context of these Akkadian and Babylonian monuments at Susa is uncertain. One cannot assume that all these monuments stood together at any one place and time on the Acropole mound. Nor can one assume that all the Babylonian and Akkadian monuments found at Susa were the result of Elamite campaigns into Babylonia. For example, it has been suggested that fragments of a victory stele of Sargon of Akkad may come from a monument dedicated by Sargon himself at Susa to commemorate his victory over Elam (Frayne 1993: 26). Many commentators have, nevertheless, suggested that most of these monuments stood near the temple of Inshushinak, perhaps in something approaching what we today would call a "museum." Other texts of Shutruk-Nahhunte I mention that the ruler also brought statues to Susa from Elamite sites, including Al Untash-Napirisha (modern Choga Zanbil) and Anshan (modern Tal-e Malyan) (Potts 1999: 220–2, 236).

The removal of monuments and objects from the cities of defeated foes and their transport to capital cities must have been a feature of the Near Eastern political landscape since the advent of urbanism in the late 4th millennium BC. At Sippar and Persepolis we have hints of what may have been other collections of plundered monuments, perhaps similar to the possible collection at Susa (Harper et al. 1992: 161; Winter 2000: 1792–3; Schmidt 1957, for the Treasury at Persepolis). The early German excavations at Babylon uncovered a number of objects ranging in date from the late 3rd millennium BC to the time of Nebuchadnezzar II (604–562 BC) in the Northern Palace, or Hauptburg (Unger 1931: 224–8). As at Susa, the documentation from these excavations does not permit

an accurate reconstruction of the original contexts of these monuments; for many years it was proposed that they stood together in something like a museum, but this now seems unlikely (Van de Mieroop 2003: 268–9, following Klengel-Brandt 1990).

The Neo-Assyrian period provides some of the fullest documentation, both in texts (royal annals, especially those of Assurbanipal) and reliefs, of the range of objects that might be involved in such activities. Like their predecessors, the Assyrian kings took considerable pains to ensure that an accurate inventory was made of goods seized on campaign. Assurbanipal's description of the sack of Susa, which included the destruction of its *ziggurat* (stepped temple tower), enumerates in some detail the goods seized there (Luckenbill 1927: nos. 809–810) and goes on to describe the seizure of booty across Elam (Luckenbill 1927: nos. 811–814). Reliefs from the palace of Tilgath-pileser III (744–727 BC) at Nimrud (Collins 2009: 69) and from Sennacherib's Southwest Palace at Nineveh (Barnett et al. 1998: Pls. 250–255, nos. 346–348, from Room XXVIII) show scribes recording the booty on a clay tablet and a scroll. A fragmentary scene from court LXIV in the Southwest Palace of Sennacherib at Nineveh shows Assyrian soldiers carrying off a dozen half-lifesize statues, presumably cult images from a conquered city (Barnett et al. 1998: 128, Pls. 450–453, nos. 606–608). A fragmentary scene from room XXXVIII in the same palace shows the Assyrian sack of a city and the carting away of the spoils, including, tables, chairs, a cauldron, pail, bed, parasol, and robe (Barnett et al. 1998: 108, Pls. 364–365, no. 453). Another scene from room XLVII shows the Assyrian army marching out of a captured city carrying various kinds of furniture (Barnett et al. 1998: 118, Pls. 410–411, 413, nos. 524–525).

While statues of deities and precious dedications from temples are, from our perspective, logical monuments for the Assyrian kings to have collected, furniture seems a more unusual item. Furniture is, however, commonly shown in texts and reliefs to have been highly prized. For instance, the scene from room XXVIII in Sennacherib's Southwest Palace at Nineveh (Barnett et al. 1998: Pls. 250–255, nos. 346–348) of scribes inventorying seized material also includes many items of furniture. The furniture may have been valued not for its use as furniture per se, but for its decorative inlays and the rare woods of which it was made. Indeed, one of the most striking discoveries made at the Assyrian capital of Nimrud was thousands of pieces of carved ivory, known today as the Nimrud ivories. The great bulk of these ivories, remnants of plunder, tribute, and/or gifts, were decorative inlays from furniture; other categories of ivories include portable objects (e.g., mirrors), small storage containers (probably cosmetic containers), stands, equestrian equipment, and statuettes and figurines (for recent, concise overviews, see Thomason 1999; Herrmann 2000, 2005, 2008; Winter 2005). These objects originated in various parts of the empire, but the surviving corpus appears principally to reflect artistic traditions to the west of Assyria (Syro-Palestine). Thomason (2005: 135–40, 148–50) has suggested that the furniture that carried

ivory inlays may have been organized (and thus in some sense curated) according to the iconographic or stylistic features of the carved ivory; she infers that pieces of costly furniture were "perhaps the most sought after items by Assyrian kings" (2005: 120).

As noted above in the discussion of scribal copying, the Assyrian and Babylonian kings amassed very large collections of texts. The most famous of these is the so-called library of Assurbanipal. Modern scholarship has essentially reconstructed/created "Assurbanipal's library" at Nineveh based upon the discovery of many tablets from Nineveh bearing colophons stating that the texts belonged to the "palace of Assurbanipal," were the private property of the king, or, in a few cases, were written by the king himself after collation with the original (Lanfranchi 1998: 148–9). While the collection of texts from Nineveh constitutes, without doubt, one of the largest and most famous surviving corpora of texts from the ancient Near East, determining how best to characterize the corpus is more difficult. The distinction between library, understood as collections of copies of literary texts and texts associated with the canon (e.g., Pedersén 1998: 3), and archives, understood as collections of documents, is a modern one that does not easily correspond with the archaeological evidence (Black 2008: 261; on libraries in general in the ancient Near East, see the comments of Black and Tait 1995: 2206, who remark that libraries per se are a feature of the 1st millennium BC).

The question of "Assurbanipal's library" (or libraries) at Nineveh is a vexing one. The preservation of so many tablets at Nineveh was due to the violent destruction of the city in 612 BC; unfortunately, this destruction meant that the tablets were found outside their original contexts. In addition, most of them were excavated in the late 19th century and hence their exact original provenances within and around the two palace complexes, Sennacherib's Southwest Palace and Assurbanipal's North Palace, are often quite difficult, if not impossible, to determine (Reade 1986a; Parpola 1986; Walker 1987b; Lanfranchi 1998; Fales 2003: 199–200). The bulk of the texts that have been assigned to "Assurbanipal's library" come from four different buildings at Nineveh, the Southwest Palace, the North Palace, the Ishtar temple, and the Nabu temple, as well as various places both on and off the main mound at Nineveh (Pedersén 1998: 161, 163; Lanfranchi 1998; Fincke 2004: 55). The Nabu temple, located immediately to the south of the North Palace, may have been a separate library, but there may have been some mixing of tablets from there with those of the North Palace (Pedersén 1998: 163).

Pedersén (1998: 164) states that some 30,000 clay tablets or fragments of clay tablets have been attributed to Nineveh; joins between tablets reduce that number "to about a third." The texts that have been assigned to "Assurbanipal's library" include not only copies of works of literature from the canon, but "archival" texts from various periods of Assyrian history (Parpola 1986: 224; Pedersén 1998: 164–5). In some cases there were multiple copies of individual texts. Fincke

(2004) surveys the Babylonian texts that have been attributed to the library. The largest number of Babylonian texts, 1,331, are literary (of which the main genre is divination). There are 1,128 legal documents and some 1,221 yet to be identified.

There is a considerable body of modern literature on Assurbanipal the tablet collector and scholar. Beaulieu (1994: 38) remarks that no Assyrian king loved ancient texts "more fondly than Assurbanipal." In many of his own royal inscriptions Assurbanipal stressed his scholarly interests. Various texts also indicate that Assurbanipal was personally involved in the collection of tablets (Pearce, L.E. 1995: 2275; Lanfranchi 1998; Frame and George 2005). Several texts from Nineveh actually mention the collecting of tablets in his reign. The sheer number of tablets that were being sent to Nineveh is impressive; one text from 648 BC lists 1,141 tablets and 69 polyptichs that had been collected in one month (Lanfranchi 1998: 147, 150–1). Frame and George (2005: 277–83) and Fincke (2004: 57–8) outline a wide range of tactics that Assurbanipal employed in assembling his collection. Two recently published texts provide fascinating insights into Assurbanipal's collecting of tablets (Frame and George 2005). One (BM 45642 [81-7-6]) is a letter to Assurbanipal from a scholar at Borsippa concerning the king's command that the scholars of Borsippa copy and send to him all the texts of the canon held in the library of the Nabu temple there. Moreover, the king asks specifically for a Sumero-Akkadian glossary. The letter itself is a copy, probably a pedagogical assignment, perhaps dated as late as the Seleucid (320–141 BC) period (Frame and George 2005: 266). The other text (BM 28825 [98-11-12, 1]), also a late copy, is a letter written by Babylonian scholars to Assurbanipal in response to the king's request for texts; it may have some connection to the letter from the scholars at Borsippa.

While much has been made of Assurbanipal's literary and scholarly interests, his primary motivation for the collecting of these tablets was ideological: the acquisition of ritual texts and incantations to legitimate and maintain his rule (Fincke 2004: 60; cf. Lieberman 1990; Frahm 2004). Lanfranchi (1998: 155) has also suggested that the king was motivated by a desire to fuse Babylonian and Assyrian cultures. This is an interesting observation, and touches on one of the central political problems facing Late Assyrian rulers, namely how to rule Babylonia. Seen in this perspective, the ideological dimensions of Assurbanipal's collecting were both short and long term.

The Neo-Assyrian kings also collected flora and fauna as ideological statements/displays of worldly dominion. Many commentators have identified in the Assyrian capitals the earliest examples of botanical and zoological gardens, in some way similar to modern botanical and zoological gardens (Thomason 2005: 169). The evidence survives primarily in texts and monumental wall reliefs (Stronach 1990; Thomason 2001, 2005: 169–87; Rivaroli 2004; Lumsden 2004). Indeed, the royal garden (Akkadian *kiru* and *kirimaḫḫu*) was something of a literary trope in the inscriptions of numerous Assyrian kings. One of the most famous surviving

textual examples is the description of the royal gardens and orchards in the so-called banquet stele of Assurnasirpal II (883–859 BC), which describes events surrounding the inauguration of his palace at Nimrud (Grayson 1991a: no. A.0.101.30, lines 36B–52). A well-known relief from room H in Assurbanipal's North Palace seems to show a park on a hillside with trees, a royal stele, an altar, and a columned house (perhaps a *bīt-ḫilāni*, a building type associated with Syria), as well as an aqueduct bringing water into the park (Barnett 1976: Pl. 23, slabs 8–9[?]). Sennacherib built extensive waterworks to bring water from the Zagros mountains into the parks of Nineveh (Reade 1978). The actual locations of these parks at Nineveh are unknown, although the eastern terrace is generally acknowledged as a likely location (Lumsden 2004: 192). Many commentators have suggested that the famous Hanging Gardens of Babylon, known only from Roman or later literary sources, were in fact located at Nineveh (cf. Finkel 1988; Stevenson 1992; Dalley 1994; Romer and Romer 1995: 107–28; Reade 2000; Foster 2004).

The animal hunts depicted on the walls of several rooms of Assurbanipal's North Palace are some of the most well-known and often-illustrated sculptures from the entire ancient Near East. Both these reliefs and texts from the Late Assyrian period make it clear that many, if not most, of these hunts were staged affairs conducted in parks reserved for such activity. It may be that some of the parks that were a focus of exotic displays of flora also served as locations to house, display, and kill wild animals. In a very real sense, the Assyrian king was a collector of wild animals. Assyrian texts record a wide variety of animals that the king hunted. Lions and bulls are the most common animal depicted in the hunts on monumental reliefs, but the textual sources mention other animals. A particularly evocative passage in Assurnasirpal's banquet stele lists the following animals that he killed: lions, wild bulls, ostriches, and elephants; the same passage notes the receipt of elephants as tribute and Assurnasirpal's forming of herds of wild bulls, lions, ostriches, and monkeys (Grayson 1991a: no. A.0.101.30, lines 84b–101). Public displays of captured wild animals are also recorded (Thomason 2005: 188–97; Garrison 2010: 159–63 on the ideological aspects of the killing of animals in Assurbanipal's reliefs).

The evidence of collecting at social levels below the king and royal family is rare in all periods. The most convincing evidence comes from archives and libraries found in private houses. Indeed, many of the best-known Sumerian literary texts, copied at the high point of the scribal academy in the Old Babylonian period, were in fact found in private houses at Nippur and Ur (Michalowski 1995: 2282–3). Although the number of texts found in private houses at this time seems quite high, there is evidence in all major periods of small, private libraries (Walker 1987a: 38). The house of a Late Old Babylonian priest at Tell ed-Der (central Iraq) had a library of some 3,000 tablets (Walker 1987a: 38). Colophons often indicate that scholarly scribes compiled collections of texts for individuals and families (Pearce, L.E. 1995: 2275). At Hellenistic Uruk, some scribes themselves

developed personal tablet collections in their retirements (Pearce, L.E. 1995: 2275).

A grave at Ur, presumably of the Persian period, contained a clay coffin in which approximately 200 small lumps of clay that carried impressions of cylinder and stamp seals, signet rings, coins, and other objects were found (Legrain 1951: nos. 701–841 published 141 of the impressions [both those in Philadelphia, now lost, and those in London]; of the 115 impressions in the British museum, the stamp seals have now been published in Mitchell and Searight 2008: 168–81, nos. 525–588; cf. Merrillees 2005: 81 [addendum by D. Collon]). The impressions have generally been understood as the study collection of a seal carver (Collon 1996: 78–9), but there is no evidence other than the impressions themselves to support this. The images range in date from the Neo-Assyrian period to the late 5th century BC.

4 Antiquarianism

Of the three phenomena discussed in this article, that of antiquarianism is perhaps the most difficult to define, and certainly has different meanings/connotations in different contexts. One very technical use of the word today is to describe an early stage in the development of archaeological thought (pre-19th century), in which the emphasis of research was on creating detailed descriptions and typologies of the material record. This phase of antiquarian archaeology/history often involved the notion of historical progress and ethnic interpretation of material culture (Trigger 1989: 27–72). It is criticized today on a variety of fronts, and often characterized as an obsession with minutiae and collecting, without any awareness of the larger cultural frameworks in which the collected objects existed. This criticism is not a new one. Friedrich Nietzsche (1844–1900) coined the term "antiquarian history," which he identified as an objectivizing historicism that sought no meaningful connection between the past and the present. The distinction between the antiquarian and the historian was eloquently developed by Arnaldo Momigliano in his essay "Ancient history and the Antiquarian" (1950). To label a person or idea today as "antiquarian" is to dismiss it as narrowly focused, recondite, full of detail of the curious, but lacking any significance.

At its core, antiquarianism is concerned with objects as vehicles to establish a connection to the past (as opposed to words in texts); an interest in old objects is how one understands the word in general parlance today (Weisberg 1998: 177–8). Antiquarianism thus often involves the collecting of old objects.

The *Oxford English Dictionary* (2nd edition) dates the earliest use of the word antiquarianism in the English language to approximately 1779. It is derived from the Latin *antiquarius*, "a person fond of antiquities," which is not attested until the 1st century AD (for antiquarianism in the Roman world, see, e.g., Rawson 1985: 233–49). The word antiquarianism has no exact correlate in any ancient

Near Eastern language. Maas (1992: 1–2, 53–6) suggests that the ancient Greek word *archaiologia*, "the study of old things," comes closest to our use of the word antiquarianism.

If broadly defined as an interest in old objects, antiquarianism was a prominent feature of the ideological landscape of ancient Near Eastern kings, who constantly sought legitimacy and strove to create and maintain power via connections to objects from their past. The very act of creating scribal copies may in some sense qualify as antiquarianism. In a famous inscription, the *bibliophile* Aššurbanipal speaks like an antiquarian from the 19th century of our own era. He claims to have read "the artfully written text whose Sumerian version is arcane, and the Akkadian difficult to clarify. I have examined the inscriptions on stone from before the flood, the abstruse esoteric composition" (Streck 1916: 254–7 [L4]; trans. Beaulieu 1994: 38).

The hoarding/collecting of ancient statuary, as appears to have been done at Nippur and Sippar and perhaps also at Babylon and Susa (described above), is tangible evidence of the desire to link to the past via monuments (Beaulieu 1994: 40). Temples were, of course, storehouses of ancient objects. An Old Babylonian copy of an Akkadian royal inscription notes in its colophon that Akkadian royal statues stood in the courtyard of the Enlil temple at Nippur (for the copies, see Hirsch 1963; Buccellatti 1993; Cooper 1990: 41–4, where it is suggested that one of the surviving statue fragments of Manishtushu is in fact the statue from which one of the Old Babylonian copies was made; Thomason 2005: 100–1). In a famous foundation text, the Neo-Babylonian king Nabopolassar (658–605 BC) says that he found a statue of one of his predecessors at Babylon and set it up with his own (Beaulieu 2003). Another striking example of this type of activity is provided by the hoard of statues of Gudea of Lagash found at Telloh (ancient Girsu) in something that may have approximated a statue garden for the Hellenistic prince of Lagash, one Adad-nadin-ahi. The statues appear to have been arranged in the courtyard of the palace according to their poses (Aruz 2003: 424–5). These statues were some 2,000 years old by the Hellenistic period.

Kings also actively went out looking for ancient objects and, in some cases, conducted "excavations" (cf. the discussion of Nabonidus, below). Foundation documents – i.e., tablets buried in the foundations of buildings describing the construction and/or restoration of the temple – called *temmenu* in Akkadian, were especially prized. The search for ancient foundation documents was so common that kings often included instructions/warnings on their own foundation texts addressed to those who might discover them at a later date (Ellis 1968; Beaulieu 1989: 139–41, 1994: 39; Winter 2000: 1788–9; Thomason 2005: 206–8).

Royal conquests were another method of acquiring ancient objects. A particularly remarkable case of this phenomenon is recorded on a tablet from Nineveh (Luckenbill 1927: no. 359) describing the history of a prized lapis lazuli cylinder seal that the Assyrian king Sennacherib had seized from Babylon:

obv:
Tulkulti-Urta, king of the universe, son of Shalmenesar, king of Assyria. Booty of Babylonia (Kardu, *for* Karuniash). Who blots out my inscribed name, may Assur and Adad destroy his name and his land.

This seal found hidden way from Assyria to hostile Akkad. I, Sennacherib, king of Assyria, after 600 years, took Babylon, and from the wealth (booty) of Babylon, I selected it.

edge:
Property of Shagarakti-Shurias, king of the universe.

rev:
Tukulti-Urta, king of the universe, son of Shalmanesar, king of Assyria. Booty of Babylonia (Kar-dunishi). Who blots out my written name, may Assur and Adad destroy his name and his land. Property of Shagarakti-Shuriash, king of the universe. What was on a seal cylinder of lapis lazuli.

The seal, evidently originally inscribed by the Kassite king Shagarakti-Shuriash (1245–1233 BC) in the 13th century BC, had been taken as booty by a contemporary of Shagarakti-Shuriash, the Middle Assyrian king Tukulti-Ninurta I (1243–1207 BC), who added an inscription. Almost 600 years later the Neo-Assyrian king Sennacherib apparently rediscovered the seal at Babylon, seized it, and added his own inscription. The seal may have been similar to the massive (19.3 centimeter tall) lapis lazuli cylinder seal found at Babylon showing the god Marduk on a *mušhuššu* dragon and carrying an inscription of the Babylonian king Marduk-zakir-shumi I of 9th century BC (Finkel and Seymour 2008: 96, Fig. 78). The inscription says that the seal was set in gold and was accompanied by a necklace so that the god could wear it around his neck.

The Late Neo-Assyrian and Neo-Babylonian periods were a time when interest in the past via old objects and texts, what we might call antiquarianism, was especially pronounced. Beaulieu (1994: 37) characterized the Late Neo-Assyrian and Neo-Babylonian periods as "struck with an epidemic of antiquarianism." The ancient Near Eastern king most often associated with antiquarianism is the Neo-Babylonian king Nabonidus (555–539 BC), the "most consummate antiquarian of that period" (Beaulieu 1994: 38). While his predecessors Nebuchadnezzar II and Nabopolassar (658–605 BC) were also deeply invested in connecting to the past through ancient objects, Nabonidus seems to have outdone them in the vigor with which he pursued ancient objects. Through the survival of a number of texts, we have a remarkable portal into one particular king's desire, perhaps even obsession, to retrieve ancient objects from the ground (cf. Joannès 2004: 132, Nabonidus, the "archaeologist-king"; Winter 2000: 1786, the Neo-Babylonian kings actively seeking the past "in the field"; for the inscriptions of Nabonidus, see Berger 1973; Beaulieu 1989: 1–42; Schaudig 2001).

Nabonidus was particularly interested in old inscriptions as part of his campaigns to restore temples in Babylonia (Goossens 1948; Beaulieu 1994: 38–9). In one text concerning the rebuilding of the Ebabbar, the temple of the sun god

Shamash at Sippar, Nabonidus states that his predecessors, Nebuchadnezzar and Nabopolassar, had both excavated unsuccessfully in the city in search of the ancient foundations and foundation documents of the temple. Nebuchadnezzar nevertheless rebuilt the temple (the foundation document of Nebuchadnezzar that describes his lack of success in finding the temple is Langdon 1912: Nbk 12). Nabonidus found the temple in a state of disrepair, and so resumed excavations in search of ancient documents. He boasts that he found the foundation document of the Akkadian king Naram-Sin some 18 cubits under the surface (Langdon 1912: Nbn 6 and 18; see Beaulieu 1989: 132–6; 1994: 39). Another text that mentions Nabonidus' excavations at the Ebabbar, known today as the Royal Chronicle, states that Nabonidus found a head of a statue of the Akkadian ruler Sargon (Beaulieu 1989: 4, 166–9). The head was badly damaged, but Nabonidus had it restored and set up in the temple, and he established an oblation for it (col. III, 29; Beaulieu 1989: 133–6). Texts from the Ebabbar dating to the reigns of Nabonidus, Cyrus, and Cambyses appear to document the continuation of the offerings that Nabonidus had established for the statue head of Sargon (Beaulieu 1989: 135–6).

It should come as no surprise that Nabonidus seems to have been particularly interested in the ancient kings of Akkad (see above). He claims to have restored the temple of Ishtar at the old Akkadian capital of Akkad and also to have pursued excavations in the palace of Naram-Sin (Winter 2000: 1787). Remarkably enough, one tablet carries an actual impression of an inscription of the Akkadian king Shar-kali-sharri. The Babylonian text of the tablet states, "impression from a diorite slab of the *asarru* seen in the [*a*]*sarru* palace of Narām-Sîn, the king, which Nebû-zēr-līšir, the scribe, found in Agade" (Beaulieu 1989: 141–5).

On a clay foundation cylinder from Babylonia (Finkel and Seymour 2008: 162, Fig. 147), Nabonidus states that, in his excavations in the Egipar at Ur, a building located in the sanctuary of the moon god Sin at Ur and used of old to house the high priestesses, he discovered an ancient stele dating to the time of Nebuchadnezzar I (late 12th century BC). The stele had an image of the high priestess of the moon god. Nabonidus declares that he unearthed the foundations of the temple of Sîn, saw inscriptions of "old earlier kings," and restored the temple. In the text of a clay cylinder reportedly from Ur, Nabonidus describes how an eclipse of the moon led to his revival of the office of high priestess (*entu*) of the moon god at Ur, an office that had not existed for centuries. Following ancient custom, he installed his daughter En-nigaldi-Nanna in the revived office (for the episode, see Reiner 1985: 1–16; Beaulieu 1989: 71–2, 127–32; 1994: 39–40; 1995: 974). Her name, clearly fabricated, is an exceptionally archaizing Sumerian one. This episode is yet another example of Nabonidus' desire to reconnect to the past (and also part of his agenda to promote the moon god Sin). This long inscription has been characterized as "one of the strongest expressions of the antiquarianism that pervades the Neo-Babylonian period, and the reign of Nabonidus in particular" (Beaulieu 1995: 974).

The exact motivations and aims of Nabonidus' pursuit of the past are much debated (Beaulieu 1989; 1995: 969–79; 2007; Weisberg 1998; Winter 2000: 1786; Joannès 2004: 130–135; Finkel and Seymour 2008: 161–72). The picture is often painted of an aging, obsessive, and fanatical antiquarian lost in his texts and excavations (Oates 1986: 131–5). The trend of more recent research (going back to Goossens 1948) has been to see Nabonidus' actions as grounded in a desire to follow proper religious procedure, to legitimate his rule, to increase the imperial domains, and to respond to the *Realpolitik* of his age (Reiner 1985: 1–16; Beaulieu 1989: 138–43; 1994; Weisberg 1998; Winter 2000; Van de Mieroop 2003: 269; Thomason 2005: 206–7, 219). Beaulieu (1989: 143), for example, interprets Nabonidus' interest in Akkadian objects and texts as an attempt to construe his reign as a "resurrection of a universal empire on the Assyrian and Akkadian model." The need to consult ancient texts seems to have been especially critical in his program of restoration of the cults of Babylonia, acts that would have well served Nabonidus' claims to legitimacy. He appears to have promulgated an especially aggressive policy in his promotion of the cult of the moon god Sin at Harran, a chapter in his reign that is still poorly understood.

GUIDE TO FURTHER READING

The literature on ancient scribes is quite extensive. Visicato 2000 provides a well-researched account of the information that we have on the scribes of the Early Dynastic and Akkadian periods: see pp. 1–6 for bibliography on studies of Mesopotamian scribes. Shorter, but broader overviews are found in Walker (1987a), Pearce, L.E. (1995) and Michalowski (1995), the last two with bibliographies; see Joannès (2004: 190–8) for scribes in the Neo-Babylonian period. On the Old Babylonian scribal schools, see Gadd (1956), Kramer (1963: 229–48), Sjöberg (1975), Vanstiphout (1995), and Black et al. (2004: xl–l). See Black et al. (2004: xli–xlv) for a concise overview of what have been identified as urban scribal schools of the Old Babylonian period at Nippur and Me-Turan. The small structure at Nippur had living quarters of smaller than 50 square meters, but it yielded in its penultimate phase almost 600 tablets bearing texts of Sumerian literature. Those tablets represented more than 80 different literary compositions. About two dozen of the compositions existed in numerous copies; the rest existed as a single copy or one of only a handful of copies. For ancient texts concerning the scribe's life, see Vanstiphout (1997) and Black et al. (2004: 275–352).

The literature in the fields of collection and material culture studies is extensive. Some overviews include, e.g., Schlereth (1982), Stocking (1985), Miller (1987), Elsner and Cardinal (1994), Pearce, S. (1994, 1995), Riggins (1994), and Meskell (2004). On collecting in the ancient Near East, see Thomason (2005), which focuses on royal collecting. This is the only monographic treatment of the subject and has been a critical resource in preparing this chapter. For a general introduction to collecting in ancient Greece and Rome, which is generally identified as the roots of collecting in Early Modern Europe,

see, e.g., Elsner and Cardinal (1994) and Pearce and Bounia (2000). The topic of antiquarianism is most often encountered within discussions of the Neo-Babylonian period, and in particular the person of Nabonidus – see, e.g., Goossens (1948), Reiner (1985: 1–16), Oates (1986: 131–5, 160–2), Beaulieu (1989: 127–43; 1994; 1995: 969–79; 2007), Weisberg (1998), Winter (2000), Joannès (2004: 130–5), Thomason (2005: 206–7, 219), and Finkel and Seymour (2008: 161–72).

CHAPTER THREE

Early Excavations (pre-1914)

Nicole Chevalier

1 The Conditions of pre-World War I Excavations

The year 1842 is traditionally considered to mark the beginning of archaeological research in the Orient. In that year, Paul-Émile Botta, French consul in Mosul, commenced the first excavations in the north of what is today Iraq. At Kuyunjik, opposite Mosul, he hoped to rediscover the remains of Nineveh, the capital of the last kings of Assyria. From then on, civilizations re-emerged from the shadows one after the other, some of which were still remembered thanks to ancient authors and the Bible, while others had long been forgotten. Travel increased during the 17th and 18th centuries, and accelerated in the early 19th century, intensifying the thirst for knowledge. In the second half of the century, from the still murky histories of ancient civilizations, appeared one after the other Assyria, Phoenicia, Sumer, Persia and Elam, Babylonia, and the Hittite world. The beginning of the great excavations did not mean the end of the traveling period, although for a long time certain regions, in particular Arabia, saw no other scientific exploration.

In this conquest of the past, the role of the countries hosting these investigations was limited in the case of the Ottoman Empire and non-existent in the case of the Persian (Qajar) Empire. For a long time the research being carried out was solely the work of the French and the English, before the arrival of the Americans in the 1880s and then the Germans, who staked their claim to Mesopotamia, while the French acquired a monopoly on excavations in Persia with

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the aim of keeping their competitors at a distance. In the period leading up to World War I, with competition for influence sometimes wearing a veneer of science, archaeology found its place in a merciless cultural competition.

At a time when the discipline was still to be clearly defined, the authors of these discoveries were rarely trained archaeologists; these arrived relatively late on the scene. Most often the original excavators were scholars, passionate about epigraphy and numismatics; diplomats drawn toward ancient sites by their careers; engineers; or at best, architects. The excavations themselves were often a source of mistrust on the part of governments, involving long negotiations in order to obtain the *firmans* (letter of permission) that authorized digs and the division of discoveries. As for the regulation of antiquities, the first such law was passed in the Ottoman Empire in 1869, although it wasn't until the inter-war period (between World War I and II) that Iran took its first steps. The effect of the first Ottoman law was negligible, but a later antiquities law, promulgated in 1884 at the behest of Osman Hamdi Bey, Director of the Ottoman Imperial Museums and of antiquities, and which introduced measures that included a ban on division of discoveries, was applied, more or less, depending on the circumstances (cf. Ch. I.4).

On the ground, relationships with provincial authorities were sometimes difficult. Local populations often looked on foreign investigators with suspicion, especially when they worked near sacred sites such as Nebi Yunus, one of the mounds of Nineveh where tradition places the tomb of Jonas, or Susa, in southwestern Iran, which lies close to the tomb of the prophet Daniel. Finally, expeditions in very isolated regions aroused the appetite of populations over whom the central authorities had little power, leaving the investigators to look after themselves. Reports bear witness to acts of violence by tribes, including the Anaza, Muntafiq, Beni Lam, Sagvands, Lur, Bakhtiyari, and Kurds, all attracted by the potential wealth represented by a team of explorers. These groups rapidly came to understand the lucrative interest of archaeological sites. Under pressure from the merchants of Baghdad, tribes in Iraq engaged in the pillaging of sites, such as Telloh and Nippur, sometimes not even waiting for the archaeologists to leave. In the 19th century, archaeology was often a high-risk venture.

2 Excavations in Mesopotamia: The Beginnings

In December 1842, when Paul-Émile Botta commenced excavations on the *tell* of Kuyunjik, he was a pioneer in this endeavor. Prior to this, many British travelers had investigated the Ottoman and Persian territories. In Baghdad, the residence of the political agent of the East India Company, who exercised consular functions, served as a rallying point. In 1807, the renowned Orientalist Claudius James Rich held this post and English visitors to the region were able to see sites such as Aqar Quf, Babylon, Al Uhaimir, and Birs Nimrud (Borsippa). Rich

himself made a thorough and methodical exploration of Mesopotamia, and traveled around the entire Orient, from Damascus to Bombay, with indefatigable curiosity.

Compared to the English residency, the French consulate in Baghdad, where France had few political interests, was unimpressive. It was, however, at the request of the consul in Baghdad that a second consulate was created in Mosul, to protect the sizable Christian population in the region. The creation of this consulate and the nomination of Botta, who had shown his qualities as a naturalist in Yemen (1837–9), provided France with an opportunity. For a long time, particularly after the visit of the famous German traveler Carsten Niebuhr to Mosul in 1766, the ruins on the left bank of the Tigris had been identified with the legendary city of Nineveh.

Upon arriving in Mosul, Botta started his research, encouraged by Jules Mohl, under-secretary of the Société asiatique, who was very interested in seeing decisive progress in the field of oriental antiquity. The first investigations at Kuyunjik were disappointing, and on March 20, 1843, Botta transferred his activities to Khorsabad, a few kilometers northeast of Mosul. Some days later he discovered the corner of a palace and uncovered courtyards and rooms decorated with bas-reliefs (Figure 3.1), which were unfortunately sculpted in very fragile stone. Soon after this, he was joined by the artist Eugène Flandin, who had just finished a very important mission in Persia and who, in hundreds of drawings, recorded these reliefs, which deteriorated upon contact with the air. For his part, Botta copied

Figure 3.1 The excavations of Paul-Émile Botta at Khorsabad (after Flandin 1861: 77).

and collected squeezes of all the mysterious and still-indecipherable inscriptions accompanying them. Misled by his failure at Kuyunjik, Botta believed he was uncovering the palace of Nineveh. However, the inscriptions later showed the palace to be that of Sargon II (721–705 BC) at Dur Sharrukin.

When Botta concluded his excavations in October 1844, so many discoveries had been made that it was impossible to send everything to France. The weight of the bas-reliefs, in particular – the monolithic bulls alone weighed close to 30 tons – made transport as far as the Tigris difficult. After being dragged on chariots by hundreds of men, the collection was lowered onto rafts supported by inflated sheepskins and transported to Basra. On May 1, 1847, the first Assyrian museum in Europe was inaugurated by the French king Louis-Philippe at the Louvre in Paris. However, despite the brilliant results published in Botta and Flandin's five volumes of *Monument de Ninive* (1849–50), France stopped its research at Nineveh for a time, and Botta, appointed consul in Jerusalem in 1848, never had the opportunity to return to the banks of the Tigris.

Botta's departure and the suspension of the consulate put an end to the first period of French research. Aware that archaeology was their only means of distinguishing themselves, some consular agents undertook their own research, particularly Simon Rouet, who discovered the reliefs of Bavian and Maltai. However, in spite of Botta's warnings, the French stopped their investigations, leaving the way clear for the English. Botta's fears were justified: a young traveler, Austen Henry Layard, had already visited the *tells* of Assyria, and the great Orientalist, Henry Creswicke Rawlinson, was traveling in Persia with an eye for inscriptions. When, in January 1852, after a six-year hiatus, Victor Place took over the post of consul in Mosul, the English were already at work. For a decade, from November 1845, to summer 1855, Layard and William Kennett Loftus, a British geologist, assisted by Hormuzd Rassam and partially instructed by Rawlinson, explored the *tells* of Assyria with little interruption.

The second period of French excavations at Khorsabad commenced with Victor Place. This time, things looked promising: unlike the Scientific and Artistic Expedition to Mesopotamia and Media led by ex-consul Fulgence Fresnel and assisted by the epigraphist Jules Oppert and architect Félix Thomas, which was languishing in Babylon at the time, the expedition led by Place aroused the enthusiasm of Orientalists. And unlike Botta, who dedicated himself to the copying and study of inscriptions, Place was passionate about architecture and hoped to uncover the palace of Sargon in its entirety. Rather than simply collecting attractive sculpture, he aimed to make a first study of Assyrian architecture. A lack of other monuments for comparison made this difficult, but he was aided by Thomas, who contributed to the success of the mission through the acuteness of his observations and the boldness of his reconstructions. Finally, to imbue his discoveries with "mathematical precision," Place recorded his excavations photographically. To the 14 rooms discovered by Botta, Place added 186 more, uncovering an impressive palatial complex.

Place spared no effort to give France an Assyrian collection without equal in Europe. But after success came failure. On May 21, 1855, the boats transporting the collection down the Tigris were attacked by tribes and sank in the Shatt al-Arab. Most of the cases containing Place's discoveries at Khorsabad and those of Fresnel at Babylon were lost downstream from Qurna, putting an end to French exploration in Assyria. However, although Place was unable to deliver this extraordinary material to the Louvre, the results of his research were published in *Ninive et l'Assyrie* (1867–70). This groundbreaking work is still of great use today for the study of Assyrian palace architecture.

If the French can claim the first discoveries in Assyria, it was the English who gave this research its fullest expression. The arrival of the English in Assyria was led by Layard, who until then had only made surface explorations. In 1840 he stopped in Mosul before heading on to Persia, where he stayed with the Bakhtiyari tribe. Then, on returning to Mosul, he met Botta, who was beginning his excavations. From this meeting was born his project to undertake excavations, which he discussed with Sir Stratford Canning, the English ambassador. Canning was all the more interested in helping Layard because the knowledge of territorial questions that he had acquired during his stay in Persia could be best employed to defend English interests. Not only did Canning smooth the way with the Ottoman government in order to obtain a *firman*, he also subsidized the early work with funding relayed by the British Museum.

Botta had barely left Mosul when, in November 1845, Layard started work at Nimrud (biblical Calah) and launched a first excavation which continued until June 1847, whereupon he returned to London to prepare a publication of his discoveries (Layard 1849a, 1849b, 1853a, 1953b). He left behind his assistant, Hormuzd Rassam, brother of the English vice-consul in Mosul, and Henry James Ross to continue the work. On October 1, 1849, he returned for another expedition that lasted until April 1851.

For financial reasons, the French focused their efforts on Khorsabad, although, at the request of the Académie des inscriptions et belles-lettres, Place attempted excavations at Nebi Yunus and at Qalat Sherqat (Assur). The English, on the other hand, diversified their work. Although Layard mostly worked at Nimrud, and to a lesser extent at Kuyunjik (Figure 3.2), particularly in Sennacherib's (704–681 BC) palace, from the first exploration onwards he explored Qalat Sherqat and made numerous surveys. Unlike Botta and Place at Khorsabad, Layard worked at sites where more than one Assyrian king had built his palace. This meant that the size and diversity of the discoveries made by Layard exceeded those made by the French. Apart from the reliefs, which were remarkable both for their number and variety, alabaster vases, bronze objects, glass, ivory, and other objects made up a magnificent collection without equal in the Louvre. In addition, part of the library of Assurbanipal (668–627 BC) was also found at Kuyunjik. The scale of these discoveries explains the reaction of the French minister Léon Faucher, who, on his return from London in 1851, pushed through

Figure 3.2 "Entrance passage, Kouyunjik" (after Layard 1853b: 340, opposite).

parliament the approval for finance to recommence excavations at Khorsabad and to send a mission to Mesopotamia and Media.

The fact that funding was often modest may explain the rushed excavation technique that privileged the use of trenches and tunnels in order to uncover the bases of the walls where the excavators hoped to find reliefs. This worsened when Rassam took charge of the work, which became a hunt for bas-reliefs. However, in the context of the time, Layard's research was judged favorably, particularly by Place, who visited his sites on several occasions in order to learn about his excavation techniques.

In April 1851, Layard returned to England, putting an end to his archaeological activities in order to begin a brilliant diplomatic career, and the trustees of the British Museum gave Rawlinson the responsibility of coordinating research in Mesopotamia. Until this point, the French and the English had worked successively on the Mesopotamian sites. After Layard's departure, the two groups found themselves face to face. In this new context, Rawlinson not only had to direct Rassam's research – and later that of Loftus and Taylor – but also to maintain friendly relations with the French missions to Khorsabad and Babylon, while defending England's archaeological interests.

Despite his good will, the situation in Assyria was contested. On the one hand, Rassam finally drove Place away from Qalat Sherqat, where the latter had temporarily interrupted surveying. On the other hand, Rassam did not respect the agreement which had been made between Rawlinson and Place concerning a division of the exploration of Kuyunjik. In December 1853, Rassam discreetly commenced excavations in the zone reserved for France. Through his daring, he discovered the palace of Assurbanipal, reliefs of hunting scenes, and a considerable number of tablets, constituting part of Assurbanipal's library. After Rassam's departure in March 1854, Loftus and his assistant William Boutcher, who had learned their trade in southern Mesopotamia, recommenced the excavations. Loftus's methodological effort was laudable, and he went to great lengths to describe the architecture in detail, particularly the palace of Assurbanipal.

Although these excavations were still bearing fruit, work came to an end in the middle of 1855, leaving the work unfinished. Rawlinson's return to London, a lack of funding, and the onset of the Crimean War may have all played a part in this decision. For the next half-century, Assyria was no longer the scene of great excavations, and British excavators returned to the area very rarely. However, it was not without success that George Smith traveled to Nineveh in 1873 to recover missing parts of the Assyrian story of the Flood and, between 1878 and 1882, Rassam returned to the site of his old successes.

3 Phoenicia

In 1860, following the massacre of the Christians of Lebanon by the Druze, France sent an expeditionary force of 6,000 men. It was in these exceptional circumstances that Napoleon III decided to attach an archaeological mission to the military force, part of a long-established tradition. The archaeological team was led by the renowned Orientalist Ernest Renan, and it was these political events that provided the young scholar with an opportunity to fulfill a dream. In 1857 Renan had emphasized the importance of exploring Phoenicia to the Académie des inscriptions et belles-lettres. Several scholars, including the Duke of Luynes, who had provided France with the inscribed sarcophagus of Eshmunazar, king of Sidon, had already visited the land. The discovery of the sarcophagus suggested that a scientific expedition would lead to the discovery of other Semitic texts, like those found in Cyprus, Naples, and North Africa.

After leaving France on October 14, 1860, Renan had barely a year to accomplish his mission with the assistance of the army and, in his Sidon excavations, Dr Charles Gaillardot, who resided in Syria. Renan explored the sites of Byblos, Sidon, Tyre, Umm el-Amad, Ruad, Tartus, and Amrit. At the end of April he was in Palestine and spent a month traveling in Galilee and Judah. However, in August 1861, when the French troops received the order to leave the country, Renan interrupted his work and focused on the transport of his discoveries.

Although the Lebanese part of his mission was more or less accomplished, the second part, on Cyprus, remained to be undertaken; but sickness and the brutal death of his sister Henriette, who accompanied him, forced him to return to France. The realization of Renan's Cypriot program was left to Melchior de Vogüé, William Henry Waddington, and Edmond Duthoit.

Of all the sites explored, it was at Sidon that the research went furthest, thanks to the work of Gaillardot, who continued excavations after the departure of the mission. Afterwards, apart from the haphazard activities of a family of French consular agents, work at Sidon was conducted by Turkish officials: Osman Hamdi Bey and, later, Theodor Macridi Bey, Director and Curator, respectively, of the Ottoman Imperial Museums, from 1887 onwards. It was only in 1914 that Georges Contenau resumed the work commenced by Renan.

Renan was working in a completely new field. With this mission he literally created the new discipline of Phoenician archaeology from the ground up. He elaborated it in a great publication, the *Mission de Phénicie* (1864 and 1874), which remained the discipline's fundamental text for more than 50 years. Finally, on his return to France, he dedicated himself particularly to Semitic epigraphy. In 1867, with three fellow members of the Académie des inscriptions et belles-lettres, he persuaded the Académie to sponsor the Corpus Inscriptionum Semiticarum (CIS) project, which led to research into Semitic texts written in alphabetic scripts. As a result, the study of the Phoenician, Nabataean, Palmyrene, and South Arabian languages and their texts progressed rapidly.

4 Arabia

In contrast to other parts of the Ottoman Empire, research in Arabia was long limited to research trips and the copying of inscriptions. Although some Orientalists doubted that important archaeological remains were to be found there, the quest for inscriptions was encouraged, particularly after the establishment of the CIS project. At the time of the project's creation, however, epigraphic material from Arabia was still rare.

While visiting Yemen as part of the mission sent in 1762 by King Frederick V of Denmark, Carsten Niebuhr did indeed report the presence of inscriptions. But it was only in 1810 that Ulrich Jasper Seetzen, a German teacher, and again in 1834 that James Raymond Wellsted, a British officer on the brig *Palinurus*, made the first copies of South Arabian inscriptions, one at Zafar (the capital of Himyar), the other at Qani', an incense port on the Hadramaut coast. Finally, in 1843, at the instigation of Fresnel, then French consul in Jiddah, a pharmacist in the service of Mohammed Ali and later of the Imam of Sana'a, named Thomas Joseph Arnaud, brought back numerous inscriptions from Marib, the ancient capital of the kingdom of Saba, and Sirwah. The scientific impact was such that, in 1847, the French Ministry of Public Instruction entrusted Arnaud with an

epigraphic expedition, the activities of which were severely compromised by increasing unrest in the region. Nevertheless, Arnaud's explorations helped to pave the way for work by the Frenchman Joseph Halévy and the Austrian scholar Eduard Glaser some years later.

The CIS was behind Halévy's epigraphic mission in 1869. From that dangerous expedition Halévy brought back not only a useful map of northeastern Yemen and some antiquities, but also, above all, copies of 685 inscriptions from at least 37 sites. He was followed by Eduard Glaser, who organized four expeditions to Yemen between 1882 and 1895, the first of which was conducted under the auspices of the Académie des inscriptions et belles-lettres. Having long waited in Sana'a for the Ottoman Sultan's *firman*, he began traveling in the northeast of Yemen and in the Zafar area at the end of 1883. At the conclusion of this expedition, Glaser provided the Académie with 276 copies and squeezes published in the CIS and some antiquities which, along with those collected by Halévy, were amongst the first ancient South Arabian objects to reach Europe. During his later expeditions – in 1887 he was financed by the Prussian Academy – he visited the region of Aden and reached Marib, but did not succeed in entering the Jawf. Like Halévy, who chose to keep this quiet, he had to resign himself to having the inscriptions copied by local people. His results were impressive, as attested by both his epigraphic work – he was a pioneer of South Arabian epigraphy – and his journal, which became a reference work for the geography and ethnography of Yemen. The Austrian Academy made a further venture into Yemen in 1898 with the expedition of David Heinrich Müller and Carlo de Landberg, who tried in vain to reach Shabwa, the capital of Hadhramawt.

In 1876–8, the English Orientalist Charles Montagu Doughty became the first scholar to explore northwestern Arabia. He visited the Nabataean site of Meda'in Saleh and the oasis of Tayma, where the Babylonian ruler Nabonidus (555–539 BC) moved his official residence (Ch. II.43), and collected more inscriptions. There was also Charles Auguste Huber, who entered Arabia for the first time in 1880 and explored part of the region between Tayma and al-'Ula, in the company of the German Julius Euting. In 1883, Huber returned for another expedition, during which he was murdered. However, the antiquities which he was transporting from Tayma, as well as his papers, were retrieved by Félix de Lostalot, the French vice-consul in Jiddah. Finally, in the run-up to World War I, from 1907 to 1910, it was the turn of Fathers Antonin Jaussen and Raphaël Savignac of the École biblique in Jerusalem, who made the first detailed study of Mada'in Saleh, Tayma, al-'Ula, and other sites, and of the Austrian Orientalist Alois Musil, who conducted a series of surveys in northern Arabia between 1908 and 1915.

Following Rawlinson's return to London in 1855 research in Assyria was suspended for a time, but there was no shortage of work in Europe, where scholars studied the documents brought back to Paris and London. In many ways, the first research concerning Bahrain was linked to discoveries made in Mesopotamia, particularly those of Khorsabad, including inscriptions mentioning the name of

a certain Uperi, king of the land of Dilmun. The location of this mysterious land was long a subject of speculation, even if, in 1880, Jules Oppert identified it correctly with the island of Bahrain, based on the works of ancient authors and the inscriptions of Khorsabad. Rawlinson came to the same conclusion a few months later, on the basis of a cuneiform inscription found on the island of Bahrain by Captain E.L. Durand. On this occasion Durand compiled an inventory of the island's antiquities and described the mysterious tumuli fields where he made a few quick excavations. After him, the Englishmen Theodore Bent and Francis Beville Prideaux, a colonel in the Imperial government of India, and, to a lesser extent, the Frenchman André Jouannin, applied themselves one after the other to solving the mystery of the Bahrain tumuli and the identity of Dilmun.

5 Excavations in Mesopotamia: The Second Period

> It was the French representative at Mosul who in 1842 had successfully inaugurated the resurrection of the palaces and temples of Assyria; and it was another French representative at Basra who thirty-five years later made a no less far-reaching discovery in the mounds of Chaldea, which opened the second great period in the history of Assyrian and Babylonian exploration – the period of methodical excavations in the ruins of Babylonia proper. (Hilprecht 1903: 216)

It was in these terms that in 1903 Hermann V. Hilprecht, the excavator of Nippur, hailed the role of the French in Mesopotamia and particularly that of Ernest Chocquin de Sarzec, who, beginning in 1877, had led several campaigns of excavation at Telloh (ancient Girsu) in southern Iraq (Figure 3.3). He had thus contributed to the first recognition of the Sumerian civilization, the existence of which had been predicted by certain philologists but never confirmed archaeologically.

The circumstances surrounding the beginnings of this work are unclear. What is certain is that Sarzec showed perspicacity in understanding the importance of the site, and speed in beginning excavations with his own funds. In 1878, on his return to France, he submitted his findings to the Orientalist William Henry Waddington, then French Minister of Foreign Affairs, who in turn showed them to Léon Heuzey, curator at the Louvre. In 1881 Sarzec's collection, acquired by the French state, constituted one of the gems of the newly created department of Near Eastern Antiquities.

Despite the difficulties he experience – renewal of the long-refused *firman*, rebellious tribes, and so on – Sarzec, without archaeological training and guided from Paris by Heuzey, who had never visited the site, led 11 campaigns, uncovering many important finds, including thousands of tablets, dating from the period of the 1st Dynasty of Lagash (c.2600–2450 BC) to the end of the Neo-Sumerian era (c. 2000 BC). It was only in 1900 that, exhausted by the unhealthy climate

Figure 3.3 The brick pillars of Gudea at Telloh (after Sarzec 1884–1912: Pl. 52.2).

of the marshes of southern Iraq, Sarzec completed his final campaign of excavations at Telloh, before dying the next year. However, the exploration of Telloh continued for a time, from 1903 to 1909, under the energetic leadership of Captain Gaston Cros, whose soldierly qualities and experience acquired during several geographical expeditions in the Sahara allowed him to continue research, despite the hostile climate created by the revolt of the Muntafiq Arabs.

In fact, Sarzec was not the first to have explored southern Mesopotamia. In 1849, Loftus, for whom England created an Exploration Fund, visited and excavated Warka (Uruk), Tell al-Muqqayar (Ur), Senkereh (Larsa) and other sites. And John George Taylor, English consul at Basra, undertook soundings in the step-tower (*ziqqurat*) of Tell al-Muqqayar and explored the surrounding area in 1854 at Rawlinson's request. The results, however, were considered disappointing, so the arrival in Paris of news of Sarzac's discovery of the Sumerian civilization was met with enthusiasm and, as stressed by Hilprecht, launched the second period of excavations in Mesopotamia. But while only the French and English had been involved during the first period of excavation, from the 1880s onwards they had to reckon with the presence of American and German scholars as well.

In 1884, following a meeting of the American Oriental Society at which it was decided that America must follow the example of England and France, Catherine Wolfe financed an expedition which, for the first few months of 1885, undertook

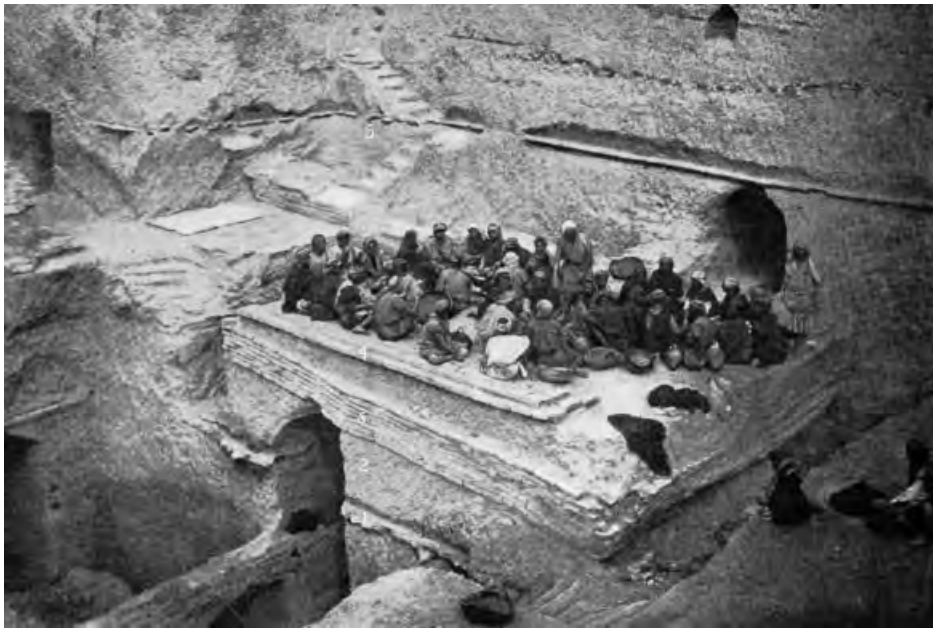

Figure 3.4 "Excavated section of the southeastern court of the Ziggurrat in Nippur" (after Hilprecht 1903: 377, opposite).

a methodical exploration of archaeological sites between Baghdad and al-Muqqayar. However, a mission was not established immediately, and it was only in 1888 that the Babylonian Exploration Fund was created, giving the Americans the financial means to establish themselves at Niffar (ancient Nippur). From 1888 to 1900 four campaigns were undertaken by the University of Pennsylvania, led first by John P. Peters, then by John H. Haynes, and finally by Herman V. Hilprecht (Figure 3.4), who also worked briefly at Fara (ancient Shuruppak) and Abu Hatab (ancient Kissura). At Niffar, not only did the expedition uncover a palace, tombs, and the building complex of the temple of Enlil, it also made important epigraphic discoveries, dating to a variety of periods. However, despite significant financial resources, the excavators failed to obtain the results they had hoped for, not only because of a lack of experience but also because of internal strife within the expedition.

In the final years leading up to World War I, only the Germans were fully active. After the premature closure of the Nippur excavations, the American presence continued for a time thanks to the excavations of Bismaya (ancient Adab), opened in 1903 by Edgar J. Banks and financed by the Oriental Exploration Fund of the University of Chicago. This work was terminated, however, at the end of 1904. For their part, the English, who from 1878 to 1882 with Rassam and from 1888 to 1891 with Ernest A. Wallis Budge had not only worked on

their old Assyrian sites, but also on other sites in Assyria and Babylonia – Balawat, Babylon, Nebi Yunus, Tell Daillam, Der, Birs Nimrud, Abu Habbah, and Tell Ibrahim, amongst others – left Mesopotamia permanently in 1905, after a brief return under the aegis of the British Museum to Kuyunjik, where the final pre-war excavations were led by L.W. King and R. Campbell Thompson. As for the French, after abandoning their excavations at Sippar, begun in 1894 by Father Vincent Scheil in the name of the Ottoman Imperial Museum, they were unable to find a successor to Gaston Cros to continue the work at Telloh. In 1912 there remained only the modest excavations at Al Uhaimir (ancient Kish), led by the Abbé Henri de Genouillac, which were terminated after a single season.

Although late in arriving, the Germans were remarkably active in in Mesopotamia from 1899 onwards. Until then, excavations had been led by more or less skilled amateurs and Orientalists without any particular archaeological knowledge, but, with the arrival of the Germans, Mesopotamian research became more professional.

Their first work commenced in 1887. On this occasion, Dr Bruno Moritz, with the assistance of Robert Koldewey, opened several trenches near Telloh, on the *tells* of Surghul and of al-Hiba, pre-empting the French, who were unable at the time to obtain authorization from the Ottoman government to recommence their excavations and who were worried that the Germans would usurp their place at Telloh. However, this first experience in southern Iraq did not immediately lead to further investigations. Already very active at the classical sites on the coast of Asia Minor, Germany was seemingly occupied in the pre-classical field by its excavations at Zincirli in Syria. However, after a trip to Mesopotamia (1896–8) by Eduard Sachau, professor of Oriental languages at the University of Berlin, a substantial mission to Babylon was organized in 1899 under the direction of Koldewey.

Unlike earlier excavators, Koldewey was a professional archaeologist. Apart from his training in both architecture and archaeology in Berlin and Munich, he had great practical experience, having worked at Assos, on Lesbos, and in Italy, Sicily, and Syria. As for Mesopotamia, in addition to his participation in the Moritz mission, he had accompanied Sachau on his trip and knew Babylon. Koldewey's work was to revolutionize Mesopotamian archaeology, as it was with him that the first methodological research was conducted. It was during the Moritz mission that he perfected his technique for the excavation of mudbrick architecture. He was also able to determine the existence of foundation trenches by observing differences in the color of the soil, a hitherto unknown technique. On his visit to Babylon in 1900, the French archaeologist Jacques de Morgan did not hide his admiration: "A distinguished architect and archaeologist, Koldewey leads the work, with the aim of finding the Babylonian fortifications. German militarism goes as far as archaeology. We have no reason to complain, as this well-led research brings results which we would surely not have thought to search for" (de Morgan 1902: 138).

With regular, if not generous, financial means provided by the Deutsche Orient-Gesellschaft (German Oriental Society, or DOG) – created in Berlin in 1898 under the patronage of the German Emperor Wilhelm II – and with a large team, the Babylon mission constituted a base which allowed the Germans to expand, first toward the north where, in 1903, the excavations of Assur began under the direction of Walter Andrae, previously an architect at Babylon. The Germans then headed south, to Warka (ancient Uruk) where, following a number of surveys carried out in 1902 and 1903 by Koldewey and Andrae, Julius Jordan, also a Babylon veteran, began excavations in 1912. On this occasion, a preliminary examination was performed not only Warka, but also of Birs Nimrud (Borsippa), Fara, Abu-Hatab, where some excavations were carried out, Larsa, Id, Jokha (Umma), Hammam, Bismaya, where the Americans had established a base for a brief exploration, and elsewhere. The only German mission not affiliated with the Babylon team and the DOG was that of Ernst Herzfeld at the Islamic city of Samarra. This was supported by the German government and various institutions from 1912 to 1914. And thus Mesopotamia became a center for German research in the Near East in the lead-up to World War I. It was not the only one, however. German archaeologists were also very active in Palestine.

6 Palestine

For centuries, European travelers had taken the Palestine route, and the period preceding the 19th century had witnessed an abundance of explorations and publications. But it was in the middle of the century that the first scientific studies began, with some scholars actively exploring the sites of the Holy Land. From 1850 to 1851, and again in 1863, Félicien de Saulcy carried out several excavations and surveys. Although the scientific merit of his work may be contested, he was a pioneer in Palestinian archaeology thanks to his excavation of the so-called "tombs of the kings" near Jerusalem. Above all, in 1868, the great French Orientalist Charles Clermont-Ganneau, at the time translator and First Secretary of the French consulate in Jerusalem, discovered the stele of Mesha, king of Moab. From then on, Palestine became Clermont-Ganneau's chosen domain, and he even explored it under the aegis of the British Palestine Exploration Fund (PEF), from 1873 to 1874.

Beginning in 1865, when the PEF was created in London, Palestine became an arena of British and American scientific predominance, marked by the work of the English Egyptologist William Matthew Flinders Petrie, the American Frederick Jones Bliss, and the Irish scholar Robert Alexander Stewart Macalister. In 1890 the arrival of Petrie, who had acquired significant experience as an excavator on numerous sites in Egypt, was a turning point for research in the region. At Tell el-Hesi he conducted an important stratigraphic excavation and undertook a meticulous study of the ceramics. Later, Bliss, Petrie's successor at Tell el-Hesi,

until 1900 – when he and the PEF went their separate ways – both explored the Ophel in Jerusalem, in collaboration with architect Dickie Archibald, and, with Macalister's assistance, continued the exploration of sites in southern Judah, including Tell Zakariya (Azekah), Tell el-Safi, Tell el-Judeideh, and Tell Sandahanna (Mareshah). After becoming head of the PEF, Macalister excavated Gezer, originally identified by Clermont-Ganneau in 1871, from 1902 to 1909.

At the turn of the century, improvement in Germany's political relations with Austria on the one hand and Turkey on the other, along with the debate in Germany about the historicity of biblical narratives – the so-called *Bibel und Babel* question – spawned the excavations in Palestine so desired by German and Austrian scholars. As in Mesopotamia, the German presence made itself felt, but here it had a less hegemonic character. Thus, the geographical/topographic description of the Holy Land, commenced by the English under the direction of Captain C.R. Conder and Lord H.H. Kitchener, then a lieutenant, was completed in the regions to the east of the Jordan river by the Germans. In particular, the engineer and archaeologist Gottlieb Schumacher, while preparing the construction of the Damascus-Haifa railway, provided the first maps and detailed descriptions of archaeological sites in the Hauran, the Golan Heights and the district of Ajlun.

Thanks to financial support from a number of sources – the Imperial Academy of Vienna, the Austrian Ministry for Public Instruction, the Deutsche Palästina Verein (German Palestine Society, DPV) and the DOG – German and Austrian scholars embarked on some ambitious projects. Beginning in 1901 and continuing until 1904, the Austrians, represented by Ernst Sellin, a professor at the University of Vienna, with the assistance of Schumacher, made significant surveys at Tell Balatah (Shechem) and Tell Tannek. Finally, from 1907 to 1909, Sellin, along with Carl Watzinger, commenced work at Jericho (Figure 3.5), in a joint mission with the Germans who, for their part, excavated Tell el-Mutesellim (ancient Megiddo) under the direction of Schumacher, from 1903 to 1905, supported not only by the DPV, but also by the DOG and Kaiser Wilhelm II.

Nor were the Americans inactive. In 1908 a mission from Harvard University was initiated at Sebaste. Although the excavations were originally led by Schumacher, in 1909–10, it was the great Egyptologist George Andrew Reisner and the Semitist David Gordon Lyon, with the assistance of the architect Clarence Stanley Fisher, who explored ancient Samaria. Only the French held back, and the country's archaeological presence in the region would have been negligible in the run-up to the war were it not for the efforts of the Dominicans of the École biblique in Jerusalem.

7 Anatolia and Northern Syria: The Search for the Hittites

At the start of the 20th century, one civilization remained shrouded in mystery: the Hittites, whose realm extended from central Anatolia to northern Syria. The

Figure 3.5 The northwest tower of the EB III city walls at Jericho, excavated (after Sellin and Watzinger 1913: Pl. 6a).

period of the great explorations, which followed that of the reconnaissance trips with the first descriptions of monuments made in 1834 by the Frenchman Charles Texier and the first pictures made in 1860 during the mission of Georges Perrot in Galatia and Bithynia, commenced tentatively between 1893 and 1894 with Ernest Chantre. In the Hittite heartland, Chantre undertook the first surveys at Boğazköy, Yazilikaya, Alaça Höyük, and Kara Höyük. However, at the end of the 19th century, although research in this field intensified, it was mainly due to the efforts of the English and Germans.

In 1888 the Germans, backed by the German Orient-Comité, opened their first great pre-classical excavations in northern Syria at Zincirli (ancient Sam'al), capital of a small Aramaean kingdom, the indigenous population of which was similar to the Hittites. Carl Humann, Felix von Luschan, and Robert Koldewey continued working there until 1902. But it was in 1906, while undertaking large-scale excavations at Boğazköy, that Hugo Winckler, on behalf of the DOG, and Theodor Macridi Bey, representing the Ottoman Imperial Museums – he also excavated the neighboring site of Alaça Höyük – revealed the site of Hattusha, ancient capital of the Hittite empire, making significant architectural and epigraphic discoveries. English scholars too, like William Mitchell Ramsay, William B.A. Wright, and Archibald H. Sayce, made important contributions to the field

Figure 3.6 The Lion Gate of Boğazköy during the excavations of 1907 (after Garstang, 1910: Pl. 60).

between 1880 and 1895. In 1907 and 1911 the Liverpool Expedition led by John Garstang (Figure 3.6) uncovered the remains of a palace and fortifications at Sakçegözü, near Zincirli. As for the mission organized in Anatolia by Cornell University (1906–7), its exploration of the regions of Ankara and Konya resulted in the collection of a large number of documents from the Hittite domain.

Finally, on the eve of war, the English and the Germans met along the Berlin–Baghdad railway (*Bagdadbahn*), where they contributed to the resurrection of the Aramaean and Neo-Hittite cities of northern Syria. In 1899, Baron Max von Oppenheim, diplomat and archaeologist, camping at less than 2 kilometers from the railway line, commenced the excavations of Tell Halaf (Guzana), to which he returned from 1911 to 1913 with a sizeable team, including the architect Felix Langenegger and Karl Müller, students of Koldewey. In 1911, David George Hogarth recommenced the excavations of Jerablus (Karkamish), a site known for some time by travelers and briefly explored in 1879 by Patrick Henderson, British Consul in Aleppo, under the aegis of the British Museum. Direction of the excavations passed quickly to R. Campbell Thompson, then to C. Leonard Woolley, assisted by Thomas Edward Lawrence (Lawrence of Arabia), who closed the excavations in the spring of 1914. Thirty years later André Parrot wrote of these two missions:

> Although the Andrae expedition explored Assur, two other sites opened almost simultaneously, further west, one at Tell Halaf, at the Khabur springs, the other at Karkamish on the bank of the Euphrates. It is not without interest to point out that political preoccupations were clearly not uninvolved in the choice of these two sites, both near to the *Bagdadbahn*, then under construction. The English and the Germans both had a particular interest in the creation of this modern long-distance rail-link toward the Persian Gulf and India. It was no surprise at all therefore to find, in these truly strategic positions, Max Freiherr von Oppenheim and T.E. Lawrence. (Parrot 1946: 234–5)

8 Research in the Persian Empire

Travels on Persian soil, as in the Ottoman Empire, increased dramatically in the early 19th century. Here the English were very active, as political conditions were favorable to them. The failure of the mission of General Gardane, sent in 1807 by Napoleon I to meet Fath Ali Shah, cleared the way for England's political agents, some of whom were interested in antiquities. At a time when excavations were beginning in Assyria, Rawlinson had been engaged since 1836 in copying and deciphering the trilingual rock inscription of Darius I at Bisotun, and Layard was visiting the Bakhtiyari tribe.

The French returned to Persia only briefly. First came the engineer Charles Texier (in 1838), followed by the architect Pascal Coste and the painter Eugène Flandin (in 1839–41), who accompanied the diplomatic mission of the Count of Sercey. While excavations commenced in Assyria in 1842, the time for Persia was yet to come, even if Flandin and Coste stayed at Persepolis for two months, where they undertook a great number of soundings in order to better understand the architecture there. Finally, if at this date the archaeological remains of Fars were reasonably well known, Susa, which was isolated in the remote province of Khuzestan, remained practically unknown.

The English – Rawlinson and Layard, to name but two – were the first to visit the ruins of Susa, and the first to explore them. In 1851, as part of the British commission to settle border disputes between the Ottoman Empire and Persia, William Kennett Loftus made a first reconnaissance of the site in the company of Colonel W.F. Williams. From 1853 to 1854, Loftus conducted excavations there and uncovered a building with columns – the *apadana* – constructed by Darius I (522–486 BC) and rebuilt by Artaxerxes II (404–359 BC). In his *Travels and Researches in Chaldaea and Susiana* (1857), Loftus published a plan of the site and the palace with interesting commentary. However, these excavations were prematurely interrupted. On the one hand, Loftus was the victim of the hostility of the local population, who were alarmed by research near the tomb that was said to contain the remains of the prophet Daniel. On the other, Rawlinson, who was also supervising the excavations at Susa, seemed to be disappointed by the results. And thus Loftus left Susiana to continue excavations in Assyria. It was

only 30 years later that large-scale work restarted on Persian territory, this time at the initiative of the French. In the meantime, Franz Stolze, who, in 1874, joined a German astronomical mission, visited a number of sites in Fars, including Pasargadae and Persepolis, in the company of Friedrich Carl Andreas, producing an important volume with numerous photographic plates.

Marcel and Jane Dieulafoy were important French travelers in Susiana. Dieulafoy, an engineer of the French office of roads and bridges, was passionate about oriental art and its links to the Occident. In 1881 he left for Persia to study, among other things, the remains of the Sasanians. His wife Jane became both photographer and chronicler of the expedition and her account of their expedition (Dieulafoy 1887), launched her career as a writer. During his visit to Susa, Marcel Dieulafoy recognized the importance of the site. On returning to Paris, he worked to obtain funding from France and permission from Persia to begin excavations at Susa. Before leaving, he wrote *L'Art antique de la Perse* (1884–9) in which he laid out the results of his first visit to Persia.

From 1884 to 1886, two campaigns of excavations were undertaken at Susa, with significant difficulties, as told by Jane Dieulafoy (1888). During the first campaign, Marcel led work across the entire site before concentrating in the second campaign, because of a lack of funds and time, on the *tell* of the Apadana, where Loftus had previously worked. Despite difficult working conditions and the shortness of time, the results were spectacular. The remains of the palace of the Persian kings – including the monumental capital of an Achaemenid column and parts of the glazed relief brick panel of the guards – were sent to Paris, where they constituted the centerpiece of the Susa collections in the Louvre. In 1893 Marcel Dieulafoy published *L'Acropole de Suse*, and although his conclusions inspire little confidence, his qualities as a traveler earned him great scientific renown. But even though Dieulafoy had attracted the attention of the scholarly world to Susa, it was Jacques de Morgan – geologist, prehistorian, linguist, and numismatist, and passionate about natural history – who demonstrated its full scientific importance, beginning in 1897.

De Morgan is surely the greatest French explorer of Persia, having carried out research from the banks of the Caspian Sea to the Persian Gulf. A long stay in Armenia, where he worked as a mining engineer, allowed him to indulge his passion for archaeological research, publishing the results in his *Mission scientifique au Caucase* (1889). From 1889 to 1891 he undertook a major geographical, geological, archaeological, ethnographic, and linguistic mission, exploring the regions of the Caspian, Kurdistan, and Luristan, and finishing at Susa. Published in his *Mission scientifique en Perse* (1894–1905), the results were considerable.

De Morgan not only realized Susa's scientific importance, he also collected information for the French legation in Tehran aimed at reserving the site for French researchers, despite the blunders of the Dieulafoy mission. Finally, after 10 years of protracted negotiations, in 1895 Nasr ed-Din Shah granted France a monopoly on excavation throughout Persia. In 1900, the agreement was

Figure 3.7 The Apadana and château at Susa (Archives du département des antiquités orientales, Louvre Museum, 2694).

replaced by a new treaty, signed by Mozzaffer ed-Din Shah on his visit to Paris, confirming the monopoly and conceding to France all discoveries made in Susiana. It was in this context that the Délégation Scientifique Française en Perse (DSP) was created in 1897. De Morgan, then Director of the Antiquities in Egypt (1892–7), resigned his post and became Director of the Délégation.

In de Morgan's view, Susa had to be the Delegation's center of activity (Figure 3.7). Like Dieulafoy, he had been impressed by the site from his first visit, but, unlike his predecessor it was less the Achaemenid Persian remains that interested him than the "lost story of Elam." In addition, at the base of the Acropolis, the presence of flaked stone tools – which he attributed to the prehistoric period – led him to hope that at Susa he might find clues to the origins of Egyptian civilization. Outside Susa, de Morgan hoped to extend the activities of the Delegation across Persia, and thus he organized several archaeological trips and various scientific surveys. In 1901 and 1911 he traveled through the Talesh region near the southwest coast of the Caspian Sea, while from 1902 to 1903 Joseph-Étienne Gautier and Georges Lampre explored, to the northwest of Susa, the *tells* of the Deh Luran plain, such as Tepe Musiyan. Soon, however, de Morgan dedicated all his efforts to the investigation of Susa.

Thanks to the Susa excavations, the scientific contribution of de Morgan and his colleagues – in particular Father Scheil for the texts – was considerable. Not only was the Elamite civilization finally revealed but, beginning already in the first excavation, important Babylonian monuments from various periods were discovered – like the stele bearing the famous law code of Hammurabi – that had been seized as booty in Mesopotamia during campaigns by Elamite kings in the 12th century BC (Ch. I.2). However, these results were not sufficient. Controversial both in his management of the Delegation and in his scientific decisions, and tired by many years in the Orient, de Morgan resigned in October 1912, bringing an end to the DSP.

For the 15 years of the DSP, de Morgan had been unable to obtain funding commensurate with the privileged concession obtained by the French, and thus he had concentrated his resources at Susa. Yet, by doing so and by virtually ignoring the rest of the country, France accentuated the unfairness of a contract which excluded foreign researchers from Persia, even if, in 1905, the German scholar Ernst Herzfeld was able to visit Pasargadae, prior to the start of the excavations which he undertook after the war. Following de Morgan's resignation, the creation of two new missions, one at Hamadan and the other at Bandar Bushehr, led by Charles Fossey and Maurice Pézard respectively, and of the Mission archéologique de Susiane, jointly led by Father Scheil and Roland de Mecquenem, reflected the French desire to diversify and extend French research in Iran on the eve of World War I.

De Morgan's archaeological research was often criticized later. His method of excavation, which he himself described as "industrial," and his ignorance of that used by others – Petrie in Palestine, Koldewey and Andrae at Babylon and Assur – contributed to the diminution of the scientific value of his work, even though it was quickly made available to scholars through the series *Mémoires de la Délégation en Perse* (1900–12). However vulnerable to criticism his excavation method was, his scientific method, which pushed him from his early years to attach to his own projects scholars from various disciplines, associating archaeology with all the sciences capable of contributing something to the explanation of the evolution of mankind, was a harbinger of the multidisciplinary archaeological research of the future.

9 Conclusions

When World War I broke out, major excavations were still under way, both in the Ottoman Empire and in Persia. However, only the German mission at Babylon remained active, staying on until 1917, at which point it left suddenly, ahead of the advance of the British army in Mesopotamia, thus bringing an end to 18 years of solid exploration.

In three-quarters of a century, many sites presumed to be rich had been examined, if not excavated. Having begun with excavations, the primary goal of which had been the discovery of museum objects, English archaeologists realized the need for stratigraphic observation, and at the turn of the century, thanks to German architects, archaeologists moved toward the systematic excavation of ancient architecture.

In 1914, England and France, having been responsible for the first phase of research, had not only shown the way to America and Germany but also, particularly in the case of France, allowed themselves to be surpassed by the latter, which approached large sites like Babylon and Assur with a large and highly qualified staff. Only Persia remained a hunting-ground still reserved – albeit for only a short time more – for France.

GUIDE TO FURTHER READING

For the early French excavations in Assyria see, e.g., Fontan and Chevalier (1994). Another good resource on early work in Assyria is Larsen (1996). Some of the same subject matter, along with a review of early British, American, and German excavations in southern Mesopotamia, is found in Lloyd (1980). The early explorations of Loftus at Susa in the mid-19th century are discussed in Curtis (1993). The most recent account of excavations at Susa from the first half of the 19th century to 1968 can be found in Chevalier (2010). For the history of the earliest excavations at Hittite sites, see Garstang (1910). Readers wishing to enjoy a pleasant presentation of Oppenheim and his excavations at Tell Halaf should consult Cholidis (2002). Similarly, Wartke (2005) is an account of early work at one of the major Neo-Hittite cities of northern Mesopotamia. Hilprecht (1903) provides a very helpful overview of early research in Mesopotamia, Palestine, and Arabia from the late eighteenth to the turn of the 20th century. Parrot (1946) is also an excellent resource on the history of Mesopotamian archaeology until the mid-20th century. For more on the history of exploration in Arabia, see Hogarth (1904). For the history of biblical archaeology, see Tubb and Chapman 1990 and Moorey (1991b). Trümpler (2008) is the beautifully illustrated catalogue of an exhibition on archaeology and its relationship to politics and colonialism from 1860 to 1940.

CHAPTER FOUR

The Foundations of Antiquities Departments

Peter Magee

The development of antiquities authorities, or the formal legal control over who excavates where and what happens with the resultant finds, stands as a proxy for broader issues of colonialism, nationalism, and self-determination that characterize much of the Middle East from the middle of the 19th century until the present day. There are several trends that are common throughout the region and, at the same time, the individual trajectories of many countries in the recent past highlight specific historical and cultural factors that have contoured the legal codification of archaeology and cultural heritage.

That the colonial antiquity-gathering practices of European powers still resonate today is no more clearly illustrated than in Egypt, the first country on which this review will focus. Currently, the Supreme Council of Antiquities of Egypt lobbies at both a diplomatic and a public level for the return of Egyptian antiquities that are held in western museums, including the Rosetta Stone in the British Museum, the bust of Nefertiti in the Ägyptisches Museum Berlin, and several artifacts in the Louvre in Paris.

In many ways, the current actions of the Supreme Council in demanding the return of these antiquities reflect long-standing tensions between the European removal of antiquities in Egypt throughout the nineteenth and early 20th centuries, and the resurgence of Egyptian nationalist sentiment and interest in the Pharaonic past that began at the turn of the 20th century. Until 1858, when a formal antiquities service was established, European powers had acted almost without restraint in the excavation, removal, and export of Egyptian antiquities

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Edited by D.T. Potts.

to museums and private collections in their homelands. There had been few attempts by local rulers to stem this tide, the exception being in 1835 when the then ruler of Egypt, Muhammad Ali Pasha al-Mas'ud ibn Agha, or Muhammad Ali, decreed that a national museum should be established and that a ban on the export of antiquities be enacted. For Muhammad Ali, the establishment of a National Museum in Cairo was of particular importance and would have placed Egypt alongside European powers in the cultured interest in antiquities: "It is well known," he observed, "that the Europeans have buildings for keeping antiquities; stones covered with paintings and inscriptions, and other similar objects are carefully conserved there and shown to the inhabitants of the country as well as to travelers . . . such establishments bring great renown to the countries which have them" (Reid 2002: 56).

Neither of Muhammad Ali's attempted reforms of antiquities law took hold. In part, European agents and diplomats simply refused to alter their behavior because of his decrees. At the same time, Muhammad Ali continued to drive the commodification of ancient Egyptian culture in Europe by agreeing to the export of obelisks, such as the one which now sits in the Place de la Concorde in Paris. Muhammad Ali's commitment to industrializing Egypt also resulted in the continued destruction of Egypt's cultural heritage: saltpeter factories were constructed, in part, from the blocks dynamited from Karnak's ninth pylon (Reid 2002: 50–60).

Auguste Mariette became the first director of the Egyptian Antiquities Service on June 1, 1858. Orchestrated by the French consul-general, Raymond Sabatier, and encouraged in the move by Napoleon III, Mariette became the Directeur des monuments historiques de l'Egypte et du Museé. In many ways this marks the formal beginning of the Egyptian Antiquities Service but by no means can Mariette be considered a scientific archaeologist – even by 19th century standards. His appointment meant that he had a complete monopoly on excavating in Egypt, comparable to that which France achieved in Iran around the same time (see below and Ch. I.3). Other Europeans were forbidden to excavate and Mariette organized huge labor forces, essentially to plunder archaeological sites for antiquities. His ban on the export of antiquities without a permit did, however, stem the flow of antiquities to some extent, but two more obelisks were exported during his tenure: one now sits on the Embankment in London; the other is in Central Park in New York.

Gaston Maspero succeeded Mariette in 1881. For the next 30 years he and other Frenchmen dominated the directorship of the Antiquities Service even though the French monopoly on fieldwork was gradually lost as other European powers wrestled a foothold in Egypt. The arrival of the British in 1882 and their occupation of the Qasr al-Nil barracks in Cairo (which they held until 1948) was swiftly followed by the arrival of the Egypt Exploration Fund and Sir Flinders Petrie. Maspero's successors – Grébaut (1886–91), de Morgan (1892–7), and Loret (1897–9) – led a service that was increasingly drawn into the political

and diplomatic wrangling over foreign control of Egypt. In today's diplomatic world, it might seem odd that antiquities and archaeology could be viewed as another resource over which foreign powers would clash, but, as Reid (2002: 180–90) has convincingly demonstrated, control over the export of Egyptian antiquities and their presentation in national museums was an integral part of western colonial activity and prestige.

Anglo-French tension over control of Egypt was resolved after the diplomatic resolution of the Fashoda incident of 1898, when Britain and France nearly came to blows over the delimitation of their respective spheres of influence in Africa. Soon after, however, new imperial powers made their presence increasingly felt in Egypt and in each case archaeological fieldwork and the acquisition of antiquities played a major role. The Germans, Italians, and Americans were all engaged in fieldwork in Egypt from the end of the 19th century onwards.

Although the French maintained hegemony over the Antiquities Service itself, the interplay between the authority invested in this formal government department and the activities of "foreign" teams (of course, the French were foreign too) mirrored larger European colonial concerns. From this perspective, it is appropriate to see the establishment of a formal antiquities service in Egypt as very much a relic of its colonial occupation. However, increasing nationalism in Egypt and elsewhere soon transformed these authorities from a proxy for inter-colonial disputes to one that more broadly reflected the desire for national independence.

In the late 19th century, Egyptian intellectuals like Ahmed Kamal (1851–1923) played an increasingly important role in the investigation of Egypt's ancient past. Not only did he contribute numerous entries to the *Annales du service des antiquités de l'Égypte*, he also played a vital role in educating the Egyptian public about its own ancient past. He achieved this principally through Arabic translations of French works and public lectures. In 1910 the Ministry of Education approved his plan to teach Egyptology in the Higher Teachers College. There can be little doubt that, through these actions, he ensured that an increasing number of Egyptians became aware of Egypt's glorious past, but also saw the injustice in Europeans controlling its physical remains. As Mustafa Kamil, the founder of the National Party, declared in 1907: "We do not work for ourselves, but for our homeland, which remains after we depart. What is the significance of years and days in the life of Egypt, the country which witnessed the birth of all nations, and invented civilization for all humankind" (quoted in Hassan 1998: 204).

The promise of newly found freedom which World War I and the dismantling of the Ottoman Empire brought was soon lost, however, as the people of the Middle East realized that Ottoman political control was to be replaced by European colonial rule. In Egypt, 1919 brought the arrest of Saad Zaghloul and other nationalist leaders by the British, who also stormed al-Azhar mosque during a nationalist protest. That an understanding of and a longing for Egypt's antiquity played a role in nationalist resistance is no more clearly illustrated than by the

Pharaonic character of Saad Zaghloul's mausoleum (Hassan 1998). The 1919 revolution resulted in greater independence for Egypt, but the Antiquities Service remained under French control until 1952. During these decades, however, increasing legal controls and enforcement ensured that the removal of Egyptian antiquities and trading in antiquities were to become, largely, a thing of the past.

The period following World War I was also critical in the development of antiquity authorities elsewhere in the Middle East. In 1919, the British were given the mandate for Iraq, the two previous Ottoman provinces of Baghdad and Basra, and declared a new country for this region in 1921. Mesopotamia had long been of interest to European explorers and archaeologists because of its biblical connections. In much the same way as they had done in Egypt, Europeans removed large numbers of antiquities during the 19th century under cover of their diplomatic presence in Ottoman lands. The British diplomat, Sir Austen Henry Layard (1817–1894) had plundered the Neo-Assyrian capital of Nimrud and arranged for the shipment of antiquities, including two colossal *lamassu* statues, to the British Museum. Paul-Émile Botta (1802–70), who acted as French consul in Mosul, did the same to the Assyrian reliefs and statues at Khorsabad, which are now in the Louvre. Not all of these antiquities were, however, successfully transported to Europe: some were lost on a barge that sank in the Tigris in 1855 (cf. Ch. I.3).

By the 1860s the Ottoman government had realized the importance of exercising some control over the removal of antiquities from the areas over which it claimed political control. Since the 1860s, a *firman* (letter of permission) had been a requirement for conducting excavations and this was supposed to be renewed on a yearly basis. By the late 1860s, and with the founding of the Imperial Museum in Constantinople, new regulations were required. In 1874, Anton Philip Déthier, then Director of the Imperial Museum, issued the new law. It was written "in response to the insufficiency of the decree concerning antiquities that was established in conjunction with the institution of the Imperial Museum, and . . . that for some time inside of the [empire] people of various countries have been collecting attractive and rare works the protection of which needs to be kept in mind" (Shaw 2003: 89). The law, therefore, addressed the continued removal of antiquities but it did so in a fashion that could not be considered too onerous upon the excavators or their European backers:

> Wherever antiquities are undiscovered (lying upon the ground), they belong to the state. . . . As for the antiquities that are found by those with research permission a third belongs to the excavator, a third to the state treasury, and a third to the landowner. If the excavator and the landowner are the same, this person will receive two-thirds of the finds and the state shall receive one-third. . . . The division of antiquities will occur according to the desire of the state and according to the nature or the value [of the finds]. . . . The state is responsible for the preservation of sites that cannot be moved and for the appointment of an administrator to such sites. (Shaw 2003: 90–1)

Over the next 10 years, the regulations became increasingly strict, as it became clear that the 1874 law did not adequately ensure the control of Ottoman power over antiquities. After the appointment of Osman Hamdi Bey as Director of the Imperial Museum in 1881, new legislation was crafted and in 1884 a law was issued which purposefully dealt with the failings of earlier legislation in controlling the flow of antiquities. That the new law did have some effect is indicated by the fate of Edgar James Banks, who had been granted permission to excavate at Adab in Iraq but had been caught trying to smuggle antiquities out of the country. He was banned from further excavation and fired by the University of Chicago (Gibson 2010). In the following decades, individual instances of Ottoman administrators blocking the export of legally obtained antiquities also occurred in the case of Robert Koldewey's excavation at Babylon (below) and Max von Oppenheim's excavations in Syria (see below). In general, however, the 1884 law did not stem the flow of antiquities from the Middle East. The Ottoman Empire was simply too large and increasingly fragmented to ensure its enforcement. As Gibson (2010: 32) has commented, it is clear from the documents of the University of Pennsylvania's excavations at Nippur between 1888 and 1900 that foreign scholars working in Iraq at the time thought little of buying antiquities on the market and clandestinely shipping them back home. Antiquities could still also be legally exported if a license could be obtained from Osman Hamdi Bey, and the means by which this was achieved seem to have been quite varied. As Ousterhout has noted: "The University of Pennsylvania sought Osman Hamdi Bey's favor by flattering him as an artist and offering to purchase his oil paintings. *At the Mosque Door* cost Penn 6,000 French Francs, but the purchase helped to secure the export permit for artifacts from Nippur" (2010: 18). The German-born professor at the University of Pennsylvania at the time, Hermann Hilprecht, was a key figure in these negotiations, which resulted in 17,000 of the approximately 35,000 tablets excavated at Nippur being exported to Philadelphia (Schmidt 2010).

The German expedition to Babylon (1899–1917) brought with it new rigor in excavation standards and recording, and the excavations at Babylon, Assur, and Samarra brought to light a wealth of antiquities that revealed much of Iraq's prehistoric and historic past. Some of the resultant discoveries, such as parts of the Ishtar Gate, were exported to Berlin and Istanbul under a special export license that Koldewey had obtained from the Ottoman authorities. However, in 1905 the Ottoman authorities forbade the export of any more antiquities after Koldewey clashed with the Istanbul Museum representative Bedri Bey (Crüsemann 2000: 202–3). A total of 536 crates were left in Iraq. Geopolitics, war, and the end of Ottoman control in Iraq were to play a decisive role in the eventual distribution of some of these spectacular finds. The British discovered many of these crated antiquities when they entered Babylon after World War I, while others were intercepted on a boat at Lisbon. That British control over Iraq and the creation of a new antiquities authority might result in the repatriation of these

artifacts was a forlorn hope: the material was divided amongst European and North American museums, with the British Museum and the Berlin Museum received the most prized pieces (Bernhardsson 2005).

The figure of Gertude Bell (1868–1926) looms large in any discussion of post-World War I Iraq and its antiquities. Prior to World War I, Bell had traveled extensively throughout the Middle East and had visited archaeological sites in Syria and Arabia. During World War I she was summoned to the Arab Bureau in Cairo and in 1915 was sent to Basra once the British had secured it from the Ottoman army. Bell's knowledge of the region was invaluable to the British occupation forces and she was appointed Oriental Secretary in Baghdad. During the 1921 Cairo Conference, she argued for the establishment of Hashemite rule over Jordan and Iraq by Kings Faisal and Abdullah, the sons of Sayyid Hussein bin Ali, the instigator of the Arab Revolt.

Given her knowledge of archaeology and the cultures and languages of the Middle East, Bell was in a prime position to establish the first Iraqi Antiquities Service in 1922. The following year she founded the Iraq Museum, with Abdul Qadir al-Pachachi as its first Director. At the same time, she helped establish the first comprehensive Iraqi antiquities law. Numerous (British) scholars also played a key role in the formulation of the law. Some, such as Sir Frederic Kenyon at the British Museum, argued that a division of antiquities at the end of each excavation was a necessity to encourage foreign expeditions while at the same time acknowledging the importance of distancing themselves from the 19th century plunder of Iraq's heritage.

Regardless of motivation, the British were compelled by the 1922 Anglo-Iraq Treaty to enact an antiquities law. Article 14 of the Treaty stipulated the creation of an antiquities law "within twelve months of the coming into force of this treaty, and to ensure the execution of a law of antiquities . . . This law shall replace the former Ottoman Law and shall ensure equality of treatment in the matter of archaeological research to the nationals of all states" (Bernhaddson 2005: 116). This clause was more broadly related to the outcomes of the earlier 1920 Mandate Charter for Iraq. In other words, the legal requirement for an antiquities law had been established some years before Bell's appointment as Director of Antiquities. Nevertheless, and as noted by many scholars since, Bell very much saw the antiquities law as her personal project. She wrote to her father on July 20, 1922:

> Today the King ordered me to tea and we had two hours most excellent talk. First of all I got his assistance for my Law of Excavations which I've compiled with the utmost care in consultation with the legal authorities. He has undertaken to push it through Council – he's perfectly sound about archaeology – having been trained by T.E. Lawrence – and has agreed to my suggestion that he should appoint me, if Sir Percy consents, provisional Director of Archaeology to his Govt, in addition to my other duties. I should then be able to run the whole thing in direct agreement with him, which would be excellent. (Bell n.d.: Letter 566)

Although now widely regarded as an important first step in protecting cultural heritage, the passing of the law itself was not without controversy. According to his memoirs, Sati al-Husri (Baram 1994: 282), the Assistant Minister of Education, opposed the initial legislation because he thought it was too easy for foreign teams to export antiquities. According to al-Husri, Bell was annoyed by this and arranged, through a direct appeal to King Faisal, to have the antiquities department transferred away from Ministry of Education. Although these events are not widely reported in discussions of Bell and her time in Iraq, they may provide important insight into the growing relationship between Arab nationalism and cultural heritage which were to surface a decade later when al-Husri assumed the directorship of antiquities and British scholars retreated from research in Iraq.

The provision for a division of antiquities between foreign projects and the National Museum remained one of the controversial aspects of the legislation. The 1920s and 1930s was a golden period for Mesopotamian archaeology: British and American research (sometimes joint) at Ur and in the Diyala brought forth spectacular remains of the Early Dynastic period. The Royal Graves of Ur, excavated by Sir Leonard Woolley, were perhaps the most famous of these discoveries. The headdresses and other items made of gold and semi-precious stones were split between the British Museum, the University of Pennsylvania Museum of Anthropology, and the Iraq Museum. There is no doubt that the division of this material hampered a complete analysis of it in the decades following its excavation. Nevertheless, when viewed within the spirit of the antiquities law, the division ensured that the Iraq Museum grew to be one of the most important in the Middle East.

Gertrude Bell died in Baghdad in 1926. Her successors as Director of Antiquities were R.S. Cooke (1926–9), Sidney Smith (1929–31) and Julius Jordan (1931–4). These men were to witness increasingly tense relations develop surrounding the ownership and maintenance of Iraq's cultural heritage. As in Egypt a few years earlier, rising nationalist sentiment began to focus on the continued removal of antiquities by western archaeologists. The discovery of the Royal Graves of Ur in 1927 added to the tension, and a British government report of 1929 stated that the Iraqi press "sometimes published, and private conversation continually employs, statements that the Iraq Museum contains objects of only inferior value and the best objects are allotted in the divisions to foreign expeditions . . . it is commonly said that the gold objects in the Museum are not genuine" (Bernhardsson 2005: 147). To add to the tension, during his tenure, Cooke became embroiled in an antiquities smuggling affair with the American archaeologist and excavator of Nuzi, R.F.S. Starr (Gibson 2010).

By 1929, widespread illicit digging was being noted in Iraqi government and British administration reports (Gibson 2010). This continued into the early 1930s and there is a sense in the writings of the Director of Antiquities Julius Jordan that the achievements of the 1924 law and Bell's tireless efforts to protect Iraq's cultural heritage were unraveling (Bernhardsson 2005: 157). At the same time, the continued division of antiquities from legal projects continued. One

such division occurred in 1929 when Edward Chiera was excavating the Neo-Assyrian capital of Khorsabad. In early April he discovered a colossal *lamassu* (human-headed, winged bull statue) similar to those that Botta and Layard had arranged to be shipped to Britain and France 70 years earlier. He cabled Chicago and asked them if it were possible to find funds for the removal of the statue. The response came that the funds would be found and that the *lamassu* should be requested at the division of antiquities. The Iraqi Antiquities Service agreed to the request, which, in many ways, would seem contrary to the spirit of the 1924 law that was designed to ensure that the large-scale removal of antiquities did not happen again.

In 1932 Iraq became independent from Britain. The British maintained an active role in Iraqi archaeology through the establishment of the British School of Archaeology in Iraq, which, according to its current charter, was established "as a memorial to the life and work of Gertrude Bell." However, the days when foreign expeditions dominated archaeological research and were able to export large quantities of antiquities were coming to a close. Increasingly, Iraqi public sentiment viewed the division of antiquities as a practice that was detrimental to the country's own interests. A 1933 editorial in *Sawt al-Iraq* summed up the public mood of a newly independent nation: "May we throw a glance at our small museum and compare its contents with the objects unearthed in this country which have found their way into museums which have been sending expeditions into this country and find out whether our share has been a fair one or otherwise?" (Bernhardsson 2005: 164).

In 1934, Sati al-Husri, who 10 years earlier had argued against the adoption of Bell's antiquity law, was appointed as the first non-western Director of Antiquities in Iraq, a position he held until 1941. He retained the outgoing Director, Julius Jordan, as an adviser and in 1939 replaced him with a Briton, Seton Lloyd. Although not an archaeologist, al-Husri was not unfamiliar with the administrative complexities of cultural heritage management. As noted above, as a senior member of the Department of Education in the 1920s – and a staunch nationalist – Husri had resisted aspects of Bell's influence and dealings with foreign archaeological teams.

Al-Husri's background in education, his deep knowledge of both Arab and European intellectual traditions, and his staunch Arab nationalism steered the antiquities department in a different direction. Public education and control over Iraq's cultural heritage was paramount and until a new law could be drafted which achieved these goals, al-Husri ensured that the letter of Bell's earlier law was followed, so that the spirit correlated with the new sense of Iraqi national pride. According to a letter sent by Henri Frankfort to James Henry Breasted, Director of the Oriental Institute (Chicago), on February 22, 1935, the following conversation ensued during al-Husri's first division at the critically important Early Dynastic site of Tell Asmar, then being excavated by a team from the Oriental Institute which had stepped into the vacuum left by an informal British boycott:

FRANKFORT *(F)*: What about those seventeen objects?
AL-HUSRI *(H)*: They are for the Iraq Museum.
F: That seems to me illegal, since we are entitled to a representative share of our finds.
H: Only as far as possible, only as far as possible. And the law states expressly that the Director must first select those objects which are needed for the Museum.
F: The bull's head, for instance, is surely not needed in Baghdad – you have nine from Ur.
H: There is a great difference with this one, not only a difference but a great difference.
F: At this rate you will not see more than one or two expeditions in Iraq in the future, if they come at all.
H: Oh no, they will come. They will come when the depression is over. You retain the honor of having discovered the object.
F: I am legally powerless at the moment but I shall report at once to Chicago. I have warned you of the results. This division will be watched by all my colleagues.

Western archaeologists were furious at this new attitude and a proposal to replace the existing antiquities law. In 1935 Woolley wrote in *Antiquity* on these developments and, in particular, on statements by Abdul Rizaq Effendi that the Iraqi authorities had received no more than one half of one percent of the antiquities found by foreign projects. Woolley responded by stating categorically that the law had been followed, the Director of Antiquities had first choice of the finds, and that the division was not only quantitatively in favor of the Iraqi authorities but qualitatively as well: "There was no year in which I would not gladly have exchanged the Iraqi share of objects for that allotted to the Expedition, not even excepting the years 1927–8 and 1928–9 for at the time I did not know whether the standard and the goat statues could be restored or what merit they would have should restoration prove possible" (Woolley 1935: 86). That Woolley had published a version of his article in *The Times*, while a response had been written in the Iraqi newspaper *al-Bilad*, is symptomatic of the growing tension.

By today's standards, it is obvious that foreign expeditions did very well in obtaining antiquities from Iraq between 1920 and the early 1930s. The extent to which the then existing laws were followed – the heart of the dispute between Woolley and Effendi – is, however, very difficult to gauge. Bell's letters to her parents in England make it clear that she endeavored to obtain for the Iraq Museum some of the best objects that had been found. At several points, she relayed how disappointed Woolley was with her decisions. On March 1, 1923, she wrote to her father:

> We got to Ur at 7 a.m., walked up to the mound and found Mr Woolley on the diggings. We looked round at what they had laid bare since we were last there and then went to breakfast. It took us the whole day to do the division but it was

> extremely interesting and Mr Woolley was an angel. We had to claim the best things for ourselves but we did our best to make it up to him and I don't think he was very much dissatisfied. We for our part were well pleased. The best object is a hideous Sumerian statue of a King of Lagash, about 3 ft high but headless. It has a long inscription across the shoulder in which they have read the King's name, but it will go back to London to be completely decyphered [*sic*] and then return to us. We got through about 5.30, motored back to the station, dined and caught the evening train, arriving at Hillah [Hillah, Al] at 7 next morning. There we stayed with the Longriggs and spent morning and afternoon at Babylon making up our minds what we should do with the mass of things the Germans left in the house there. They are legally the property of the 'Iraq' and we have finally decided to ask the British Museum to lend us Mr Smith (now here for the Ur excavations) to sort out and arrange them, giving the British Museum a part in return for his services. (Bell nd: Letter 614)

The account of an Early Dynastic milking scene from al-Ubaid also indicates that Bell clearly understood the importance of obtaining antiquities which provided important insights into ancient life. She wrote on the account of the al-Ubaid division on June 3, 1924:

> But the really agonizing part was after lunch when I had to tell them that I must take the milking scene. I can't do otherwise. It's unique and it depicts the life of the country at an immensely early date. In my capacity as Director of Antiquities I'm an Iraqi official and bound by the terms on which we gave the permit for excavation. J.M. backed me but it broke Mr Woolley's heart, though he expected the decision. I've written to Sir F. Kenyon explaining. (Bell n.d.: Letter 330)

In the same letter, however, Bell recounted that she decided the fate of a gold scarab from al-Ubaid by winning the toss of a coin with Woolley!

In the end, it is likely that the division itself was not the sole contributing factor to the increasing anger amongst Iraqi officials. Rather, it was likely due to the fact that a European had decided which objects would be kept by Iraq and which would be exported to precisely the countries from which these officials came. In other words, Iraqi officials such as al-Effendi and Husri understood that there was a clear conflict of interest that operated against Iraq's best interest. It is this conflict that surfaces time and again in Bell's letters and ultimately reflects what was so structurally flawed in the League of Nations' mandate system – a system which ultimately led to decades of unrest throughout the Middle East.

A new antiquities law was adopted in 1936 by the Directorate General of Antiquities in Iraq which very much tightened the restrictions placed on foreign missions to Iraq. It is one of the most detailed and important indigenous antiquity laws passed in the Middle East and acted as a model for future developments. It divided antiquities into movable and immovable categories, and stated that all antiquities remained the property of the state; it gave the government the right

to appropriate any archaeological site or building and required any discovery of antiquities to be reported within 10 days to a government official. In reference to archaeological excavations and the previous practice of the division, the new law was clear. Article 50 stated: "The holder of the permit shall, at the request of the Director of Antiquities, pack up and dispatch to the Iraq Museum all movable antiquities" (Republic of Iraq, 1975). A later 1974 amendment allowed for the export of organic materials – thus taking note of developments such as archaeobotany and radiocarbon analysis. The punishment for contravening those clauses of the law that dealt with the sale and smuggling of antiquities was severe. Article 60 notes: "Whoever smuggled or intended or helped in smuggling antiquities, against the provision of article twenty six of this Law, should be sentenced to imprisonment for a period not exceeding five years and the confiscation of the antiquities, in respect of which the crime has been committed, as well as all antiquities in his possession even if they are registered" (Republic of Iraq, 1975).

The important role that the mandate played in establishing antiquity laws and authorities was not limited to Iraq. Palestine, Jordan, Lebanon, and Syria all fell under the mandate policy and, to varying extents, the establishment of formal protections for antiquities owes it origins to these periods.

Although a French expedition in 1860 had conducted soundings at a number of coastal sites, little archaeological research was conducted in Syria until the late 19th century. At that time, German teams became active at several sites, including Zincirli and, perhaps most important of all, Tell Halaf. The orthostats of Tell Halaf, originally thought by von Oppenheim to date to the 4th millennium BC (Matthiae 1981: 18), were the first indications of a unique and important Iron Age culture throughout inland Syria. These discoveries renewed interest in the remains at Karkamish, which had been identified by Smith in 1876 but were not the subject of new excavations until 1908, when Woolley and Hogarth began work there.

After the defeat of the Ottoman Empire in World War I, France was given the mandate over Syria and Lebanon, beginning in 1920. One of its first acts was to administratively separate Lebanon and split Syria into four provinces: Damascus, Jebel Druze, Aleppo, and the Alawite region (Foro and Rey 2008). Already in 1919 the French had set up an archaeological service in Syria shaped by their experience in Tunisia. In accordance with the mandate, a department of antiquities was established (*Service des Antiquités)* and an antiquities law enacted. Its headquarters were in Beirut, but it had jurisdiction over all of Syria and Lebanon. Charles Virolleaud was appointed Director on October 1, 1920, a position he held until his resignation on October, 1 1929.

During Virolleaud's tenure, archaeological research flourished in Syria. In coastal Syria and Lebanon, archaeological research was conducted by Dunand and Montet at Byblos, Contenau at Sidon, and Le Lasseur at Tyre. Ugarit attracted the attention of archaeologists following the accidental discovery of artifacts there by a farmer in March 1928, and was subsequently excavated by

Schaeffer. Virolleaud's analysis of epigraphic finds from the site was to form the basis of one the most interesting narratives of archaeological discovery in the 20th century (see below). In the interior of Syria, Thureau-Dangin excavated at Arslan Tash and Tell Ahmar, Abel Barrois at Neirab, Pézard at Tell Nebi Mend, and du Mésnil du Buisson at Tell Mishrife (ancient Qatna) (Matthiae 1981).

These excavations were conducted under the terms of the new antiquities regulations which reflected Article 14 of the mandate for Syria and Lebanon (1922). A formal division of artifacts occurred, and thus the ivory plaques discovered by Thureau-Dangin at Arslan Tash were divided between the Museum at Aleppo and the Louvre. In many ways, the situation replicated that which existed in Iraq at this time, although we are not fortunate enough to have access to the private letters of leading French administrators at this time, like those of Bell and others from Iraq.

Two incidents concerning the application of the antiquities law serve to highlight the complex outcomes of appointing Europeans as custodians over Syrian and Lebanese cultural heritage. The first occurred in reference to the discovery of Bronze Age artifacts at Ugarit in 1928. When these were brought to the attention of the authorities, Virolleaud sent his assistant to the site and a note was published in *Syria* which was then edited by René Dussaud, Conservator of Near Eastern Antiquities at the Louvre as well as acting President of the Académie des inscriptions et belles-lettres. The following year Schaeffer began excavations at Ugarit and on May 9, 1929, under instructions from Dussaud, began work on the main *tell* at the site. A week later, inscribed texts and bronze tools were discovered. On May 17, Schaeffer informed Virolleaud by telephone of the discovery and he arrived at the site the next day (Day 2002).

Upon arriving at the site, and undoubtedly realizing the importance of the tablets, Virolleaud demanded the tablets be handed over to him. Schaeffer complied and gave him the best of the texts. A few days later the remainder followed. There is little doubt that Virolleaud's actions were prompted by his academic interest in the newly discovered language of the Ugarit texts. As with any new epigraphic discovery, initial access is key to claiming the prize of decipherment and Virolleaud was almost certainly aware of this. Dussaud, on the other hand, was the leader of the expedition, which was funded by the Académie des inscriptions et belles-lettres and the Louvre with assistance from the governor of the Alawite region (Day 2002: 38). Dussaud and Virolleaud had previously clashed over the division of antiquities. In 1924, for example, Dussaud suggested that Virolleaud had accused him of exporting antiquities without authorization and that they be returned to Syria (Day 2002: 39n12).

Nevertheless, two months later Virolleaud was no longer Director of the Antiquities Service. He initially told the Académie that he was returning to France and then in August announced his resignation. As noted by Day, however, "the overall dynamics of the situation raise the suspicion that his resignation may have been forced" (Day 2002: 39n12) and it is certainly the case that Virolleaud's

successor, Henri Seyrig, was installed with Dussaud's agreement. In the 12 months that followed, Hans Bauer, Paul Dhorme, and Charles Virolleaud worked to claim the prize of the decipherment of Ugaritic. The discovery of longer narrative texts at Ugarit was a key development. Unlike the 1929 epigraphic materials, these new texts were sent straight to Paris where they were made available to Virolleaud, and on October 1, 1930, he wrote to the Académie informing Dussaud that he had deciphered Ugaritic. As has been noted since, however, there is little doubt that the important advances made by Bauer and Dhorme were key to this announcement.

The competitive scramble for the control and ultimately the decipherment of the Ugaritic texts highlights the fact that the Virolleaud and others saw the French mandate as an opportunity to further their own academic careers. This sense of (French) ownership over the antiquities of Syria and Lebanon was to continue, and increasingly cause friction as Europe descended once again into war.

Prior to World War I the German diplomat-turned-scholar, Baron Max von Oppenheim, had been given a *firman* by the Ottoman Turkish authorities, who then controlled Syria to excavate at Tell Halaf and Tell Fakhariyah. These excavations continued in the 1920s, and in 1931 von Oppenheim published the results of his work. By the late 1930s, however, the mood had changed in Europe. In 1938, the French gave von Oppenheim an ultimatum: if he did not recommence his excavations at Tell Halaf and Tell Fakhariyah, he would lose his rights to them (Melka 1973). When he arrived in Syria in the spring of 1939, von Oppenheim was, however, effectively placed under house arrest in Aleppo. Several months later, the Director of the Antiquities Service, Henri Seyrig, informed von Oppenheim that he still had the rights to both sites but, shortly after the invasion of Poland, the rights to excavate at Tell Fakhariyah were handed over to Oriental Institute (Melka 1973: 83). According to John Wilson, then Director of the Oriental Institute, this concession was made without a formal request from his institution (Melka 1973: 82–4). In other words, the French authorities in Syria changed the permit because of the altered political situation in Europe. The archaeology of a Middle Eastern country had thus once again become a pawn in European rivalry.

World War II was to leave its mark on the archaeology of Syria in another tragic way. Under the conditions of his *firman*, von Oppenheim had removed many basalt and limestone reliefs from Tell Halaf but because he clashed with the Istanbul Museum representative Halil Bey, he was unable to export these until after World War I (Crüsemann 2000: 173, 187; Schmidt 2010). After they were finally exported in 1927, they were exhibited in the recently opened Tell Halaf Museum in Berlin. On the nights of November 22–24, 1943, the Royal Air Force bombed Berlin, entirely destroying the museum. Recent mineralogical investigations of the remains from this attack confirm that firebombs were used, which explains why all the limestone and other artifacts were completely destroyed.

The basalt statues in part survived the actual attack, but were severely damaged by the cold water used to extinguish the fire, causing surface parallel cracking in the statues (Drüppel and Lehmann 2009). A project began in 2001 to reconstruct the nine truckloads of fragments recovered from the remains of the museum between December 1943 and August 1944.

The impact of French colonialism on the establishment of formal antiquities services was not limited to Egypt, Syria, and Lebanon. The importance of history and archaeology to national identity in Iran had deep roots in the 19th century. Since the 1880s, however, the French had held very generous concessions to excavate at Susa, which resulted in spectacular discoveries that were shipped back to the Louvre. In 1900 the French gained a monopoly on all excavations throughout Iran. Even by late 19th century standards, these concessions were very generous: the French were allowed to export all discovered antiquities to France and the Iranians were only compensated for gold and silver items (Abdi 2001b).

In 1922, the Society for National Heritage was founded with the express purpose of registering and maintaining a record of all of Iran's archaeological sites (Abdi 2001: 56). The founding of this society, one year after the coming to power of Reza Shah Pahlavi, marked an emergence of national consciousness about archaeology that parallels what has been described in Egypt and Iraq. In October 1927, both French concessions were canceled by the government. A formal antiquities law was ratified in 1930 (Abdi 2001: 59). The first director of the Antiquities Service was the French architect André Godard, and in the following decade a new museum was opened in Tehran and the first Iranian journal of archaeology (*Athar-e Iran*) began publication. In 1934 Godard was replaced by Ali Farahmandi, who continued to work in the Antiquities Service until the 1950s. According to Abdi, however, this relic of French colonialism – i.e., Godard's appointment – did not earn the respect of Iranians and

> rumors began circulating about his involvement with antiquities dealers . . . The most serious blow to Godard's reputation came when, in 1950, he published a dealer's collection allegedly excavated from Ziwiyeh, but the oral tradition regarding Godard's dismissal was that Louis Vanden Berghe found a pot he had excavated, marked and given to the Iran Bastan Museum for sale in an antiquities store. The authorities were alerted, and Godard was invited to a dinner, given a meal, thanked and put on a plane to Paris. (Abdi 2001: 59n49)

Over the following decades, French research declined in Iran while North American and British archaeologists increasingly excavated important prehistoric and historic sites such as Hasanlu, Godin Tepe, and Tepe Yahya. This involvement was to fall prey to political change when the Islamic revolution occurred in 1979.

Unlike Syria, parts of Palestine, because of their biblical connections, had been the focus of intense archaeological research since the middle of the 19th century. In 1865 the Palestine Exploration Fund (PEF) was founded in London with the

express purpose of exploring the cultural remains of Palestine and conducting a survey of western Palestine. As Watson wrote in his account of the PEF's history: "So long as a square mile in Palestine remains unsurveyed, so long as a mound of Biblical history remains unexcavated, the call of scientific investigation, and we may add, the grand curiosity of Christendom, remains unsatisfied" (1915: 38). The PEF was closely intertwined with the British colonial infrastructure (even if Palestine was still under Ottoman control at this time) and the Royal Engineers engaged in much of the mapping of western Palestine, which had obvious political and military benefits. When complete, the 26 maps, recorded at a scale of 1 inch to the mile, became the official maps of Palestine until 1936. Shortly after the PEF had completed its survey work, it turned its attention to excavation, and in 1890 Sir Flinders Petrie was brought from Egypt and began excavations at Khurbet Ajlan and Umm Lakis, just north of Gaza. Excavation of numerous other sites, including Jerusalem and Tell el-Hesi, soon followed.

The British, however, were not the only foreign power active in Palestine at this time. In 1870 the American Palestine Exploration Society (APES) was founded. By agreement with the PEF, it focused much of its work in the eastern regions of Palestine and produced a series of maps of Ammon and Moab. The APES was disbanded in 1884 and replaced in 1900 by the American Schools of Oriental Research (Adams 2008b). German research began with the Deutsche Verein zur Erforschung Palästinas (1877), while the French conducted their work under the École biblique et archéologique (1892). The activities of the foreign schools expanded rapidly in the late 19th and early 20th centuries.

Just as in Syria, Lebanon, and Iraq, the granting of the mandate for Palestine to Britain in 1920 was an important moment in the formation of an antiquities service. In October 1920, the government in Palestine enacted a new ordinance which, as in Iraq, Syria, and Lebanon, followed Article 21 of the mandate. Article 8 of that legislation stated: "The proceeds of excavations may be divided between the excavator and the competent Department in a proportion fixed by that Department. If division seems impossible for scientific reasons, the excavator shall receive a fair indemnity in lieu of a part of the find" (Bentwich 1924: 252).

The first Director of the Department of Antiquities in Palestine was John Garstang, at the time a professor at the University of Liverpool. The mandate character of his appointment is no more obvious than the fact that, while serving as Director of the Department of Antiquities (1920–6), he also served as Head of the British School of Archaeology in Jerusalem (1919–26). In 1922, the British informed the League of Nations that its existing mandate was to be split into two areas: Palestine to the west of the Jordan, and Transjordan to the east. A separate antiquities authority was thus created for Transjordan. This was headed by George Horsfield who had been a student at the British School of Archaeology in Jerusalem under Garstang.

Horsfield was unlike most of the other archaeologists who assumed administrative positions under the mandate system. He was trained as an architect in

London and was not university-educated. He had been admitted to the British School in Jerusalem because of his architectural skills, and his fees had been waived. Upon appointment to the new position in Transjordan, he turned his attention more toward the restoration of standing monuments than to excavation. Most of his work focused on the remains at Jerash, one of the most popular tourist sites in Jordan today. He created a new road with public access to the site and arranged for the reconstruction of buildings and the clearing of debris.

By 1928, Jordan had become independent of the British mandate and its antiquities authority followed a different trajectory from that experienced in Palestine. After Horsfield, a series of local Arabs occupied positions responsible for antiquities. These included Dr Rida Tawfiq (1923–8), Tawfiq Abu al-Huda (1928–9), Ala al-Din bek Touqan (1929–31), Adeeb bek al-Kayed al-Awamleh (1931–3), and Hisham Kheir (1933–6). During this period several new versions of the antiquities law were issued. G. Lankester Harding was appointed Director-General of Antiquities of Jordan in 1936, a position he held until the 1950s (Adams 2008b).

The intent of the Balfour Declaration, the stated aims of the British mandate in Palestine, and the separation between Jordan and Palestine in the 1920s resulted in new sources of contestation in the formalization of antiquities departments in Palestine. In many ways, the history of antiquities departments over the subsequent 30 years mirrors the trajectory of colonialism, war, and displacement that characterize the political history of Palestine and Israel. The Jewish Palestine Exploration Fund (JPES) increased its activities throughout the 1920s and 1930s and, by 1934, was able to claim the achievement of "the discovery of Hebrew Palestine" (Abu El-Haj 2001: 73). After the creation of the state of Israel, the JPES became the Israel Exploration Society, which is now the most active non-governmental antiquities society in Israel. In July 1948, the Israel Antiquities Authority was founded. It continued the legal framework that had been established in the British mandate, but in 1967 moved its headquarters to the Rockefeller Museum in recently occupied Jerusalem. The Rockefeller Museum had been the Palestine Archaeological Museum since its founding in 1930.

The relationship between Ottoman and then European colonial authority, on the one hand, and awakening nationalism throughout the 19th and early 20th centuries, on the other, are key elements in the development of antiquities authorities throughout most of the northern areas of the Middle East. After World War II archaeological excavations throughout the Arabian peninsula expanded, and one by one antiquities authorities were established in Saudi Arabia, Yemen, Kuwait, Bahrain, Oman, and the United Arab Emirates (Potts 1998). Throughout the 1970s, laws were enacted to empower these authorities to protect cultural heritage. These latter countries were relatively free of the experience of European colonialism, but there is no question that the struggle of their neighbors in crafting legislation that ensured that cultural heritage remained the property of the state in which it was excavated has helped shape their own legal

frameworks. The "division," by which foreign archaeologists received a portion of their excavated finds, is no longer practiced.

A final testament to the postcolonial maintenance and ownership of cultural heritage throughout the Arab world can be seen in the fact that most Middle Eastern countries were quicker to ratify the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property than any of the western European countries that had been so active in removing antiquities from the Middle East during the nineteenth and early 20th centuries. Iraq and Egypt both accepted or ratified the Convention in 1973, and Syria and Iran in 1975. France only ratified the Convention in 1997, the UK in 2002, and Germany in 2007.

Today, the Arab Organization for Culture, Education, and Science, a branch of the Arab League, sponsors conferences throughout the Middle East on archaeology and antiquities. A standardized law on antiquities has been proposed by the Organization, and it details the legal protection of movable and immovable antiquities and as well as the responsibilities of foreign and local excavation toward the country in which the research takes place (Irsheid 1997).

GUIDE TO FURTHER READING

While there are no detailed works on the establishment of antiquities authorities throughout the entire Middle East, there are some excellent regional assessments. Reid (2002) provides a comprehensive overview of foreign archaeological research in Egypt in the 19th century and the beginnings of national identity in the early 20th century. Similar issues are explored in Bernhardsson (2005), which follows the story of Iraq's antiquities authorities up to the present day and is set against the 2003 looting of the Baghdad National Museum. For Palestine and Israel, see Silberman (1989) and Abu El-Haj (2001). These works provide a compelling understanding of the relationship between archaeology and nationalism throughout the 20th century.

CHAPTER FIVE

The Political Dimension of Archaeological Practices

Reinhard Bernbeck

This chapter provides a critique of the multiple problems of archaeological praxis in Western Asia today. Archaeology is never a purely scientific endeavor that takes place in a cultural vacuum. Rather, archaeological work is deeply enmeshed in cultural perceptions, in relations of social, political, and economic inequality, and all too often in upholding these conditions.

1 Introduction

In this chapter, I shall try to critically assess current practices of archaeologists who work in Western Asian countries. Given space restrictions, it is impossible to cover all the structural problems of the discipline on large and small scales, to take account of the issues faced by those who work in their own countries versus those who come as foreigners, or to include the various institutional settings that are all part of the network of ancient Near Eastern archaeology. I restrict myself here to six topics, starting with terminologies, and moving on to the political-economic dimensions of our field. I then show how disparities between various stakeholders are reproduced by focusing on inequalities in institutions of higher learning and analyzing the resulting differences in research interests. The last two sections are devoted to tendencies toward militarization in our field and the ways in which the results of our work are transmitted to a larger public through museums and tourist spaces.

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2 Terminologies of Power

In late 2009 I attended a conference in Japan on early Near Eastern pottery. At one point, one of the Japanese colleagues reminded us that, for him, the topic of our discussions was actually not the "Near East," but rather the "Far West." What was intended as a joke has an important truth about it: the colonial baggage of academic disciplinary terminology. Even the very name of our discipline in different languages, whether Near Eastern (English), *proche oriental* (French), *vorderasiatisch* (German) or *önasya* (Turkish), makes clear that the regions of our interest are to be seen from a specific position, and that this position is (still) Europe and the West more broadly. Equally problematic is another point, the concept of the "ancient Near East" as a time period that lasts (for most scholars) from Neolithization c.10,000 years ago to the time of Alexander "the Great," c.330 BC. Conceptually, a rift is created between Achaemenid and Hellenistic times, based on western feelings of nearness to the Greek world (e.g., Marchand 1996) and an ambivalence toward the otherness of the pre-Hellenistic eastern Mediterranean and Mesopotamian cultures (Larsen 1996; there is, of course, research that investigates the connections between "ancient Near Eastern" worlds and Hellenistic and later ages: see, e.g., Bartl and Hauser 1996). A different perspective, such as the one we encounter today in archaeological scholarship in Iran, would not see any historical rupture after the Achaemenid Dynasty: after all, the Sasanian empire is displayed in reliefs at Naqsh-e Rustam as a dignified successor to the earlier, Achaemenid empire.

Near Eastern archaeology is a field whose spatial, temporal, and terminological frames are determined by silent acceptance of disciplinary limits that are mainly the outcome of 19th century colonial practices. There is a broad understanding that the boundaries are somewhat fuzzy, but this is not generally seen to be an obstacle. Rather, the main task is understood to be the labor of internal differentiation of a field of knowledge that is largely perceived as a time–space grid whose current coarseness does not lend itself to well-founded interpretations.

3 Political Economy of Archaeological Practice

As a set of techniques, archaeology creates a highly variable set of products, from the material objects of ancient times to books, films, websites, drawings, photographs, and exhibits. People are involved at many levels in these activities, so we can analyze archaeology as a set of practices that have a political economic dimension (Bernbeck and Pollock 2004; Bernbeck 2011). Here I will discuss two aspects of this field: imperialist disciplinary underpinnings and the more recent effects of globalization.

In their sharply unequal distribution, the means that allow the production of archaeological knowledge about the western Asian past display structural similarities to imperialism and center–periphery relations. On the one hand, university and research institutions in western countries (including Australia and Japan) have the financial resources to support large-scale, sophisticated research projects. This is also increasingly the case for a few western Asian countries such as Qatar, the UAE, and Saudi Arabia. However, most other countries where the discipline is practiced do not have comparable means, as reflected in the salaries of museum staff, professors, and antiquities service members who work in the archaeological sector. Adequate funds are also lacking for detailed documentation of excavations, radiocarbon analyses, and especially the increasingly extensive archaeometric techno-complex, as well as the educational costs of specialists.

These elements of a network for the production of archaeological knowledge are directly tied to issues of labor. The labor mobilized for an excavation consists of varied groups of people, ranging from workers and menial labor for washing sherds and even clothes, to students, specialists for specific kinds of analyses, governmental representatives, and project directors. The mechanisms of archaeological knowledge production fit neatly into a dependency theory model (Amin 1976). As a rule, specialists rarely come from western Asian countries, even if this is slowly changing. A decades-old structural divide still separates European, American, and Japanese researchers from those in western Asia, a situation that remains the case up to the present day. Western Asian countries, with their resources consisting principally of archaeological sites and manual labor, provide a topography of raw material extraction and exploitation which is processed in Europe, the United States, or Japan (Pollock 2010). Turned into refined cultural products such as books, films, or exhibits, this past *as representation* can then be consumed globally, including in the countries of origin (Amin 1976).

While these structures still characterize the present situation, the beginnings of a transformation are visible. Stark inequalities are likely to change if growth in the academic sector in western Asian countries continues. This institutional transformation has already led to greater self-assuredness on the part of western Asian archaeologists, and it may lead to fundamental changes in relations of archaeological knowledge production, ending, we might hope, in a more democratic structure for the discipline (but see below).

A second element of a political economy of archaeological practices to be considered here concerns globalization and its consequences. The original creators of archaeology were rich connoisseurs who could afford to pursue their antiquarian interests. This is true not only of the period before the French Revolution, but also of the period of professionalization in the 19th and early 20th centuries. After a brief interlude following World War II, when state-funded research emerged as a significant resource in both eastern and western European countries, radical changes took place after 1989, euphemistically termed "globalization," that have led to a new, highly problematic situation. We see a

tendency emerging for archaeologists, regardless of origin, to become part of an international "precariate" – a class of people who have impermanent appointments, mostly for a year or two, at research and teaching institutions. In France and to some extent in Germany, archaeological employment was formerly shielded from the vagaries of economic ups and downs. Nowadays, the ruthlessness of neoliberal globalization mechanisms has reached these systems as well. Foremost among the market economies for academics is the United States, where, after completing their PhDs, young scholars are often exploited as teachers at the adjunct level. In Europe, people at the same postgraduate level tend to end up as a cheap research workforce. Self-exploitation by future researchers has become such a part of the game that a refusal to take part in a project can spell the end of one's career. Capitalism in academia has become a very complex political economy with a double currency: remuneration in terms of money as well as in "cultural capital," to use Pierre Bourdieu's unfortunate terminology (Weimann 1997; Franck 2005).

While this presents a problem, it co-occurs with a more general demise of blue-collar work environments in developed and developing countries, leading to a new emphasis on the production and consumption of the products of *immaterial labor* (Hardt and Negri 2004: 111–15; Virno 2004: 11–14) in the realms of education, culture, and services. The implications of the co-development of globalization and "cognitive capitalism" (Gorz 2003: 51–70) for archaeologists are grim: they will indeed find more opportunities for work, consisting of cultural services for tourists, the retired, and other groups interested in archaeology. However, the strongly seasonal nature of such service sectors is only likely to increase employment insecurity. Most of these kinds of archaeological jobs will be outsourced to employment agencies that make their profit on the backs of a growing "cognitariate" (Berardi 2001), a developing class of knowledge workers who will have the status of permatemps (permanently temporary employees). Archaeologists, like many other workers, will be forced into greater flexibility of place, time, and conditions of labor. "Flexibility" is a mere euphemism for the hire-and-fire world of the emerging cognitariate (Lorey 2008; Newfield 2009; Ortner 2005 provides a useful critique of the all-pervasive neoliberal ideology of flexibility and flexibilization). Archaeologists, and particularly those specializing on ancient western Asia, investigate the field of the early development of divisions of labor. Therefore, they are in a privileged position to contribute to an assessment of the end of a particular division of labor, that between physical and intellectual labor (e.g., Marx and Engels 1958), judged by political and social theorists as one of the most fundamental ones in human history. In the future, the field of knowledge production is likely to be structured in parallel to that of material production, with a few academic managers at the top and a large laborforce with differentiated status positions at the base. The growing split between research and teaching in universities is a clear indication of the future, as is the tendency to reduce the number of tenured positions. In such a situation, we will likely

witness mounting alienation from the product of "knowledge labor." The consequences, whether in terms of the product itself, or in terms of the struggles over the conditions of knowledge work, are barely imaginable. Yet, they are likely to completely transform the field of academia.

4 Structural Violence in University Education

Despite the aforementioned global reach of current changes, it still seems that western Asian archaeologists have fewer chances for professional development than those in the former colonial core (including the United States). This is only in part due to skills. The reason for disparities on an international level lies in differences in "cultural capital" that are dependent on one's origin. Bourdieu's (1988) sociological analysis of the French *homo academicus* and his distinctions between people of the Parisian upper class and others appear in exacerbated form on an international level. Several dimensions play a decisive role in the chances for archaeologists to be accepted as full members of an increasingly globalized professional community that produces academic archaeological knowledge, one of the most important being a mastery of the English language (Bernbeck 2008c).

The first is the ability to operate in conformity with the increasingly tight standards of academic work. Speaking, reading, writing in English, being able to meet deadlines until one has a certain scientific status (the production process of this book is a case in point), deploying authoritarian means where appropriate, disregard for local people's needs during an excavation, a servile attitude toward funding organizations, and a combination of disdain and opportunism toward the mid-level institutions such as antiquities services of the country in which one does fieldwork are all the assets of a "good" researcher. This set of hypocritical attitudes and practices is exceedingly goal-oriented. It is likely to crystallize in those middle- and upper-class citizens who have undergone their socialization from birth onwards in former colonial cores, so that they tend to become the most successful archaeologists.

Because of these configurations, western Asian archaeology has been and still is a discipline of the "in-between," where bodily work and the gathering of data are the praxis of the peripheries, while the intellectual work of scientific production takes place in neocolonial core countries (Fabian 1983). Many participants work temporarily in regions where they do not live. On a national scale, this may be a matter of travel of no more than half a day, with no major cultural change (language, food, material environment, religion) involved. For those who are based in Europe, Japan, or the United States, the switch from one's own daily life to the country of work is more radical, involving an exposure to the completely foreign. This has all too often led to romanticization that can even influence reconstructions of the past (Moser 2007; Bernbeck 2008a). Starzmann (2008) has shown that some of the worst cases of Orientalism are characterized

by idealizing constructs of the past, coupled with a disdain for the people inhabiting that part of the planet in the present (cf. Mourad 2007).

However, even when an academic exchange is explicitly designed to put archaeological projects, educational processes, and conferences on an equal footing for all parties, underlying structures still reproduce stark inequalities. I have elsewhere described these effects as "structural violence," according to the definition provided by Galtung: "when human beings are being influenced so that their actual somatic and mental realizations are below their potential realizations. . . . Violence is here defined as the cause of the difference between the potential and the actual" (1969: 168).

When one considers academic exchange at the student level, this stark inequality becomes immediately apparent. The few cases where European or American students spend a semester or a year in a western Asian country are not perceived as periods of essential learning but rather as an individual trip to gain experiences. The learning cannot be measured, but it does not lie mainly in the ability to acquire knowledge about ancient western Asia. Rather, such a stay during a fellowship produces a *knowledge of different modes of knowledge*. Following Foucault's (1980: 109–33) reflections on the strong power/knowledge connections, we may therefore surmise that this meta-knowledge produces at the same time an awareness of one's position in a world of more or less powerful discourses. A western student realizes his or her own superior status, which is derived from socialization in a specific knowledge culture that is due to the accident of one's birth, and thus to owning a particular passport.

The student from Iran, Turkey, Syria, or elsewhere in western Asia who acquires a grant or fellowship to study in Europe or the US finds him- or herself in a starkly different situation. Requirements to change one's habits start at home – that is, with various tests of English, German, or whatever the foreign institution's requirements may be. The highly complex logistics of application for exams in the home country ensure that only people who are already partly adapted to western bureaucracies will be able to apply successfully. Fees are often exorbitantly high in relation to local economic realities, automatically excluding students from less well-off sections of society. Once the successful prospective students have made it through the hoops of language and other exams, certification of the value of their undergraduate degrees, etc., they have to face the nightmare of applying for a visa (Smith 2007). Only then can they travel in order to learn the western ways of academic knowledge production. These are not free years of exploration and personally enriching experiences but, rather, years of serious submission to western educational standards.

None of this would not matter so much if study abroad were not a starkly imbalanced affair, if students from US, European, and Japanese universities going to western Asian countries were willing to learn Arabic, Turkish, or Farsi to the point that they could follow classes and write exams in that language, and where they were willing to immerse themselves in the learning cultures of their

host universities (Bernbeck 2008c). At present, the effective reproduction of inequalities is such that structural violence is an appropriate description of the situation. Since archaeologists are part of the intellectual work force, they have a multiplier function that reinforces similar structures in other social and political spheres.

5 Variations of Interest in the Ancient Near East

Means of archaeological production are not only located in highly unjust distributions of materials, financial backgrounds, and skills. The social and political context within which western Asian archaeology is practiced also displays significant variations. I will briefly highlight the differences and similarities in interests of continental European, western Asian, and Anglo-American scholars. Interestingly, practices and goals of continental European archaeology converge with those of western Asian countries, whereas much of the Anglo-American practices form a separate sector.

Continental Europe's intellectual heritage consists not only of the dark 20th century's political excesses, but also of the preceding 19th century's historicism, the effects of which linger on, especially in fundamentally retrospective fields such as archaeology. In France, Germany, and many other European countries, the discipline of western Asian archaeology is focused on an increasingly fine mesh of tightly typologized data that, so the belief goes, will one day allow the writing of an accurate history of the region. In consequence, the willingness to fund long-term, large-scale excavation projects is more developed in Europe than elsewhere (Bernbeck and Pollock 2004). Empiricism is the dominant paradigm of research, and an emphasis on natural science methods is actively promoted because they are considered to be the royal road to truth. A positive consequence of such an approach and its deep commitment to a specific research location is the comparatively greater willingness of European archaeologists, in comparison to their Anglo-American colleagues, to engage with the particularities of the local culture where they excavate and, most importantly, with locally spoken languages. This linguistic interest is also visible in the overall greater integration of archaeological and philological research in European institutions.

Such interests stand in contrast to the more theoretically oriented leanings of Anglo-American Near Eastern archaeology. More than 30 years ago, in the heyday of processual archaeology, western Asian archaeological research was a hotbed of theoretical innovations. Names such as Frank Hole, Kent Flannery, Charles Redman, Henry T. Wright, and Gregory A. Johnson stand for this direction. The hypothesis-driven, systems-oriented approach, so well known from excavations at sites such as Ali Kosh, Chogha Sefid, or Tepe Farukhabad, was characterized by an interest in large-scale structural history, especially in demographic change, shifts in agricultural patterns, or political centralization.

The underpinnings of this interest were not just of theoretical nature: over time, US-led excavations became less and less well funded – as compared to western European standards – so that it became necessary to develop methods that would lead to specifiable results within a few seasons of work. A sharpening of research questions toward highly specific problems, the reduction of past social entities to "case studies" of larger anthropological problems, and a stringent methodology, often based on statistics, were all part of this paradigmatic shift in practices and ideologies of research.

A result of this "anthropologization" of archaeological pasts is the retreat from any interest in subjectivist perspectives. As Flannery famously noted, processual archaeologists were not and are not concerned with "the *Indian behind the artifact,* but rather with the system behind both the Indian and the artifact" (1967: 120). The role of peoples' motivations and aspirations in historical constellations is simply rated as irrelevant. The larger the scale of interest, the greater the danger of succumbing to such structural conceptualizations. The evaluation of survey work since 1980, while extremely important for a reconstruction of the *longue durée* processes of ancient history (e.g., Wilkinson 2003a), always includes the danger of a one-sided (pre-)historical narrative that assumes a complete lack of agency on the part of past peoples. Such an approach displays an attitude castigated by Bourdieu (1997: 49–84) as a "scholasticism" that exhibits all the weaknesses of ivory tower productions. Robert McC. Adams's surveys stand out as a great exception since they always included a historical narrative (Adams 1965, 1981; Adams and Nissen 1972).

The theoretical backlash to processual archaeology, the post-processual response, is most prominently displayed in one paradigmatic project in western Asia, namely Çatal Höyük. However, for a number of reasons the project has had a minimal impact on Western Asian archaeology.

First, the site chosen is known for its exceptional conditions of preservation. Çatal Höyük is a Neolithic Pompeii, for which it is difficult to find a parallel in terms of the ease with which past life can be reconstructed. At almost all other sites, the onslaught of post-depositional processes has, to a much greater extent, marred access to an "ethnographic time" (Smith 1992: 27) of past people.

Second, Çatal Höyük is also one of the few sites that has had an impact on contemporary political discussions, as it has become a hallmark of ecofeminist spiritual ideologies and an anchor for models of non-patriarchal societies (see, e.g., Uhlmann n.d.). As such, the site is set into a global discourse, in contrast to almost all other comparable sites. This situation has allowed project managers to raise funds from businesses of global size, such as Boeing or Visa, leading to a financial situation that is simply out of reach for any standard fieldwork project at a less spectacular site. The hype around Göbekli Tepe puts the importance of that site on a par with Çatal Höyük. However, groups interested in Göbekli Tepe come from a very different constituency, as the excavator and a whole range of other people produce a discourse of "exit from paradise," turning the site itself

into an Eden (Schmidt 2006; cf. Hodder and Meskell 2011). Consequences have so far been harmless, but the longer-term fallout could also lead to severe conflicts in a time of rising importance of those religions for whom "paradise" is a fixture of origin myths.

Third, the group working at Çatal Höyük is both so large and so "introverted" that its repercussions for other archaeological research in the region are much smaller than one would expect, particularly on Turkish archaeologists or their colleagues in Syria, Iran, etc. Theoretical reflections are without doubt very important and have elsewhere been to some extent integrated into western Asian archaeological education (see, e.g., Wright 1979 for collaborative work with Iranian students in the Izeh region). As much as one may admire the interpretive sophistication of insights about the past in Hodder's megaproject, it remains an exclusive "gated community" of mainly British-centered excavation and research practices, with little contact with local Turkish communities. Publications of the project try to hide this problematic aspect. Thus, Hodder published a book together with a site guard (Dural with Hodder 2007). At the same time, very few Turkish workmen are included in the excavations, which are instead carried out by professional excavators from the UK. Comparatively speaking, even archaeologists from colonial times were often less colonialist. Walter Andrae was able to form a group of local, specialized excavators during his work in Assur, the *sherqatis* (derived from Assur's modern name, Qalat Sherqat), who were later hired by other archaeologists because of their expertise. Çatal Höyük's status as a globalized, locally disconnected project that is tied into big business funding has not been helped by the fact that Hodder fired all his specialized staff in the summer of 2010 because "it was time for a shake-up" (Balter 2010), combining a neocolonial course of action with a neoliberal one.

The promotion of what Hodder calls a reflexive approach to archaeology, combined with questions of representational routines, is certainly a worthwhile topic that continues to influence archaeological thinking globally. However, because of the aforementioned characteristics, its impact on western Asian archaeology, surely present because of the outstanding theoretical-interpretive weight, would not be much different if it were located in Bolivia, Iceland, or Zimbabwe.

Since World War II, archaeology in western Asian countries has been a widespread means to construct national identities. In the course of the 19th and early 20th centuries, colonialism wreaked havoc on most peoples in the region. The Sykes-Picot Treaty, a secret agreement between France and Great Britain from the time of World War I, arbitrarily fixed the boundaries of many western Asian states, including Iraq, Syria, Lebanon, Turkey, Jordan, and Palestine. Socially and economically coherent territories were suddenly divided, nomads' paths became impassible, and outsider dynasties such as the Hashemites were imposed by colonial powers in both Jordan and Iraq (Dodge 2003).

With the waning of European colonial powers, many of these geographically arbitrary units gained independence. Their governments found themselves in the

difficult position of having to shape an internal legitimacy for their rule. Archaeology was an easy target, since it reaches back into times that were not yet anchored in people's minds, in contrast to periods from Islamic history. The high value placed on archaeology in the aftermath of independence was due to a desperate search for justification of new governmental powers, leading to the invention of traditions (Hobsbawm and Ranger 1983). Presumed political forebears were often constructed as powerful, just, and tolerant, a mirror of how such new rulers and regimes wanted to be seen themselves.

In the case of Iran, such attributes were projected onto the Achaemenid emperors by the Pahlavi Dynasty. The importance of a long-gone empire was enhanced by the use of ancient symbols such as the winged sun disk and by introducing motifs from the capital Persepolis in public transportation (e.g., the "Homa" bird as the logo for Iran Air), advertisements, and films. The associated pomp and glamor reached its height at the so-called 2,500-year anniversary of the Persian monarchy in Persepolis, to which many heads of state were invited (Abdi 2001b). The government made the Cyrus Cylinder the official emblem of this lavish, caricaturesque festivity of the "noble emperor," and declared it the "first human rights charter" (Ghirshman et al. 1971). On an international level, this move proved successful, as a copy of the cylinder is nowadays exhibited at the UN headquarters and textbooks often refer to it as the ancestor of today's human rights charter (e.g., Lauren 2003: 11; but see Lincoln 2007).

Such historical constructs were in many ways repeated by Iraq's dictator, Saddam Hussein, and rulers of other states that had just gained independence from colonial suppression. Today the situation in many post-Soviet states presents similar challenges (see Kohl et al. 2007), sometimes with even greater problems, as the past is invented not only to suggest an origin myth of grandeur and power, but also to pit specific groups against each other. The so-called "Albanian Book" of the Lezgys is only one of the starker examples (Gadjiev 2007).

The reaction against attempts at heritage construction has led in more than one case to a public display of disdain for and alienation from an artificial "common past" that was constructed with substantial help from the western archaeological system. The large-scale looting of the national museum in Baghdad following the US-led invasion is a paradigmatic indicator of the shallowness and vanity of ideologically simplistic attempts at top-down productions of a collective self through archaeology, constructions that apparently produce nothing but large-scale anger (Pollock 2003; Bernhardsson 2005: 130–63; Abdi 2008). They point toward a problem formulated succinctly by Frantz Fanon:

> Colonialism is not simply content to impose its rule upon the present and the future of a dominated country. Colonialism is not satisfied merely with holding a people in its grip and emptying the native's brain of all form and content. By a kind of a perverted logic, it turns to the past of the oppressed people. (1963: 210)

This erased past and its replacement by a western-style, objectivist, science-based and secularly approved history that supports autocratic rule contributed

heavily to the Iranian Revolution, to the destruction of whole landscapes of ancient sites in Iraq (Stone and Bajjaly 2008), to the blowing up of major works of art in Afghanistan (Meskell 2002; Bernbeck 2010a) and to attacks on tourists in Egypt and elsewhere (Fielding and Shortland 2010). All these events need to be understood as a sharp, collective reaction against the imposition and enforcement of an artificial, deep-time based identity, rather than inherent iconoclastic tendencies in western Asian cultures or enviousness of Western achievements.

6 Militarization and Archaeology

Western neocolonial arrogance toward western Asian countries became patently obvious during the illegal attack by the US and its allies against Iraq in 2003. Not only was this war a breach of international law, but it was followed by a neglect of the tasks of an occupying force as stipulated in the Geneva Conventions Additional Protocols of 1977, which were ratified and signed by the United States. Occupying powers have a duty to keep the country under their purview in an orderly state. Instead, the military forces of the United States were shockingly negligent in preventing the complete or partial destruction and plundering of the National Library in Baghdad, the Iraq Museum, a wide range of other governmental buildings, and even hospitals (Eskander 2004; see also Mattli and Gasser 2008).

Bevan (2006) has noted the connection between the treatment of humans as enemies in war and material culture, including heritage and libraries. He describes how the Bosnian town of Foça was destroyed doubly: its population was massacred and its mosques were blown up. Afterwards, bodies of the victims were thrown into the rubble of their monuments (Bevan 2006: 42–5). In the case of the US invasion of Iraq, we can draw a similar parallel between the treatment of the country's cultural heritage and its population. This is not a case of genocide, but rather a denial of recognition of the people in Iraq as humans and of their heritage as worthwhile in itself (Bernbeck 2010b: 154–5). Only when the military was made aware of the fact that this heritage is widely considered to be "'the cradle of civilization'" did they react (Pollock 2005).

The basic attitude was clearly spelled out by then US Secretary of Defense Donald Rumsfeld, who famously declared: "The images you are seeing on television you are seeing over, and over, and over, and it's the same picture of some person walking out of some building with a vase, and you see it 20 times, and you think, 'My goodness, were there that many vases?'" (Secretary of Defense 2003). After a short period of heaping scorn on those in the archaeological and wider community who called the looting of the Iraq Museum a disaster of enormous proportions, the Pentagon put a self-nominated specialist for antiquities, Colonel Matthew Bogdanos, to work to minimize the reputational damage caused by the events and the Pentagon's initial comments about it (Bogdanos with Patrick 2005). An article in one of the flagship journals of American archaeology

is remarkable for its verbal venom against all those scholars who disagreed with Bogdanos' opinions and who voiced not just concern about the loss of objects during the looting of the Iraq Museum but about the illegality of the war in general (Bogdanos 2005). Following the events and the recovery of some of the objects, the American Institute of Archaeology has adopted a policy in which it maintains very close relations to the military, advising and teaching soldiers about antiquities and the archaeologically attested past (Emberling 2008). Inadvertently or not, they prepare members of the military to lead the next war without the embarrassment of a public display of ignorance about the past of the enemy's country – at least when that past is important for western conceptions of their own heritage.

I took part in a meeting in December 2008 in Cambridge, UK, where the then commanding general of the Multinational Division South-East of the British troops in Iraq, General B. White-Spunner, appealed to archaeologists to return to the times in which there were positive relationships between military and archaeologists, mentioning by name Pitt-Rivers and T.E. Lawrence, and concluding that good cooperation is desirable for the time "when we come to the next military intervention." A member of the US military states, in a , book review, that "there is tremendous potential for effective partnership" between military and archaeology (Rush 2008: 262). That many Near Eastern archaeologists do not take issue with such ideas is underscored by the fact that resistance against the staunchly pro-military policies of the American Institute of Archaeology seems to be non-existent. The involvement of its past-president with the military is advertised in almost every single AIA Newsletter and the organization's popular magazine *Archaeology*. Preparation for future wars is euphemized to the point of being hidden by Lawrence Rothfield in his description of these activities: "The Department of Defense and the Archaeological Institute of America . . . create a 'reach back' capacity to subject-matter experts who could be consulted when American personnel encounter archaeological concerns overseas" (2009: 143). Remarkably, this statement talks about future wars and archaeology while entirely avoiding any mention of violence, killing, maiming, even of the destruction of heritage: in short, any of the realities of war.

Because of its command structures and the denial of internal critique, the military is by necessity one of the most undemocratic institutions in any democratic country (Müller 2004). Its basic principles are largely incompatible with serious academic discourse. One wonders, therefore, how it is possible that sessions organized by military personnel can, without further reflection, be integrated into major conferences of, for example, the Society for American Archaeology, the World Archaeological Congress, and the American Institute of Archaeology (Hamilakis 2009). What is the status of these contributions? Can they be taken seriously when they have been written by someone who, by definition, is not allowed to criticize his or her superiors? The so-called "Human Terrain System," a program designed to integrate academic expertise into the

wars in Afghanistan and Iraq, was one of the last attacks on academia by the outgoing Bush government (González 2010: 111–34). It tried to garner support among the professional group that has always been an important element in colonial expansionary politics: anthropologists. At least one archaeologist has been directly implicated in this unethical program (González 2010: 122). The danger lurking in the background is that the military might increase its cultural heritage units such as the "Center for Environmental Management of Military Lands" (CEMML) at Colorado State University, or Fort Drum's "Integrated Training Area Management" (ITAM), both actively involved in current wars, and that such units will be staffed with archaeologists who then become tools in the execution of governmental will in potential armed conflicts.

Voices against this deeply worrisome trend are few and far between. They come less from the countries whose militaries were part of the "coalition of the willing" (but see Pollock 2003; Bahrani 2008b; Hamilakis 2009) than from other places, such as the derided "Old Europe" (e.g., Löw 2003; Fales 2004a; Sommerfeld 2005). The apparently irresistible attraction of countries officially "at war" seems to draw academics into an affirmative mode. The uncritical stance of archaeologists who are all too keen on obtaining new data from the field and who are therefore not willing to take any risks by protesting against those who might deny access to such data has produced a professional habitus of widespread opportunism and willful ignorance.

Now that the lies that led to the Iraq war, from the purported presence of weapons of mass destruction to supposed connections between the Iraqi government and al-Qaeda, have become known, the long-term fallout should be obvious. The early 21st century will be remembered as a dark period in our discipline. The governments that are known to fund archaeological research in western Asia most extensively are responsible for tens if not hundreds of thousands of civilian deaths, and in addition have produced a massive loss of objects and sites in Iraq, Afghanistan, and elsewhere. Much of this is due to the merciless and neglectful plans of superpower military strategists, be they the former Soviet Union or America, and their neocolonial policies.

7 Western Asian Archaeology and the Heritage Complex

Western Asian archaeology is not only touched by political conflicts, but is at the same time firmly built into a capitalist economy where funding and permits for excavations are more and more linked to the potential to sell. As already mentioned, economies develop unequally, with a tendency toward immaterial labor in the industrialized world and sweatshop exploitation in underdeveloped countries. Overall, this process leads to a fast-growing potential for profits derived from products of archaeological work. Such commodification is apparent in a

heritage landscape that is shaped by several kinds of tourist places, museums of universal and regional scale, and World Heritage Sites.

"Universal museums" such as the Louvre, the British Museum, the Pergamon Museum, and the Metropolitan Museum promote continued art collecting by providing an uncritical, "neutral" background consisting of supposedly legitimate repositories of ancient "art" from all over the world. These museums attract millions of visitors no matter how uninteresting their displays. For example, none of the major exhibits of ancient Western Asian objects in the Louvre, British or Pergamon Museum has any interactive elements. Instead, they show artifacts in a way that presupposes an art connoisseur as visitor. Top-down visitor education can only be afforded by these institutions because tour organizers invariably lead their clients through them. That archaeology can be displayed very differently is clear to anyone who has visited the Museum Kalkriese in northwestern Germany (Derks 2003; Anonymous 2009d).

Current political constellations are such that metropolitan museums cannot expect major new additions to their collections, not to speak of items worthy of display in permanent exhibits. Therefore, we can expect that such museums will change their strategies of exhibition. Instead of static displays of the same objects and monuments, they will likely continually reorder and reinterpret their collections. Objects from storage spaces will have the function of a musical score that can be endlessly replayed in different guises, leading to a refined "taste" on the part of the audiences for judging the historical and aesthetic value of exhibits. Under such conditions, one would ideally also hope for more reflexivity about the changing conditions of interpretation of the past. However, this will predictably lead to endlessly repeated possibilities to produce exhibit materials in the form of books, mugs, logos, bags, etc., forcing those museums to market not so much their objects as the *style of their exhibits*. We experience this already with temporary exhibits that are often analyzed in newspapers in ways closely comparable to concert reviews. Reflexivity, as a result of changing configurations of western Asian and other museum objects that have become so familiar as to be considered essential for one's own national identity (Waxman 2008), will then be tied to profit-making.

If major Western museums have limited possibilities to increase their stocks of archaeological objects, the opposite is true of regional museums in western Asia. The many recent excavations, often related to salvage projects, have led to a vast amount of new items, ranging from the spectacular examples found in the royal tombs of Qatna (Ch. II.41; al-Maqdissi et al. 2009) and Nimrud (Damerji 1999) to the mass of unspectacular pottery, lithics, and animal bones from most excavations. These museums may attempt to reach a wider audience, but this aim has mostly been of secondary importance. The permanent influx of new materials leads, rather, to a preoccupation with how and whether to store and register them.

So far, only very few countries have been successful in creating what Katherine Kreps (2003: 22) has aptly described as "museum-mindedness," that is, a habitus

amongst their population that values the museum as institution and its displays as interesting. In the absence of empirical visitor research, it seems that regional and local museums in Turkey, Syria, Jordan, and many other places are simply containers for cultural objects. Many of the contents are so alienating to local people that they render the creation of interests among local populations impossible. Exceptions are Israel, whose identity is literally built on constructs that connect it to an archaeological past (Silberman 1989; Finkelstein and Silberman 2002), and in part Iranian society, where interest in archaeology has been mounting since the early 1990s.

The historical and social reasons for this state of affairs are evident when one considers that museums *as institutions*, independent of their collections, are colonial constructs (Clifford 1988: 215–52). Much has been written about the forbidding exterior architecture of many museums (e.g., Ritchie 1994). Even an unusual case such as André Godard's design of the Iran Bastan, the Iranian National Museum in Tehran (Gran-Aymerich 1999), is so monumental that the entry *iwan* (barrel-vault) is more of an obstacle than an open door. Furthermore, interest in archaeology and museums reaches at best the small educated middle classes in the major cities of any western Asian country. Museums are vibrant without the influx of foreign tourists only in cities such as Istanbul, Ankara, or Amman, but not in smaller places where the existence of a well-educated middle class is barely to be found.

The creation of local interest is most likely dependent not so much on changes within museums as on changes in schools: curricula in western Asian countries rarely include visits to archaeological or other museums. Communication with colleagues suggests that interactions between museums and schools are driven by the importance of tourism for local economies. Therefore, vast differences can be expected between the situation in western Turkey and eastern Anatolia, for example. However, schools and other educational institutions function as ideological state apparatuses that fundamentally shape citizens as subjects with a specific set of interests (Althusser 1971: 127–88). To take a specific case, identity constructions in the city of Sanliurfa (Turkey) are based more on oral histories that combine in a fantastic way the visible traces of monuments from a range of archaeological periods into a coherent story than by a factualistic discourse that can be constructed around the linear chronological order of displays at the city's archaeological museum (Bernbeck 2005).

Paradoxically, the bureaucracies of western Asian countries watch fiercely over anything excavated, to the point of making sure that objects are discarded under their supervision (witnessed by this writer) rather than allowed to be removed even temporarily from the country. The only exceptions are major exhibits that invariably involve visits by high-ranking politicians. In the latter case, politicians see exhibits as a means to the end of reconfirming or improving mutual cultural relations, while archaeologists think of the political involvement as a means toward the end of displaying the past. Antiquities laws set overly rigid standards

in this respect, and complaints about the inhibiting nature of these rules are rampant. However, such regulations are based on experiences that began in the 19th century (cf. Ch. I.4), including the way in which Heinrich Schliemann "exported" gold objects and jewelry from Troy via Greece to Germany (Traill 1995), the unsavory means by which Borchardt "legally" acquired the head of Nefertiti (Siehr 2006), Lord Elgin's dealings (Hamilakis 1999), and the "contracts" which led to a French monopoly over excavations and major exports of archaeological objects from Iran and Afghanistan (Olivier-Utard 1997).

While displaying some similarities with museums, archaeological sites have a different position in the heritage complex. Antiquities services have realized that these places can become a major source of income, especially when they are declared national or even World Heritage Sites. UNESCO rules lead in many cases to a complete decontextualization of the chosen sites. The product is supposed to be an aesthetically pleasing, sanitized version of the past inserted into a present world whose reality is increasingly one of class conflict. World Heritage Sites effectively ban the "eyesores" of the present, the signs of drudgery and production, of waste and poverty. When sites are threatened with "de-listing" because of plans to build bridges, high-rise offices, residential buildings, or other functionally relevant structures, the potential loss of capitalist income from tourism is valued more highly than the equally capitalist necessities of routine life.

A place such as Petra, as recently as the 1970s still relatively lonely in the middle of steep gorges in southern Jordan, can become one of the most important income-generating entities of the country, complete with competing luxury resorts and hotels, vastly increasing infrastructure projects that are partly responsible for the doubling of the size of the capital's airport, the establishment of whole departments specializing on documentation and conservation of ancient architecture, etc. The brief history of Petra's development is of importance not only as a paradigmatic case of decontextualization, but also because of its phases of overdevelopment. Particularly after the Oslo accords in the 1990s, Israeli tourists flocked to Petra (Stein 2008: 19–44), and the hopes of a major influx of tourists with substantial buying power led to an overdeveloped infrastructure. Significant problems emerged with the end of Israeli tourism following the second intifada, and even more so since 9/11 (Hazbun 2008).

Göbekli Tepe is, according to its excavator, bound to become a similar magnet for public imagination, not only because of the astounding qualities of its monuments, but also because of an attendant discourse that ties it all too directly to elements of Old Testament stories (e.g., Schmidt 2006). Experiences with such sites have a fatal effect on strategies of heritage preservation in general. In many countries, antiquities services are a part of the Ministry of Culture and Tourism (Turkey, Iran, Azerbaijan) or are folded into a Ministry of Tourism and Antiquities (Iraq, Jordan) and are seen by upper-level politicians as an institution to increase income rather than as an entity that is at least as much involved in explorations and constructions of the past. As a result, regulations are made that try

to steer archaeologists into committing to long-term projects at large sites. The salvaging of small sites remains a minor concern, even though thousands of them are lost every year to urban sprawl, uncontrolled building activities and especially large-scale leveling of landscapes for agriculture and irrigation. Large sites that lend themselves to becoming centers of touristic interest are likely to survive changes as a result of developmental processes, while the smaller ones are irrevocably lost. The heritage complex with its capitalist logic doubles the silencing of past subaltern people. Their material possessions may have been small enough to leave only faint archaeological traces, while ancient western Asian rulers and their courtiers not only had the opportunities, but also explicitly voiced the intent of leaving behind a record of their own deeds that would remain visible over the long term. Elsewhere, I have called this phenomenon "political taphonomy" (Bernbeck 2005). Today, the practices of an archaeology that goes along with such policies irreversibly and definitively destroys even those rudimentary last witnesses of past subalterns. The consequences have not been adequately thought through. Any future possibilities of writing a history of ancient western Asia will have to deal with the lacunae created by a political taphonomy.

8 Conclusion

Where is the discipline of Near Eastern archaeology heading? This book may present a state of the art in the early 21st century. However, since we live in times of fast social and technological change, our interests in the past are likely to change at the same pace, resulting in a need to rewrite the history and archaeology of Western Asia and neighboring regions in the not too distant future. The next attempt will not be a better history because our factual base has grown; rather, histories mirror the times in which they are written more than we might want to admit.

I would like to suggest just two issues likely to be of future importance. Modernity's focus on secular, rationalist collective identities has been the basis for university education, historiography, and museums. Public discourse has not left much doubt about the validity of claims of progress toward an increasingly better understanding of the world by means of reason. In recent decades, ideologies of postmodernity have shaken this belief in academia itself. Since 1989, the crisis of modernity has been accelerated by wars in the aftermath of the dissolution of the Soviet Union and by economic globalization and attendant large-scale transnational migrations. Both these processes have created widespread insecurity and led to a return of religious discourses that are used in the construction of rigid social boundaries (Appadurai 2006). The impact of these processes on western Asia has been so incisive that the structures and practices of archaeological work, whether in excavations, during the production of museum exhibits or as interpretive labor, will have to respond. Other regional archaeologies have

already shown potential ways ahead, variously called community archaeology (e.g., Kerber 2006) or postcolonization (Liebman and Rizvi 2008). One of the most important factors for western Asian archaeology is the recognition that the field of stakeholders extends beyond professional specialists. An integration of wider interests in our research does not mean acceptance of exclusionary, divisive constructions of the past or catering to appropriative desires of rich collectors. Rather, planning research will become a more complex, negotiated process that might reorient traditional research interests substantially. But in the long run, this course of conduct will serve the preservation of archaeological remains well, since it could prevent wholesale looting such as that in Iraq in recent years.

In western societies, a dissolution of the social has been diagnosed by cultural anthropologists and sociologists (e.g., Wernick 2003). Atomization of societies and electronic networking as the main replacement for direct interpersonal communication are leading to new conceptions of collectivities. At the same time, biotechnologies and neuroscience decenter not just the human subject but humans as the predestined species of history making. Those working with actor-network theories (ANT) claim that those entities that move history are more than just humans, describing them as "actants," networks of people and things (Latour 2005).

Apparently, we ourselves move into unchartered waters characterized by some as "posthumanist," "anti-speciesist," or cyborgian. Ideas and practices that were once marginal move more and more into our midst. Our own lives, as well as the expectations we derive from them, will inevitably also promote changing perspectives on the past. The relationships within a collective experience, constructed as a narrative of a past, will be adjusted to the realities of a changing present. This might ultimately lead to a questioning of the very basis of our discipline – namely, that human beings and their past form its core interest. Should we follow current trends and prepare ourselves for such a post-human history? Or is our discipline so deeply anchored in humanism that it would lose its identity if it were to adopt such ideas? How will archaeology position itself in an entirely new dispute over ethics, a dispute that it will be unable to avoid?

GUIDE TO FURTHER READING

Nationalism and archaeology have been treated in Kohl and Fawcett (1995). An important recent volume with accounts of archaeological politics in post-Soviet countries and the Levant is Kohl et al. (2007). Silberman's volumes on heritage (1982, 1989) provide highly readable accounts centered on the Palestinian-Israeli-Egyptian region. Meskell (1998) provides insight into background issues. The best treatment of the looting of the Iraq museum is Löw (2003), while large-scale looting of archaeological sites is particularly well analyzed in Emberling and Hanson (2008). The sharp dispute over cooperation

between archaeologists and the military is well summarized by comparing Stone's introduction to Stone and Bajjaly (2008) with its counterpart by Hamilakis (2009); a mid-way position is represented by Curtis (2009). Political economy issues are most clearly voiced in Pollock (2005, 2010) and Pollock and Lutz (1994). Overviews of museums specialized on ancient western Asia are not available. Tourism's impact on archaeology is particularly well described in Hazbun (2008).

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CHAPTER SIX

The Antiquities Trade and the Destruction of Ancient Near Eastern Cultures

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Debate and evaluation of the commercial trade and dispersal of antiquities begins with the comprehension that the vast majority of unexcavated ancient objects in existence, whatever their cultural backgrounds, have been plundered; archaeologists did not excavate them (Nagin 1986: 23; Koczka 1989: 196). Archaeologists designate excavated material as *artifacts*, and those non-excavated as *antiquities*. Possessors of antiquities often claim they had been "excavated," but this term can be used only to designate an archaeological activity. Disorder, pertinent to both legal and archaeological matters, occurs when museums and antiquity dealers, and some archeologists, refer to "provenance" to identify a site-source of an unexcavated antiquity. But the terms provenance and provenience are distinct, inasmuch as they designate two distinct loci and two different activities. *Provenience* specifically designates the site where an artifact was excavated; *provenance* identifies the current or past location of the antiquity: a collector, museum, auction house, or dealer's shop (Muscarella 1977a; and *pace* Brodie et al. 2000: 3). Collector and museum catalogues and exhibition labels, along with auction house and dealer catalogues, sometimes furnish a deceptive claim that the antiquity derived from a named site, but they neglect to name the attribution informant: a dealer or a previous auction house sale (Muscarella 1977c: 77–9; 2000a: 11, 14; Vitelli 1984: 153). A fairly small number of antiquities were indeed plundered and traded decades ago, sometimes legally (e.g., "commercial excavations" in Iran). But these activities have never ceased; they continue

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relentlessly throughout the world. Thus every topic and judgment discussed herein obtains for every ancient culture in the world, without exception; the ancient Near East is but one example of a worldwide situation.

The plunder of sites encased within a mound (Persian *tepe*, Turkish *höyük*, Arabic *tell*) formed by successive settlement constructions, and burials and tombs, has a long history. The archaeological record reveals that the practice occurred throughout antiquity. Numerous tombs in Egypt were plundered millennia ago, the most spectacular being that of Tutankhamun, which was looted after the king's burial but soon thereafter resealed. Royal tombs built within a contemporary, inhabited palace at Nimrud (Iraq) were partially plundered and then repaired while the site was still inhabited. And numerous tombs buried under mounds of earth, called tumuli, and visible to all, were totally or partially destroyed in antiquity and thereafter. Examples include Pazyryk in the Altai (but much was recovered), Sé Girdan in northwestern Iran, Kerkenes Dağ in Anatolia, where scores of tumuli there have been obliterated, and the Sardis area in western Turkey, where 90 percent of the tumuli have been plundered (Luke and Kersel 2006: 185–6; Roosevelt and Luke 2006: 173–87).

The prevalence of ancient tomb plundering across the centuries within Near Eastern cultural regions is unknown. But a good number of burial sites have been excavated in modern times. Examples include tombs at Nimrud, Kish, and Ur (Iraq); Umm-el Marra (Syria); Alaça Höyük and Arslantepe (Turkey); Susa, Hasanlu, Dinkha Tepe, Marlik, and many in Luristan (Iran); and Tillya Tepe (Afghanistan), where two burials were looted but six were excavated, containing thousands of artifacts of gold, silver, and ivory (Hiebert and Cambon 2008: 210–93). Artifact contexts of undisturbed burials are not merely of inestimable value for knowledge of the ancient cultures involved; in some cases, they are our *only* source of cultural data. They also vividly inform us of the information forever lost from the countless plundered tombs.

Ancient plundering was presumably conducted both as desecration and to acquire loot. Looting is the basis for all current plundering, evidenced by the vast number of destroyed cemeteries throughout the Near East. These activities increased in the 19th century, a result of the renewed interest in antiquity and fueled by a fulfillment of social ambitions exemplified by the increased collecting of antiquities by museums and private collectors everywhere (Meyer 1973: 46–7, 191–7). Egypt, the Holy Land, Greece, Cyprus, and Italy were the primary victims, never vacating that status. In the 1870s plundering occurred somewhere near the wide-ranging Oxus river, and a quantity of gold and silver objects (including modern forgeries) labeled the "Oxus Treasure" was acquired by the British Museum. But no archaeologist can identify its find-spot(s) (Muscarella 2003a). In the late 19th century Luigi Palma di Cesnola looted countless sites in Cyprus. He sold thousands of objects, subsequently smuggling and selling thousands more to the newly established Metropolitan Museum of Art (MMA) in New York, for which deed he was appointed the museum's first Director,

thereby establishing its continuous plunder-purchasing tradition, and also encouraging other museums to acquire antiquities.

Plunder also existed at this time in Iran – for example, Hamadan, the Median capital, violated in the 1890s. In the 1920s exploitation in Iran expanded, initiated by the destructions of Luristan cemeteries, financed by Iranian dealers prodded by their growing number of foreign customers. Luristan continued to be plundered for decades, and thousands of its antiquities have been purchased (Muscarella 1988: 112–20, 136–206). Thanks to years of excavations by Louis Vanden Berghe, scores of intact tombs were recovered, providing for the first time local cultural contexts. Only one Luristan habitation site has been excavated: Surkh Dum, in the 1930s (Muscarella 1988: 115–35). And contrary to the belief among some archaeologists, sites in Iraq, a state with anti-plunder laws, were also being looted in the 1920s and 1930s. Numerous Iraqi antiquities were smuggled for sale to Iran, a state with no anti-plunder laws. Hence, for decades scholars accepted as archaeological fact that Mesopotamian artifacts, some bearing royal inscriptions, derived from Iranian sites. Such presumptions resulted in erroneous historical interpretations of alleged ancient Mesopotamian contacts east of the Zagros Mountains (Muscarella 2000a: 15, 81–2 n36). Forgers of provenience, they produced a concomitant forgery of history, generated from scholar-dealer cooperation, which is not the only example (Muscarella 1977b: 162–3; 1977c: 77–8). Scholars have also attributed stray Luristan antiquities encountered as deriving from Armenia, the Caucasus, Iraq, and Anatolia. Luristan antiquities displayed in the Adana and Van Museums in eastern Turkey were confiscated from Iranian smugglers. I also saw in a Van jewelry shop a lion pin stolen and smuggled from Hasanlu in Iran (Muscarella 1988: 112–13, 115; 2000a: 214 n56). In the 1920s antiquities from Iraq also began to reach the expanding markets in Europe and the United States – e.g., purchases by the newly formed Oriental Institute at the University of Chicago, competing with other museums.

Plundering essentially ceased during World War II, but soon thereafter recommenced extensively across the Near East. The prime cause was the appearance of more Luristan material. More momentous was the sudden appearance of exquisite, hitherto unknown antiquities purported by dealers and archaeologists (e.g., André Godard and Roman Ghirshman) to have been discovered in 1947 at Ziwiye, in western Iran (Muscarella 1977a; 1988: 342–9). Museums and collectors all over the world soon thereafter purchased them, and this continued for years as more "Ziwiye" material surfaced. A number of the bronze, gold, and silver objects had been cut into pieces and partitioned among the plunderers, an action resulting in scores of fragments sold all over the world – a common practice (Hiebert and Cambon 2008: 67–79). The partition required years of work by scholars to sort out and match the scattered fragments. Moreover, it was impossible to know how many of the hundreds of artifacts purported to have come from Ziwiye were actually recovered there or in fact came from elsewhere (other sites, e.g. Qaplantu, have been proffered by dealers). Excavations at Ziwiye by

American and Iranian archaeologists recovered not a single comparable artifact: but an historically important Urartian 7th century BC seal was excavated there. The Ziwiye episode epitomizes the utter destruction of a complex polity's integrity and culture, and led to increased plundering across Iran. Thus, following excavation in the southwest Caspian region at Marlik, sites in the area were subsequently attacked. The Kalmakarra Cave in Luristan in the early 1990s yielded scores of hitherto stylistically unknown artifacts that have surfaced in the antiquities market (Muscarella 2000b: 30 n6). Another Iranian polity destroyed is that of the Sasanian kingdom in the south. Hundreds of gold and silver artifacts labeled Sasanian have surfaced over the years, many of which are genuine, but far more of those exhibited in museums or collectors' homes are modern forgeries (Muscarella 2000a: 203–4, 528–35 nn68–70). Only some Sasanian sites in Iran and Iraq and rock carvings have survived.

Plundering in Turkey also increased in the 1930s, accelerating after World War II (Meyer 1973: 57–64). The earlier examples include Açemhüyük, Horoztepe, and, allegedly, "Ordu" (Muscarella 1988: 394–411). More recent cases include Perge (Rose and Acar 1996: 77–8; Renfrew 2000: 32–4); possible Hittite royal tombs, not one of which has ever been recovered; Elmali (Graepler and Mazzei 1994: 92; Rose and Acar 1996: 80–2), and the dynamiting-mutilation of Phrygian rock-cut façades north of Afyon (which I have seen). The 1965 destruction of several tumuli at Uşak, east of Sardis, is a woeful example of tumuli plunder (Özgen and Öztürk 1996; Greenfield 2007: 420–3; Waxman 2008: 135–7, 144–54). Here, hundreds of Greek, Lydian, and Achaemenian artifacts, including painted frescoes torn from tomb chamber walls, were soon thereafter purchased by the MMA, fully knowing their geographical origin. The museum immediately assumed the role of their "guardian" by hiding them in a storeroom for decades (I was secretly allowed to see them). A small number were revealed in 1970, all deceitfully labeled as Greek antiquities, a number of which were not. Not until 1993 did all become public, when, after years of legal costs of millions of US taxpayers' dollars, the museum trustees admitted to having purchased antiquities they knew derived from Lydia (according to minutes of the MMA's Acquisitions Committee; Gross 2010: 356, 443, 445), and returned them to Turkey, their homeland (Kaye and Main 1995: 150–61; Özgen and Öztürk 1996; Rose and Acar 1996: 72–7; Muscarella 2009a: 399; 2009b: 15–16). In all, 39 Phrygian tumuli were excavated at Gordion in central Anatolia, approximately nine of which had been plundered (at least three in recent times); about 10 were excavated at Ankara and later at Bayindir, all intact. These tumuli depositions are our principal source of knowledge of Phrygian material culture. Had the majority been plundered, the culture of a foremost Anatolian polity, that of King Midas, would have been irrevocably eliminated, except for the architecture excavated at Gordion and Boğazköy.

Scores of Urartian cemeteries across northeastern Anatolia have been destroyed. The irrevocable loss of information about the kingdom of Urartu, a prominent

polity, can be shown by the fact that museums and private collections all over the world possess countless unexcavated Urartian objects; excavated artifacts represent but a fraction of Urartian objects available for study. One is confronted with articles and museum and exhibition catalogues written by museum curators who readily inform us of a corpus of antiquities in their possession that was found as a *Fundkomplex* (find complex), *Grabkomplex* (grave complex), *zusammenhängender Fund* (associated find), *Sammelfund* (hoard), "*einen seltenen Glücksfall*" (a rare piece of luck) from Urartu, generously providing archaeologists with named sites where the antiquities were (fortuitously) "found". And the finds were curated, judiciously kept together by the finders and then by the smugglers. All these data were forged in European curators' offices, based on local dealers' claims (Muscarella 2006: 146, 213 n54). Almost 300 Urartian objects are inscribed, but the plundered ones are orphaned historical documents, their original sites unknown. The history and culture of Urartu have been irrevocably crippled.

Plundering in Iraq has increased since the 1990s (Brodie and Renfrew 2005: 346; Muscarella 2007: 609; Brodie 2008: 63–5). Five Iraqi museums were looted in 1991 by locals during the reign of Saddam Hussein, their contents scattered abroad (Bogdanos 2005: 491 n46; Muscarella in press a). A surge occurred in 2003, which then slowed down (Brodie 2008: 69–71) but never ended. The Baghdad Museum was looted by its own personnel (Bogdanos 2005, 2008b; see below) and because of irregular museum record-keeping and missing files, most artifacts smuggled abroad cannot be traced. This will cause legal problems regarding repatriation in the future. Since the early 2000s, many Iraqi objects have been confiscated in Syria, Lebanon, Turkey, the United States, and Europe.

Pakistan and Afghanistan equally experienced devastating destruction of their ancient cultures and history. Many sites in Afghanistan have been obliterated and countless extraordinary antiquities were sold abroad. The Russian archaeologist Victor I. Sarianidi struggled for years excavating several sites, enduring onerous conditions from local discord and thieves – fueled by their foreign customer-sponsors. Sarianidi's excavations yielded architectural, artifactual, and cultural information of a highly developed society of the 3rd and 2nd millennia BC, a polity equal to that of the Sumerians. The Kabul Museum was looted several times during insurrections in the early 1990s, but the museum's staff acted courageously and saved many of its artifacts (Hiebert and Cambon 2008: 35–41).

It is impossible to know how many artifacts have been taken from countless sites in the Near East since the 1930s, but there are unaccountable thousands including an unknown number that remain hidden in museum and dealer storerooms, awaiting a propitious time to be exhibited or revealed for sale. Abetting this situation is that national and international so-called "anti-plunder laws" are mostly disregarded or challenged. The often-praised 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (Simpson 1997b: 297–301) has, in fact, accomplished little to stop plunder. Most nations ignore it and difficulties (purposefully

written into the Convention) exist in its enforcement (Muscarella 1976; 2007: 603–5, 616 n4; Elia 2000: 85; Gerstenblith 2006: 76–80; Prott 2006: 31–41; Vitelli and Colwell-Chanthaphonh 2006: 5–6; Greenfield 2007: 214–37). Furthermore, and rarely noted, self-righteous museum proclamations contra plunder are inadequate, or are even consciously ignored from the start (Muscarella 2007: 611–14; 2009a: 403–4). Only private treaties between nations or legal proceedings based on misrepresentations on custom declarations have some effect (Vitelli 1984: 148–50; Mallampati 2005: 120–2; Gerstenblith 2006: 70–3, 82–3).

The objective of plunder is the acquisition of treasure to be sold: no customers, no plunder. Universally, it is conducted by gangs of looters (often known by the Italian term *tombaroli*) who work as organized teams. Often they commit violence to defend their sites (Brodie et al. 2000: 15–17; *Daily Telegraph*, October 3, 2004). Dealers and their customers disingenuously allege that their antiquities were merely "found in the ground", that "it was a poor farmer plowing his field" who accidentally made a "chance find" (Atwood 2004: 288 n32). Or, in J. Cuno's classic museum-speak/classical critical theory-speak (to let readers know he has browsed Adorno): "It's out of the ground. It's out of the country. It's on the market" – the ground being a "nationalist's" buried cemetery, a tomb, or a mound (Bator 1982: 303–6; Elia 1997: 92; Mackenzie 2005: 55–60, 213–16, 229; Muscarella 2007: 612; in press a). Sometimes the "ground" is a museum in Baghdad, Kabul, or Corinth (looted in 1990; see *Archaeology Online*, February 6, 2001). Chance finds by local peasants do occur; some are isolated examples, but others lead to mass looting. Aside from Luristan, one egregious example is the plunder in 2001 of a number of cemeteries exposed by flooding to the south of Jiroft, in southeastern Iran. Locals discovered intact burials filled with artifacts and immediately began, not accidentally, to seek out others, selling their finds to eager, indeed rapacious, dealers. Simultaneously, forgeries were manufactured and sold alongside the genuine loot, all labeled as "from Jiroft" (Muscarella 2001). Subsequent archaeological activity in the area neglected to investigate these cemeteries, to find out, as Vanden Berghe did in Luristan, whether some burials had been missed: this was a serious archaeological blunder. And whether the removal of hitherto unknown artifacts from the Kalmakarra Cave resulted from a casual or a loot-seeking activity eludes us. A common situation has existed for decades in the United States, England, and Europe, where individuals become part- or full-time "pot hunters" (Brodie et al. 2000: 20–1), looting antiquities for their personal collections or for sale to dealers and museums that openly encourage such activity. Pot hunters are *tombaroli*. A different form of theft occurs, one difficult to identify, when local diggers at an archaeological site steal artifacts. The terracotta tablet recording Sargon's 8th campaign into Iran was stolen at the site of Assur in Iraq by a local worker, who sold it; eventually, in 1910, it was smuggled into France and sold to the Louvre. And this was not a lone incident: I have seen an ivory carving from Hasanlu on sale in an antique shop in a town near the site.

Organized *tombaroli* sell their loot directly to their dealer-employers who then pass it to organized smugglers for transport abroad by land, sea, or air. Smugglers include airline and shipping personnel, individual entrepreneurs and travel agents, as well as diplomats who conceal loot in their uninspected luggage (Majd 2003: 31–4 nn6&7, 73; Mallampati 2005: 117; Greenfield 2007: 247). Sometimes a smuggled antiquity is disguised as a modern copy purchased as a souvenir (Gerstenblith 2006: 71–3). All these activities involve patent criminal behavior (Bogdanos 2008a: 57). Initial smuggling destinations include Lebanon or Syria, thence to Europe, often Geneva, once a primary destination but now more difficult because of local controls, then to European, Japanese. and United States dealers, all legal ports for passage of antiquities (Muscarella 2007: 606; Bogdanos 2008b: 128). A growing smuggling tactic is to arrange for shipments to be sent to Australia or other distant foreign ports, where dealers might employ schemes that camouflage the original derivation, thereby allowing them to claim that the antiquities belonged to a collector in Australia or Hong Kong, etc. – in other words, a forged provenance.

Clarification of the expressions plunder/looting, theft, illicit, and "spoils of war" are essential, inasmuch as each may reflect a different episode and background or a combination of more than one. Determination of illicit acts is but a legal component of the plunder problem, one of the many concerns involved (Bator 1982). To determine if a past or contemporary acquisition involved legal or illegal acts, each requiring distinct courses of action, all antiquities must be evaluated with regard to their acquisition histories. A paradigmatic example, although not per se a Near Eastern matter, is determining which terminology is suitable in the ongoing discussions between England and Greece regarding the repatriation of the "Elgin Marbles" removed from the Parthenon in 1801 by Lord Elgin's agent Philip Hunt, and purchased from Elgin by the British Museum in 1816 (thereafter, continuous removal of sculptures occurred, acquired by European museums; see Waxman 2008: 81). A number of metopes and sculptures were taken, based, it was argued, on the *firman*, a government authorization. Elgin's role in acquiring the marbles, and past and ongoing negotiations for their return, are fully documented by St Clair (1998) and Greenfield (2007: 41–96). Based on contemporary standards at the time of the removal, the issue is partially one of looting, given that unauthorized removal was involved, and bribes were paid to local workers, and threats were used. What remains to be resolved legally (leaving aside national and historical issues) is the distinction between the metopes illegally removed, *contra* the *firman*, and those legally removed. This action is an issue of modern law and is of equal concern to archaeologists and the public. The objects that Elgin removed legally do not come into the category of plunder.

The modern, legal ownership of the Rosetta Stone, discovered in Egypt by Napoleon, is an example germane to spoils of war issues, not to those of plunder or theft. It was captured from the French by the British and taken to England,

and then given to the British Museum. Egypt has demanded its return. In another example, Egypt's demand for the return of the head of Nefertiti, now in Berlin, is different. This was certainly acquired by theft and thus constitutes a modern legal matter: the head was *stolen* from Amarna by the German archaeologist Ludwig Borchardt, who excavated it in 1912. Borchardt deceptively hid the head in a crate beneath layers of sherds for export to Berlin, subverting the legal division regulations for excavated artifacts. The Nefertiti head was kidnapped and smuggled into Germany: an act accomplished by an archaeologist. It was a crate of sherds, *not* the Nefertiti head, as claimed by the Berlin Museum, that had Egyptian approval for legal export (personal information from Rudolf Anthes in 1956). In Anthes' publication on the subject (1954: 19), he ducked the issue, disingenuously asserting: "The unique quality of the NofreEte [*sic*] head was *apparently* not s*ufficiently* stressed by those *concerned*" (i.e. Borchardt; my italics). But the concerned Egyptians knew nothing of the head's existence until Borchardt in 1923 revealed its presence in Berlin. Removal of excavated material from Iraq in the mid-19th century is another matter. For example, Austin Layard excavated at Nimrud, uncovering hundreds of stone Assyrian reliefs and statues. Some of these he donated to American colleges, others he took home to England, where they were eventually were sold to a dealer, and thence to the MMA. By contemporary standards, these acquisitions were not plunder.

The removal of excavated artifacts from Troy in the 1870s by Heinrich Schliemann was also clearly a theft, as the objects – known as Priam's Treasure – were removed and smuggled abroad contra his *firman*. Negotiations over the return of the treasure to Turkey has been ongoing for decades, complicated by their present museum locations (see Simpson 1997a). In 1926, James Breasted purchased a gold tablet that had been stolen from the Vorderasiatisches Museum in Berlin. A more recent staff theft occurred within the Turkish museum in Antalya (Waxman 2008: 152–4, 162–72). Years ago, I was shown a cylinder seal donated to the Royal Ontario Museum by a donor of objects. I asked a scholar to research it, and she discovered that Leonard Woolley had excavated it at Ur, showing me its publication photograph. The donor protested; he had purchased it from an honest Iraqi *sheikh* who told him it had been found at site X. Once convinced, he returned the seal to the Baghdad Museum where one of its staff had stolen and sold it.

Antiquity dealers are the penultimate destination for plunder. They bear sophisticated names such as Ariadne Galleries, Royal-Athena Galleries, Phoenix Ancient Art, or simply the dealer's name. They describe themselves as experts, esteemed, honest, and reputable. They save and sell "art" "acquired through trade" and "in good faith," implying legitimate acquisition (Muscarella 1977b: 159–60; 2000a: 2; Koczka 1989: 190–1; Atwood 2004: 31). The final markets for dealers' antiquities are collectors and museums (Kersel 2006; Muscarella 2007: 611–14; 2009a: 404–5; ini press a). Auction houses are also major vendors of antiquities, many of which have been recently plundered (Brodie et al. 2000:

23, 26–9). To disguise these antiquities, dealers and auction houses provide a camouflage ruse, proffering a deceptive provenance by claiming that their antiquity derived from "an old private collection" recently discovered in a basement in Italy or Germany, or derived from a "noble European family" or from the "Collection of Monsieur R" (Atwood 2004; Simpson 2005: 29–30, 32; Muscarella 2007: 610; Christie's, London, 10/25/07: 83). To document a purportedly old provenance, dealers will supply forged letters, eagerly embraced by their customers, as documentation that the purchase was legitimate (Atwood 2004: 84). A prominent example is the purchase by the Getty Museum of a Greek *kouros* in 1984, for which acquisition a letter dated 1952 was presented to confirm that it had belonged to a Swiss collector for decades, therefore acquired "in good faith". Some years later, the museum's director announced that he had only recently discovered that the letter's envelope had an anachronistic postal zip code and was a forgery (Elia 1997: 95; Lapatin 2000b: 43–53; Renfrew 2000: 41); some scholars think the *kouros* itself is a forgery.

Dealers often cite an earlier auction sale as a provenance for their antiquity, which is merely a record of yet another modern provenance. They ship their antiquities for sale to foreign auction houses, enabling a purchaser to claim a provenance in France or England. Dealers also utilize auctions to sell their merchandise anonymously, especially when they suspect it is a forgery. Another antiquity-selling market is the internet – in particular, eBay – where, alongside genuine artifacts, forgeries are offered for sale (Stanish 2008). Countless postings offer objects alleged to derive from Africa, Mexico, and South America (Kelker and Bruhns 2010). Such behavior is classic "bazaar archaeology" (Muscarella 1995; 1999; 2003a: 264–5; 2006: 151–2, 157, 161–5).

It is evident that museums worldwide have been and remain the foremost purchasers of plundered antiquities (Koczka 1989: 192–3; Muscarella 2000a: 23–5; 2007: 611–12). Curators, some of whom are archaeologists, initiate their museum acquisitions, seeking out and proposing purchases (Muscarella 1974; 2007: 612–13; 2009a: 400–1; Cook 1995: 181, 185; Graepler 2004), but ultimately directors and trustees make the final purchase decisions. Unknown to most scholars and the public is that they make purchases (and accept donations) knowing that they were plundered and smuggled abroad, an activity rarely reported in the press (for rare examples, see E. Wyatt, *The New York Times*, 1/26/08: 1, 13; 1/30/08: A11). Trustees include not only wealthy and powerful citizens but also national and local government officials and owners of important newspapers, all functioning in conflict-of-interest roles (Silver 2006: 3; Muscarella 2009a: 399; 2009b: 7, 11–12). Some trustees collect antiquities, in part for eventual tax-deductible donations to their museums (Nagin 1986: 24; Renfrew 2000: 27–35; Atwood 2004: 141–2; Silver 2006: 1; Wald 2008; Muscarella in press b). Private collectors are also wealthy individuals of social importance, exemplifying these roles by their purchases. These are exhibited in, or donated to, museums, for which they have galleries named after them, and

receive tax-deduction benefits based on the alleged increase in value since the original purchase (Brodie and Renfrew 2005: 353–6; Silver 2006: 1, 7–8; Greenfield 2007: 259). And noteworthy is the fact that it is self-serving antiquities dealers who furnish the museum appraisals. Collectors are cited by dealers and museum personnel as "prominent" or "serious" (read "serial") collectors, as having a "lust" or passion for art, thus revealing their infatuation (Graepler and Mazzei 1994: 81–4, 87; Muscarella 2000a: 9, 11–13, 23 n5).

Consequently, pivotal to comprehending the nature of the plunder culture is full awareness that, worldwide, museums and private collectors are the *financers and sponsors*, the *beginning* of the long chain of the process (Muscarella 1974; Elia 1994: 20; Brodie and Renfrew: 2005: 349). An Iraqi official addressing the value of antiquities succinctly articulated this in the following words: "For me, for you, it is all priceless, but for them [the plunderers] it is useless if they can't sell it in the market" (S.L. Myers, *The New York Times*, 06/26/02: 6).

Museums and collectors identify themselves as protectors of the world's culture, stewards of antiquities, "Guardians of the Past," fulfilling a "public responsibility to collect" (Muscarella 2000a: 1–29; Renfrew 2000: 30; Mackenzie 2005: 158–62; for an accurate elucidation of stewardship, see Lynott and Wylie 2000: 35–9). Curators will lie about the actually known site of their museum's antiquities, sabotaging archaeology, as well as mocking the museum's educational mission (e.g., the MMA's Uşak purchase: see above). To justify their deeds, museums and collectors identify plundered countries in classic imperialistic language as "source nations" (Cuno 2008: 89); they proclaim that plundered artifacts are merely the "self-proclaimed cultural property" of these nations' chauvinistic, nationalistic, indeed "racist" attitudes (Cuno 2008: xxxii–xxxv, 13–15, 26, 124; Waxman 2008: 176). They insist that antiquities are not the property of any one nation, and to state otherwise is a political construction, for they are the common property of a world society, composed of "encyclopaedic" (read "non-Near Eastern") museums (Cuno 2008: 129, 139; Muscarella in press a); and plunderers (a word never used by Cuno), sellers, and buyers are engaged in normal, licit business and positive cultural transactions. Underlining this decree, which consistently refrains from discussing how antiquities are obtained, is that once museums and collectors have acquired property from a source nation, *ipso facto* it becomes *their* legal, non-racist, non-nationalistic property (Muscarella in press a). Government collaborators support these proclamations by formulating laws favoring the import process (Muscarella 2007: 604–5 n1). Another strategy argues that nothing should be done to stop plunder because it would be like trying to stop drug smuggling, that restricting "legitimate dealers" and customers from legally selling and purchasing antiquities will promote "a black market," notwithstanding the fact that the antiquities market is already a black market (Elia 1997: 87). If preventive measures are established and enforced, both plunder *and* antiquity sales will diminish: no museum or serial collector could then exhibit or donate their illegal purchases. Note also that "source country" is the term

employed to define the provenience of kidnapped women sold into prostitution slavery across the world. She's out of her home. She's out of the country. She's on the market.

Professional archaeological behavior is an important component of this review. A good number remain indifferent (Muscarella 2000a: 26n8; 2007; 2009a: 395–6, 398–405) or are publicly troubled solely within the areas they excavate, fully ignoring others (Muscarella in press a). Some archaeologists remain unaware of the plunder culture and the contextual existence of unprovenienced antiquities possessing only modern provenances; as students they were never informed by their professors (Muscarella 2000a: 9–10) and they pass down their lack of knowledge (but see Vitelli 1996). Some fully ignore it. Further, *nota bene*, many university- and museum-employed archaeologists actively support antiquity acquisitions. They collaborate with and advise dealers and collectors on their purchases (Muscarella 1977b: 160, 163–4; 2000a: 3–8, 13–15; 2009a: 398–403 and n38; Vitelli 1984: 152–4; G.G. Griffin 1989; Graepler and Mazzei 1994: 73–4; Elia 2000: 85; Brodie 2008: 68) or write muted apologies for their roles (Muscarella 1980; Cook 1995). Archaeologists write articles and provide guidance for the antiquity dealer-owned magazine *Minerv*a (Muscarella 2009a: 403 n38; in press a) and ones promoting antiquity collecting, such as *Odyssey*. Some meet socially with dealers and collectors for collaborative purposes, providing them with advice, and give lectures on their excavations and research, seeking prestige and financing (Muscarella 2000a: 23–5 n5; 2007: 612–14; 2009a: 401; in press b). Others accept employment with collectors, dealers, and auction houses, recommended by their archaeologist professors.

Some archaeologists have also functioned as antiquity dealers themselves (Butcher and Gill 1993); others actively support them (Muscarella 2000a: 7–8, 23, 25–6 nn7&8). Some have stolen artifacts from their sites and sold or donated them to foreign museums and collectors (see above). The most outstanding cases were Heinrich Schliemann (1822–90; see above), Roman Ghirshman (1895–1979), and Ernst Herzfeld (1879–1948). Herzfeld was one of the most brilliant (and devious) Iranian archaeologists known. He stole many artifacts that he himself had excavated at Persepolis and other sites, then illegally, contrary to archaeological principles, smuggled them abroad via Swedish and German diplomatic luggage. He (and his sister) then sold these on to several museums; he also sold forgeries (Majd 2003: 73, 197, 199, 200–4; Muscarella 2005a). One example, looted from Persepolis and now in the MMA, is a foot with an etched Greek drawing, cut from a relief by Herzfeld and smuggled abroad (Muscarella 2005a: 431). Nevertheless, scholars continue to defend Herzfeld's crimes, claiming that he was merely "an avid collector of antiquities . . . he collected small objects" ("avid" here being a synonym for lust and passion, thereby justifying rapists, those of the earth and others: Muscarella 2000a: 12, 23–4 n5); only mentioned in a footnote are his sales to the MMA of "artifacts from the Persepolis excavations" (Mallampati 2005: 111–12, 116; Muscarella 2005a). Such behavior

remains unfamiliar to most scholars, students, and the public. In the past, archaeologists did sometimes purchase antiquities from dealers, which was not considered a cultural crime at the time, and their collecting cannot be judged by modern standards – a case in point is André Godard (1881–1965; see Muscarella 1977a: 197; whether Godard sold antiquities is unknown). Flinders Petrie purchased antiquities, but he did not steal artifacts from his excavated sites; the same applies to James H. Breasted, who purchased material for the Oriental Institute (Muscarella 2005a: 432).

Roman Ghirshman looted artifacts from his own sites and then gifted them to foreign museums, which led to his being awarded Life Membership of the MMA (in 1957); he also sold antiquities (Muscarella 2000a: 25–6 n7). All the artifacts sold/donated by Herzfeld and Ghirshman were illegally removed, thefts from Iran, their legal owner. As for Arthur Upham Pope (1881–1969), he was one of the most powerful and duplicitous individuals involved in the destruction of Iran's culture. He warrants discussion both because he and others have asserted he was an archaeologist (Mallampati 2005:112), although he was not, and because he was for 45 years one of the most active Iranian antiquity dealers known. Pope established archaeological organizations as scholarly fronts for his plundering activities, using them as camouflaged "archaeological" venues for his dealer activities. He commissioned thefts from Islamic shrines and purchased countless antiquities, smuggling them abroad in diplomatic pouches. His writings defend his archaeological responsibility to purchase and export antiquities, arguing that forgeries (that he and others sold) were a minor collaborative problem (Muscarella 2000a: 209–11 nn36&38; 1999: 7–12; Majd 2003: 29–53).

Like Pope, Moshe Dayan (1915–81) was not an archaeologist, although he was lauded as "a superb archaeologist" and "an amateur archaeologist," labels he accepted. He was an Israeli General and later Minister of Defense. As a General engaged in battle and continuing for decades, from 1951 to 1981, he looted scores of sites in Israel, in contested state areas and the Egyptian Sinai, and then sold the antiquities from his home to dealers, collectors, and museums. Because of his power, the Israeli government and archaeologists who opposed his activities could do nothing to stop him (Kletter 2003).

Recognition of these complex and intertwined areas is gradually increasing. Beginning in the 1970s, some archaeologists began to write and lecture about these issues, slowly joined by others; they became the incipient core of professional opponents of plunder. Clemency Coggins was the first archaeologist to address the matter publicly, followed by Ezat Negahban (Meyer 1973: 38–40; Muscarella 1999: 6); they converted the present author, who, like most archaeologists, had no prior knowledge or appreciation of these matters. Increasingly, more scholars (but alas, still a minority within the discipline) have become actively involved, lecturing and writing on these issues – e.g., N. Brodie, C. Chippendale, R. Elia, B. Fagan, D. Gill, D. Graepler, J. Greenfield, E. Herscher, M.M. Kersel,

C. Renfrew, K. D. Vitelli, and P. Barford – but paradoxically, they rarely function collegially and do not collaborate to organize sessions at professional meetings and conferences, a disservice to students and the public. Linked to this issue is that most professional archaeological organizations are only mildly active, do nothing, or worse. For example, the Archaeological Institute of America (AIA) functions as a venue for a small number of anti-plunder lectures delivered at national meetings, mostly concerned with one specific country, and do not promote lectures on plunder in their sponsored lecture tours across the United States. More devastating, the AIA has vigorously embraced a plunderer, Indiana Jones, as a *model* for archaeology students; it has also joined forces with active plunderers (Fagan 1996: 239; Muscarella 2009a: 398, 402; in press b; SAFE Corner, 6/5/08). The Society for American Archaeology is the single exception in the United States of a professional organization fighting the fight (Lynott and Wiley 2000). And from its inception in 1974, *The Journal of Field Archaeology*, founded by archaeologists, functions as a *singular* example of an archaeological journal actively engaged in plunder issues in all areas of the world, its original aim. Websites such as *Culture Without Context*, *Looting Matters*, *SAFE Corner*, *paul-barford* and *Jarvis* (a compendium of relevant publications) are also active in the fight, constantly publishing reports from all over the world. Also, a growing number of publications from scholarly conferences have appeared (e.g., Messenger 1989; Vitelli 1996; Lynott and Wylie 2000; Brodie et al. 2001, 2006). A non-professional, lay organization in the United States, Saving Antiquities For Everyone (SAFE), has been vigorously active in exposing and fighting the plunder culture, revealing its existence everywhere and naming those responsible.

Although under-appreciated by most scholars (and thus their students too), the connection between the antiquities trade and the existence of forgeries is obvious. As the archaeologist E. Unger succinctly stated, "As long as there are people who collect antiquities, there will also be people who forge antiquities" (Muscarella 2000a: 12). Forgeries are created to be sold as ancient antiquities. Virtually all museums and collectors worldwide have purchased and labeled forgeries as ancient antiquities; several museums in the United States possess nothing but forgeries. Archaeologists incorporate forgeries into their courses, innocently integrating them into their teachings of ancient cultures. Museum-employed curators and archaeologists exhibit and publish forgeries, sometimes knowingly, obeying museum orders for fear of offending rich collectors or their colleagues (Muscarella 1980:117 n3; 2000a: 4–5, 13–14, 37–9). Archaeologists also, innocently or not, publish forgeries as ancient artifacts. A prominent example is the archaeologist Roman Ghirshman, whose many publications, both monographs and exhibition catalogues, are standard scholarly texts. He was the most prolific publisher of Iranian forgeries, baptizing them as ancient productions and providing them with forged (by him) proveniences; many of them were in the antiquities market (Muscarella 1977b: 164 n42a, 182 n83; 2000a: 28 n11, 34, 205 nn2&4). On one occasion, Ghirshman published details of antiquities he asserted had been

"recently discovered" in Iran in the respected *Illustrated London News* (*ILN*, April 2, 1960: 550), then an important outlet for the publication of actual archaeological discoveries. An unnamed archaeologist (Ghirshman?) employed the same tactic in the same venue (December 1967: 54–5) concerning two antiquities, alleging them to have been recovered together with Parthian coins in Iran. On both occasions all the antiquities presented were forgeries, their provenance a forger's workshop (Muscarella 2000a: 8). Since Ghirshman had published reports on his excavations in the *ILN*, the *ILN* assumed this ruse was but another such report. Arthur Upham Pope also deployed the *ILN* to sell his antiquities (Muscarella 2000a: 210 n38).

The detection of forgeries takes years of studying excavated artifacts, their specific styles and motifs, as well as the structuring technologies and materials employed by individual cultures, i.e. to employ connoisseurship (a word now condemned by some). Connoisseurship, like all heuristic investigations, is fallible but is absolutely essential for the study of artifacts and antiquities, with the caveat that, aside from scholarly mistakes and ignorance, it has its manipulators (Muscarella 1977b: 165–9 n68; 1980: 118–19; Löw 1993: 39–41; Simpson 2005: 28–34; Grann 2010). While archaeologists are becoming capable of recognizing forgeries, some (most?) who are anthropologically trained are not. Brazenly rejecting these skills, they assert, "Archaeology is anthropology or it is nothing" and they scorn traditional archaeologists as "object oriented self serving . . . antiquarians" (Muscarella 2000a: 10–11; Wylie 2000: 139, 144). Accordingly, those who proclaim this off-the-wall dogma theory ignore stylistic evaluations of artifacts they encounter (except pottery), and lack both knowledge and interest in evaluating forgeries.

Some forgeries exhibit good workmanship and artistic skills (e.g., Waxman 2008: 153–62), others reveal unskilled hands, incorporating stylistic errors or anachronistic details (Löw 1993; 1998: 533–62; Lawergren 2000; Muscarella 2000a: 31–215). Both categories are sold and published as ancient objects. Forgers copy both forgeries and excavated artifacts. They also create pastiches, utilizing a genuine core with the addition either of non-related ancient or modern-made elements, or add engraved scenes to genuine unadorned plaques or vessels (Muscarella 1999). Forgers often attempt to create a *unikum*, a hitherto unrecorded type of artifact and therefore all the more valuable to customers and scholars (Butcher and Gill 1993: 386; Muscarella 2000a: 17–19, 209 n31; 1999; 2006: 166–7). Forgers have lifetime jobs, although some are now working part time.

Scholarly awareness of forgeries of ancient Near Eastern artifacts began in the late 19th and early 20th centuries but then declined (Muscarella 1977b: 154–5, 169 n68; 2000a: 9). Early discussions were primarily concerned with a specific object or inscription, many of them alleged to be Hebrew and Christian texts. A noteworthy example of such a forgery occurred in Italy with the appearance of a gold fibula inscribed with the name Manios that was presented by an

archaeologist in 1887. The fibula was enthusiastically accepted because its inscription was considered to be the earliest Latin writing ever recorded, a prize indeed. Years later it was revealed to be a forgery, commissioned by the archaeologist, who was seeking professional fame (Muscarella 2000a: 11; for a description of another gold fibula that eventually turned out to be a forgery or pastiche, see Simpson 2005: 28–32). At present, relatively few scholarly references to forgeries occur in archaeological literature, often through ignorance, but also because some scholars deliberately suppress discussions to defend themselves or colleagues, which deeds play a significant role regarding general ignorance of their existence (Muscarella 1977b: 154–6, 161–3; 1980: 117–18 n3; 2000a: 2–5, 7–10, 12; in press a; Butcher and Gill 1993: 387, 396, 399 n4, 396 n36).

Thousands of forgeries of Ancient Near Eastern antiquities have been created and sold in the post-World Ward I period. All antiquity dealers sell forgeries and some have collaborated with forgers for decades, especially those in Iran. Some dealers who possess both forgeries and genuine antiquities attentively offer them for sale separately, to suit their customers' expertise or lack thereof. Dealers advertise themselves as experts on forgeries and state they easily recognize them; all assert they never sell forgeries. Cleverly, they also donate forgeries to provincial museums, where levels of knowledge amongst the staff are minimal, often dealing with the director who normally is not an antiquity specialist, but who wants to "build up" the museum's collections. This gifting tactic is employed to win over the museums as future customers and to stamp the gift as genuine – if it's in a museum, it's real; the dealer also claims a tax deduction. One unfortunate result of this is that the Israeli government has created two postage stamps depicting forgeries in the Israel Museum (Muscarella 2000a: 55, no.33; 63, no.11). Forgeries exist of every conceivable type of ancient artifact and material. The materials employed are extensive, but gold and silver are favorites because of their inherent value and aesthetic appeal. Other materials include bronze, glass, ivory, various stones, and terracotta (the latter are commonly forged in pre-Columbian areas; see Kelker and Bruhns: 2010: 20–1, 129–60). Forgeries are usually manufactured as unique, typical, or prominent antiquities, but for tourists and less wealthy collectors there exist forgeries of simple, inexpensive objects – e.g., lamps, statuettes, carvings, seals, and objects with religious or erotic scenes (a bestseller).

Following a significant archaeological discovery or a recent plunder, forgers immediately begin copying the excavated artifacts, a practice not limited to the Near East (see Butcher and Gill 1993; Lapatin 2000a: 18–28). Forged Iranian antiquities are very common, resulting in countless examples based on artifacts from Marlik, Luristan, the Achaemenian period, Ziwiye, Jiroft, and Kalmakarra Cave (Muscarella 1977c: 78–9; 2000a: 44–133; 2001; 2003a). Since the 1950s forgeries of Sasanian artifacts, in numbers exceeding those excavated, have surfaced (Muscarella 2000a: 203–5 nn68–70, 528–35). Forgers often unwittingly produce stylistic or physical discrepancies – e.g., eye structure – or misinterpret

ancient manufacturing techniques (Löw 1993: 38; 1998: 525–62; Muscarella 2000a: 31–132, 206–12 nn8–50; 2008a: 14; in press b). From Mesopotamia come countless forged seals, heads and statues of humans, deities, animals, vessels, etc. (Muscarella 2000a: 159–87, 463–87). From Israel there are "unique" historical and religious inscriptions, burial urns, tablets, and religious items (Silberman and Goren 2006: 49–63).

Not surprisingly, Anatolia has experienced the same fate. Among the forgers' most successful productions are vessels and scores of nude terracotta and stone female figurines alleged by dealers and their purchasers to have been recovered at the Neolithic site of Haçilar. These figurines are readily distinguished from *excavated* examples because of crucial misunderstandings both of the ancient manufacturing method and of the originals' thigh and leg positions – joined, not separated (Muscarella 1980: 120; 2000a: 135–57, 434–53). The use of stone for forged figurines has been described (accurately!) by its museum purchaser as a "Novum" (Muscarella 1980: 120). A number of plundered Urartian artifacts have been embellished with modern engraved "Urartian" and non-Urartian decorative scenes, accepted by some scholars and museums as data for enlarging our knowledge of ancient Urartian art, history, and foreign contacts (Muscarella 2006: 153, 165–6, 174). A small number of Hittite forgeries exist (Muscarella 2000a: 143–56, 454–61).

A "discovery" reported by an archaeologist involves objects allegedly derived from two tombs at Dorak, in northwestern Turkey. They were first introduced in the *ILN* (November 28, 1959: 754, Pl. i–iii) by the brilliant and charismatic archaeologist James Mellaart. He later claimed that in 1958 he met a woman on a train who took him to her home in Izmir, there showing him objects from two tombs she said were discovered in 1922, which is 36 years before Mellaart saw them. She allowed him only to sketch the objects, one of which bore an Egyptian inscription, as well as the tomb plans showing the objects in situ. Published in the *ILN* were painted drawings created in Ankara from the sketches. If genuine, the corpus would attest to the existence of a hitherto unknown, complex culture in western Turkey in the 3rd millennium BC close to Troy. The precisely drawn tomb plans (first published in 1967), with artifacts shown in place, explicitly suggested that an archaeologist had painstakingly excavated them, and the drawn objects are spectacular and unique. However, not a single object or photograph has surfaced to date and many scholars believe that the "Dorak Treasure" is a masterful (psychological?) fraud, the drawings and tomb plans modern creations (Muscarella 1988; 397–8 n4; 2000a: 141; Greenfield 2007: 416–17; S. Mazur in *Scoop*: 7/27/05, 10/4/05, 10/10/05 [www.scoop.co.nz]). The very same problem applies to several drawings of fragmentary wall paintings alleged by Mellaart to have been excavated at another of his sites, Çatal Höyük. No archaeologist at the site had ever seen these fragments or the paintings or their photographs (Muscarella 1988: 397–8 n5; 2000a: 141–3). Forgeries implanted by archaeologists at their sites have also occurred in Japan (*Harvard*

Asia Quarterly, VI/3, 2002) and is alleged to have happened at a site in the United States (*The New Yorker*, 8/12/95: 66–83).

Scholars and curators forge proveniences by stating that an unexcavated antiquity, whether a forgery or genuine, is "said to come from site X," neglecting to mention that it was a dealer who said so (Muscarella 1977a: 216; 1977b: 163). Another deception, usually made by dealers, is to assert that there are very few forgeries, that the quantity alleged is exaggerated and therefore forgeries are a minor issue – a claim made against the thousands in existence (Muscarella 2000a: 7–9; 2005b). Discovering that a forgery has been purchased, curators become indignant: they have been deceived and dissimulate to protect their own and the museum's reputations. They will remove the forgery from view or leave it on view, especially if it happens to belong to a prominent collector whose antiquities are being exhibited (Muscarella 2000a: 2–4, 7, 9; Kelker and Bruhns 2010: 12–14, 42, 52–7). An archaeologist curator at a Canadian museum accepted a donation he knew consisted of forgeries so as to avoid offending the rich donor and losing future contributions (Muscarella 2009a: 401).

Unqualified scholars have accepted payments to write letters authenticating forgeries, usually on their university stationery (Muscarella 2005b). More commonly, conservators are employed by dealers and collectors to authenticate their forgeries in writing. Written in positive terms, these authentications often *consciously* avoid crucial structural and chemical analyses (so as not to lose a good customer) and their positive reports are subsequently defended as objective scientific endorsements (Elia 1995; Tubb 1995a: 256–60; Brodie et al. 2000: 18; 2002: 286–90; Muscarella 2000a: 139–40; 2008a: 10–12, 14–15; Grann 2010). Some conservators work independently; others are employed by museums where they authenticate not only museum acquisitions but also the personal purchases of the trustees (their employers) and rich donors (Silver 2006: 3–5; Muscarella in press b). By professionally performing these paid functions, they are partners and promoters of a criminal plunder-laundering process. At least one honest independent conservator has been banned from providing further consultation by a United States museum because he reported that many of its possessions from many geographical areas are forgeries. And furthermore, some conservators are themselves forgers, causing serious scholarly and legal issues (Grann 2010).

To summarize fully the consequences of plunder would take more discussion than is possible here. Concisely, then: it represents the partial or total elimination of modern endeavors to acquire an accurate comprehension of this planet's ancient histories and cultures, to accurately situate the roots and developments of modern civilization. This is the consequence of the destruction of ancient tombs and civil and religious architecture that results in the eradication of original depositions and juxtaposition of artifacts. With the original deposition locus unknown, their intended functions and meanings are also unknown. Excavations require years of fieldwork, photography, and drawings, and scores of years of close study, interpretation, and publication. *Tombaroli* need only a few days' work

in the ground. Consider the years of in situ research required for the excavation and recording of the excavated artifact depositions and funeral process of the tomb of Tutankhamun. Or the countless months involved in on-site excavations followed by the recording and drawing of the tomb's architecture and the hundreds of juxtaposed artifacts found with the Phrygian king buried in Tumulus MM at Gordion (probably of King Midas's father). It took Ezat Negahban 11 continuous months to complete his excavations at Marlik (November 1961 through October 1962), harassed continuously by thugs who attacked his camp, demanding the site for themselves (Muscarella 2000c). The Iranian government had to send police in to protect him.

Research on unexcavated antiquities permits scholars merely to study mute, plundered antiquities only in a phenomenological sense, to attribute them to a particular culture and date through connoisseurship. Because in ancient times artifacts were sold, gifted, or dedicated to faraway centers, archaeologists cannot attribute them to their depositional site, even if the culture can be determined (Muscarella 1977a; 2000a: 13–14; Elia 1997). Therefore, unexcavated antiquities, along with (unexcavated) forgeries, both attributed to ancient sites or cultures, create a fragmented and fictional history of the past. One example is the creation of "Median" art, a concept derived solely from speculations on unexcavated antiquities, both genuine and forgeries, and for which polity not a single artifact is known to exist (Muscarella 2000a: 46, 73–5). All these matters articulate the dysfunction within the archaeological realm.

In recent decades there have been a growing number of successful legal suits by several nations to recover artifacts plundered from their ground and sold to museums and collectors abroad (Gerstenblith 2006). In a number of cases, involving years of litigation, the plaintiff plunderers eventually capitulated and returned the booty to its legal and natural source nation (Prott 2006; Sokal 2006). The most prominent, successful cases have resulted in the return to Italy of the MMA's Euphronious *krater* and artifacts from Morgantina, and the same museum's return to Turkey of the Uşak plunder (Özgen and Öztürk 1996: 11–13). In the instances involving Italy, the museum negotiated an "exchange" whereby vases excavated in Italy were "loaned" (i.e., ransomed) for exhibition (Brodie and Renfrew 2005: 349–50). The MMA also returned a stone relief to Egypt. As a result of legal actions, *some* objects from the Getty Museum, Boston Museum of Fine Art, Princeton Art Museum, Cleveland Museum of Art, and the Louvre have been returned to Italy, Greece, and elsewhere (Brodie et al. 2000: 9, 47–8, 54; Waxman 2008: 63–4, 298–342, 356–64). Also returned were a few plundered antiquities from some collectors, including MMA Visiting Committee member Michael Steinhardt (to Italy) and the collector and MMA trustee Shelby White (to Italy and Greece). But for more than two decades, White consistently refused to return the head of Hercules plundered from Perge in Turkey (Rose and Acar 1996: 77–8; Brodie at al. 2000: 32; Atwood 2004: 144–5; Waxman 2008: 137; Muscarella 2010), until September 2011, when she and her co-owner

partner, The Boston Museum of Fine Arts, returned the head (a gift from White) to Turkey, but with the caveat that they had acquired it "in good faith" (*Boston Globe*, September 11, 2011).

GUIDE TO FURTHER READING

As primary and essential reading for scholars, students, and the concerned public interested in the subject matters discussed herein, the volumes edited by Vitelli (1996), Brodie et al. (2000, 2001, 2006), Lynott and Wylie (2000), Brodie and Tubb (2002), Brodie and Renfrew (2005), and Vitelli and Colwell-Chanthaphonh (2006) are especially recommended, as are the publications of R. Elia, J. Greenfield, U. Löw, C. Renfrew, E. Simpson, K.E. Meyer, S.R.M. Mackenzie, and O.W. Muscarella. Bibliographies in all these volumes contain many more relevant works. Also strongly recommended are Atwood (2004) and Watson and Todeschini (2006). Together, these last two books are exemplars of the problem, documenting succinctly and fully the machinations and worldwide connections of the plunderers and their facilitators. For legal matters, a complex issue dealing with old and contemporary laws, see Bator (1982), Simpson (1997b), St Clair (1998), Majd (2003), Gerstenblith (2006), Prott (2006), and Sokal (2006). For scientific matters, Muscarella (2008a) and Grann (2010) are recommended.

PART II

Late Pleistocene and Early Holocene Hunters and Gatherers

CHAPTER SEVEN

The Levant

Alan H. Simmons

1 Introduction

Late Pleistocene and Early Holocene hunters and gatherers of the Near East are usually referred to as Epipaleolithic. The Near Eastern Epipaleolithic began c.22,000 and ended approximately 10,000 BP (i.e. before present; dates in this chapter are uncalibrated). It is represented by a distinct but often confusing array of assemblages and "cultures." Often, these distinctions are based on tiny microlithic tools that occur in an incredible variety of types and sub-types, some subtly defined. Perhaps more important, however, are the dramatic changes in economic systems that occur during the Late Epipaleolithic, for it is here that we have the seeds of agriculture and the first hints of sedentary village life. Thus, Epipaleolithic peoples hold a singular significance since, in many cases, they set the stage for the subsequent "Neolithic Revolution" (Simmons 2007). As is clear from other chapters in this volume, the Near Eastern Epipaleolithic was widespread. It is, however, perhaps best known in the Levant, at least partially due to the relative ease of working in countries such as Israel and Jordan.

2 History of Research

The systematic study of the Epipaleolithic did not occur until after World War I. Near Eastern archaeology was in its formative years, and while emphasis was

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Edited by D.T. Potts.

on biblical and classical antiquity, significant contributions to prehistory also were made. Among these were documenting microlithic industries during the 1920s and 1930s. Dorothy Garrod (1957) recognized two distinct groups, which still form the basic research framework: the Kebaran (the earlier) and the Natufian (the later). These industries were usually typologically defined by hallmark microlithic tools, implements manufactured on diminutive bladelets (small blades usually less than 12 millimeters in width). Microliths exhibit considerable temporal and regional variability. These were most likely composite implements, hafted into bone or wood shafts.

The past several decades have seen an increase of Epipaleolithic research, especially in the southern Levant. While much early research was confined to the Mediterranean coastal region, newer investigations have focused on more environmentally peripheral areas as well. More than 700 assemblages are documented, although the conceptual framework for dealing with such a large database has not kept pace, often leading to a plethora of confusing terms. The chronological framework is anchored by more than 250 radiocarbon determinations.

3 Environmental Context

The Levant is the area east of the Mediterranean Sea, bounded in the north by the Taurus and Zagros mountains, in the northeast by the Euphrates river valley, and in the south and southeast by the Negev, Sinai, and Syro-Arabian deserts. Within this region, several diverse environments exist. A commonly used term is the "Mediterranean core area," which refers to the rich ecological zones along the coastal plains and up to the foothills. Another term is the "Levantine Corridor," a relatively narrow corridor stretching from the northern Negev and southwest Jordan to southern Anatolia. This includes the Jordan (Rift) Valley and is bordered to the west by highlands and to the east by the Syro-Arabian Desert.

Paleoenvironmental and paleoclimatic reconstructions are immensely complex topics. Much information is derived from often conflicting multi-proxy datasets, but these generally indicate that climate changes were rapid and extreme during the Final Pleistocene and the Early Holocene (Severinghaus and Brook 1999). During this time, the Levant consisted of a fluctuating spatial distribution of vegetation zones. This included an oak-dominated parkland and woodland (the Mediterranean zone) that provided a high biomass of foods available to humans.

During the Final Pleistocene, climatic conditions were relatively unstable, and by the Early Holocene there was marked seasonality. Prolonged summer aridity and temperatures higher than today's resulted in seasonal stress on several resources. The earliest portion of the Epipaleolithic occurred during the Late Glacial Maximum (LGM) around 20,000–14,500 BP, during which it was generally cold and dry, although coastal regions were forested and had winter

precipitation. After 14,500 BP, conditions improved, resulting in resource abundance. This was possibly interrupted by another cold and dry, if short (about 200 years?) period around 13,000 BP at the onset of the Allerød-Bølling climatic regime. The Allerød-Bølling (c.13,000–12,500 BP) itself, however, represented an increase in temperature and rainfall. Such favorable conditions may have provided part of the stimulus for Early Natufian groups to establish some degree of sedentism. The emergence of the Late Natufian primarily occurred during the Younger Dryas (c.11,000–10,000 BP), a severe climatic crisis resulting in dramatic cooling and drying. It was followed by a return to a warmer and moister Holocene optimum (Bar-Yosef 1998a: 161, 173).

The Younger Dryas likely had dramatic impacts on both people and their resources. This event resulted in a contraction of the Mediterranean zone and a reduction in resource distribution. The Younger Dryas has often been invoked as both causing Late Natufian populations to return to more mobile lifeways and stimulating the Neolithic period by forcing the systematic cultivation of some cereals in the face of reduced overall resource availability (Bar-Yosef 1998a: 168–9, 174; Richerson et al. 2001). These views, however, are not universally embraced, and some (Grosman and Belfer-Cohen 2002) have argued against assuming totally adverse conditions during the Younger Dryas.

4 Pre-Natufian Epipaleolithic Entities

During the Epipaleolithic, both early and late, there was a wide regional distribution of Epipaleolithic "cultures" (Henry 1989). The earliest of these is the Kebaran Complex, which lasted from c.22,000 to 15,000 BP and has both regional and chronological variations. We can identify even smaller entities (tribes?) on a more restricted geographic distribution by observing the distribution and/or combination of specific microlithic tools within a radius of c.30–40 kilometers. Overall, while increased regional variability characterized the Early Epipaleolithic, some of the more arid zones probably were not intensively occupied. Kebaran microliths are characterized by narrow and non-geometric tools. An important technological innovation is a variety of grinding implements. Their presence indicates a change in vegetal food-processing techniques, including extensive use of wild cereals. The addition of these implements to the cultural inventory has implications for sedentism and domestication.

Another entity, the Geometric Kebaran apparently developed from the Kebaran. Geometric Kebaran sites dates to c.15,000 to 12,500 BP. As well as occurring in the core Mediterranean zone, many sites are in desert areas, such as the Negev, the Sinai, and the Jordanian plateau. The Geometric Kebaran is partially typified by a technological continuation from the Kebaran with the production of narrow bladelets. New tools, however, included geometric microliths such as trapezes and triangles, and high frequencies of backed bladelets.

Roughly at the same time there is a contemporary desertic entity labeled the Mushabian (Henry 1989: 125–49). On the basis of techno-typological features, this was considered to be of North African origin. While Mushabian sites penetrate to the foothills of the Judean Hills (i.e. along the margins of the Mediterranean core zone), they are primarily restricted to more arid areas. They have the same general dates as the Geometric Kebaran.

There also is a regional distinction in the Negev Desert – the Negev Kebaran, divided into the Harif and Helwan phases. All three entities are roughly contemporary, or at least overlap (i.e. the Geometric Kebaran, the Mushabian and the Negev Kebaran), although the Helwan phase appears to be slightly later (Goring-Morris 1998).

Generally, Epipaleolithic sites from these periods, apart from some rare cases in the Mediterranean zone, were small, covering approximately 100–150 square meters. Structural remains are rare, but there is some evidence of flimsy shelters (Goring-Morris 1998: 153, 158). Human remains also are rare.

Subsistence-related information is crucial to understanding what led up to the Neolithic, and the Epipaleolithic reflects an overall broad spectrum pattern. Available information indicates that plant foods were increasingly more important than animal resources, but this conclusion is tempered by a lack of paleobotanical data. Newer techniques and concerted recovery efforts, however, have now given better insight into plant use. For example, the Early Epipaleolithic site of Ohalo II near the Sea of Galilee yielded 40 plant species, including large quantities of cereals and edible fruits. Analysis of starch grains has provided direct evidence that wild barley, and possibly wild wheat, was processed and baked (Piperno et al. 2004). Paleobotanical remains in less abundance also have been recovered from other sites, indicating that Epipaleolithic peoples consumed a wide variety of seeds, nuts, berries, tubers and rhizomes (Goring-Morris 1998: 144).

Fauna are better preserved, thus we know more about the animal portion of Epipaleolithic diets. Locally available animals were the most common species consumed. In the mountainous northern Levant, these included fallow deer, while mountain gazelle were common in the rest of the Mediterranean zone. Dorcas gazelle and ibex were hunted in the more arid zones, and goitered gazelle and wild ass on the eastern steppes. Less common were other large mammals, such as aurochs, hartebeest, and wild boar. Smaller animals included hare, fox, reptiles, tortoise, lizards, and birds (Goring-Morris 1998: 144–6).

The rapid pace of change in chipped stone assemblages may reflect the interactions of small hunter-gatherer bands on the landscape. These groups likely readjusted specific adaptations to changing physical conditions, although non-environmental factors also may have played a role. In areas with a wide array of resources, their settlement pattern seems to reflect less mobility, shorter travel distances to resources, and larger populations. In more marginal areas, populations are inferred to have been smaller with increased mobility. Many site locations reflect optimized areas that could target resources from a variety of zones.

5 The Natufian

Given the Natufian's importance to the Neolithic, much research attention has focused on this Late Epipaleolithic entity. While there is considerable disagreement on many details, there is general consensus that the Natufian set the stage for the Neolithic. Garrod (1957) first defined the Natufian near the Mediterranean coast at Shukbah Cave in the Wadi en-Natuf and at Mugharet el-Wad in the Mount Carmel area. Additional investigations in Palestine and western Syria confirmed the distinct character of the Natufian. By the 1950s and 1960s, sites were documented within an expanding geographic area, with most substantial ones occurring within the relatively lush western flank of the Levantine Corridor. What made the Natufian stand out was Garrod's proposition that they represented the earliest farmers, or the "Mesolithic with agriculture" (Garrod 1957: 216, 226). Continuing research has defined the Natufian more thoroughly (e.g., Byrd 1989; Bar-Yosef and Valla 1991; Bar-Yosef 1998a, 2002a; Valla 1998; Delage 2004).

There are more than 100 radiometric dates for the Natufian and related entities, although many sites are chronologically placed using typological or technological considerations. Most researchers are comfortable with placing the Natufian within the span of approximately 12,800–10,200 BP. Some split the Natufian into Early and Late phases, while others include a short Final Natufian phase. Approximate dates for the Early Natufian are 12,800–11,250 BP, followed by the Late Natufian at 11,250–10,500 BP and the Final Natufian at 10,500–10,200 BP.

The Natufian was initially defined within the relatively restricted Mount Carmel and Galilee regions. This resource-rich woodland belt has frequently been referred to as the Natufian "homeland" (e.g., Bar-Yosef 1998a: 162). We now know that the Natufian was much more widespread, especially during the Late Natufian, stretching north, south, and east from the Mediterranean core. Many of the peripheral desertic zones contain Natufian sites, although these tend to be small and ephemeral.

Some researchers do not use the term Natufian outside the core zone and the southern Levant. For example, the large site of Tell Abu Hureyra in Syria is not classified as Natufian by its excavators (Moore 2000: 184). Others, however, consider the early components of large Middle Euphrates valley settlements, including Abu Hureyra 1, to be Natufian (e.g., Bar-Yosef 1998a; Cauvin 2000: 16). Thus, there is a considerable geographic spread of sites outside the southern Levant that are at least "Natufian-like."

Natufian material culture is extremely varied and rich. Its chipped stone reflects a strong microlithic industry, occurring in remarkably high densities at many sites. Principal Natufian "type fossils" are geometric microliths known as lunates. Other tools, both microlithic and larger, also characterize Natufian assemblages. These

include triangles, burins, perforators, scrapers, picks, and backed bladelets and blades, some with sickle polish. Most of the raw material was relatively local, although obsidian from Anatolia is occasionally found (Byrd 1989: 161; Bar-Yosef 1998a: 165).

Of particular significance is the issue of projectile points, which are some of the most diagnostic artifacts of the subsequent Neolithic. These are absent during the Natufian, at least as distinct aerodynamically shaped and typologically identifiable entities. Reasonable arguments, however, have been made that some microliths could have served the same function as projectile points (Valla 1987; Olszewski 1993b).

There are, of course, other Natufian artifacts beyond chipped stone. Ground stone is especially significant. These presumed agriculturally related tools, along with sickle blades, are one reason that early researchers proposed that the Natufians were the first farmers. Of all the Epipaleolithic complexes, ground stone from the Natufian is the most diverse and elaborate, and includes a large variety of portable and not so portable items (Valla 1998: 169–71; Wright, K.E. 2000: 92–3). Although ground stone likely was primarily related to various milling activities, other functions included hide working and mineral grinding (Dubreuil 2004). Many ground stone artifacts also seem to reflect stylistic or artistic efforts. These include carved limestone slabs and bowls with geometric or meander patterns (Bar-Yosef 1998a: 166).

Many sites contain well-crafted bone objects, including sickle handles, some decorated with animal representations. Ornamental artifacts include perforated teeth, sectioned bones, and various beads. Materials such as greenstone, malachite, and limestone also were used in the manufacture of headgear, pendants, necklaces, belts, bracelets, and earrings. Shells, especially dentalium shells, also were important (Bar-Yosef 1998a: 165; Valla 1998: 171).

Portable naturalistic and schematic figurines made of bone and limestone also are relatively common and include zoomorphic figurines, although human depictions are rare (Bar-Yosef 1998a: 167). An exception is a limestone figurine from Ain Sakhri interpreted as a mating couple (Neuville 1933: 558–60), although its Natufian context is questionable (Boyd and Cook 1993). Other objects are interpreted as human phalli and female representations (Marshack 1997: 75–82).

During the Natufian we see the first evidence for substantial architecture, often with clustered units. The solidity of Natufian construction and their grouping together in small clusters suggests that they required more planning than preceding Epipaleolithic structures. This, to many researchers, qualifies them as "villages" or small hamlets (Valla 1998: 172; Cauvin 2000: 15–17), even though most sites with architecture contain only a few structures.

Natufian architecture is typically characterized by semi-subterranean circular or semi-circular structures. Ain Mallaha (Eynan) contains some of the best examples of Natufian architecture. Structures are most common in Early Natufian sites,

although at Tell Abu Hureyra 1, they occur during the equivalent of both Early and Late Natufian. Most structures are interpreted as domestic units and were usually 3–6 meters in diameter, although one exception is a large (9 meters in diameter) unit at Ain Mallaha. Not all structures were free-standing individual units. At Hayonim Cave, for example, a series of small, connected, oval/round units occurs (Bar-Yosef 1998a: 163–4). At Tell Abu Hureyra 1, the first structures were complex, multi-chambered pit dwellings, followed by above-ground timber and reed huts (Moore et al. 2000: 478). Although storage features occur, overall they are rare.

Much has been written about the Natufian role in the economic transformation to food production. The issue really can be summarized in three questions: (i) did the Natufians domesticate plants or animals? (ii) did they intensively use wild plants or animals that were later domesticated? and (iii) does the location of their sites coincide with the natural distribution of these wild variants?

Although there is no evidence of true domestication, Natufians used many resources that were subsequently domesticated during the Neolithic. Most researchers view Natufian economy as reflecting a broad spectrum pattern. Certainly, the location of many sites allowed access to a rich variety of resources. This is best reflected by the frequently abundant faunal remains, which show a range of large mammal exploitation, including deer, cattle, equids, boars, goats, ibex, and gazelle (Bar-Yosef and Meadow 1995: 59). Smaller animals also have been recovered and, especially at the Early/Late Natufian boundary, this might reflect food stress, with a change from high-ranked to low-ranked game likely related to increased mobility (Stiner and Munro 2002).

Despite the faunal diversity, the actual meat yield from many sites indicates that Natufians obtained most of their protein from one animal, the gazelle (Cope 1991). This led Henry (1989: 214–15) to question the broad spectrum model and suggest a highly specialized strategy. Given this Natufian "gazelle culture," there have been claims that Natufians domesticated, "proto-domesticated," or at least strongly controlled gazelle (e.g., Cope 1991). Many studies, however, indicate that there is no morphological evidence of human control (Dayan and Simberloff 1995).

One animal that does appear to have been domesticated is the dog (Davis and Valla 1978), although this has been challenged (Quintero and Köhler-Rollefson 1997: 570–2). Domestication seems to have been for companionship and perhaps security rather than food. While the number of Natufian dogs is limited, their domestication likely was the product of unconscious selection of commensal wolves around settlements that were incorporated into human society.

There is much less specific information on plant food use during the Natufian. Paleobotanical remains are rare at most sites. The most compelling – and controversial – evidence of a complex economic situation comes from Tell Abu Hureyra 1. At the start of the site's occupation, ecological conditions were optimal and a diverse plant resource base exceeding 250 species was exploited

(Hillman 2000). During worsening climatic conditions brought on by the Younger Dryas, there was a decline in wild plants but an increase in classic weeds, whose presence suggests the start of cultivation. Along with these weedy plants are charred grains of morphologically domesticated rye. The earliest are dated by accelerator mass spectrometry (AMS) to c.11,000 BP, leading to the conclusion that they were the product of cultivation and domestication (Hillman 2000: 392, 397–8). If correct, these rank as amongst the earliest morphologically domestic plants anywhere in the world. This is a significant claim and has not gone unchallenged. Nesbitt (2002: 116–20), for example, questioned both the AMS dating and the context of the domestic grains, feeling they may be intrusive. Clearly it appears that many plants, whether wild or domestic, or something in between, were cultivated at Tell Abu Hureyra I. It therefore is reasonable to propose that some form of "pre- or non-domestication cultivation" is represented.

There also is indirect evidence suggestive of domestication, or at least intensive harvesting of wild plants. This includes experimental studies on sickle blades that point to small-scale cultivation (Anderson 1991). Olszewski (1993a) also presented a provocative model arguing for intensive acorn usage, although this has been criticized (McCorriston 1994).

Finally, skeletal data hint at dietary practices of Natufian peoples. Dental evidence and high skeletal strontium/calcium (Sr/Ca) ratios suggest an increase in cereal consumption (Smith 1991). Sillen and Lee-Thorp (1991) noted that Natufians apparently ingested little in the ways of marine resources and that Sr/Ca studies suggest a decrease in cereals from the Early to the Late Natufian. These claims, however, need to be evaluated with new methodological advancements.

Above, three questions were posed about the Natufian economy. The first was "Did the Natufians domesticate plants or animals?" The answer to this appears to be no, with the possible exceptions of domesticated rye from Tell Abu Hureyra 1 and domestic dogs. The second question was "Did they intensively use wild plants or animals that were later domesticated?" Here the answer is an unqualified yes: several resources that they extensively exploited were later domesticated. Finally, "Does the location of Natufian sites coincide with the natural distribution of these wild variants?" Here the answer is trickier, and appears to be a qualified yes. Based on paleoenvironmental data, many plants and animals that were domesticated lived within zones inhabited by Natufian populations. Many scholars believe that plant domestication occurred within the Jordan Valley and adjacent regions. Others propose, instead, that it was only in a small area near the upper reaches of the Tigris and Euphrates rivers that the wild progenitors of the Neolithic founder crops all occurred (Lev-Yadun et al. 2000). This region includes Tell Abu Hureyra and Mureybet, but few other Natufian sites. Heun et al.'s (1997) DNA fingerprinting study supported this, indicating that the progenitor of cultivated einkorn was located in the Karaçada mountain region of southeast Turkey. However, others (e.g., Nesbitt 2002; Willcox 2002a) believe

that the domestication of key species were geographically independent events and thus propose multiple centers of domestication.

What these data seem to indicate is an economic mosaic. Some regional Natufian variants were located in areas where many founder crops occurred in the wild, while others were not. Accordingly, it seems that some, but certainly not all, Natufian populations set the stage for the domestication of several species of plants and, to a lesser degree, animals.

Most archaeologists agree that the Early Natufian was more geographically restricted than the Late Natufian (Bar-Yosef and Meadow 1995: 56). Natufian sites typically fall into three size categories: small (15–100 square meters), medium (400–500 square meters) and large (more than 1,000 square meters). At the large and medium sites, architecture often occurs (Bar-Yosef 2002a: 108), while small sites are usually assumed to have been temporary camps. Although there are differences of opinion, Natufian settlement pattern is often regarded as consisting of a sedentary base camp with associated transitory camps.

"Villages" primarily are restricted to the core area, and are, predominantly, an Early Natufian phenomena. It appears that in their later phases the Natufian's geographic reach expanded at the expense of larger settlements. This interpretation, however, is flawed if one considers the earliest components of Tell Abu Hureyra 1 and Mureybet as Natufian, since these were substantial settlements.

What caused the overall decline of larger settlements (with the Middle Euphrates exception) during the Late Natufian? This trajectory seems to contradict what might be expected – i.e., increasing complexity and sedentism leading to the Neolithic. Instead, we see a Natufian development through time in the direction of simplification, less sedentism, and more mobility, although their geographic range expanded. Many believe that Late Natufian patterns were related to deteriorated climatic conditions (e.g., Moore and Hillman 1992; Bar-Yosef 2002a: 130; but see Richerson et al. 2001: 395–6). Others feel that, after almost 2,000 years of intensive exploitation in the core area, the environment was simply exhausted, while some think that existing social systems were unable to cope with expanding populations. As Valla (1998: 182) noted, a likely explanation lies in a combination of factors.

Regardless, it is clear that the core area's influence was substantially weakened by the Late Natufian. There apparently was a major disruption in society at this time. The Mount Carmel and Galilee regions seem to have been largely abandoned. In the arid south, entities such as the Harifian (see below) developed and then disappeared. Only at sites such as Mureybet and Tell Abu Hureyra 1 do we see evidence of a continuous, possibly year-round, occupation in the same location. Indeed, if "sedentism" is a defining characteristic of the Natufian, then these sites must be considered the "most Natufian of all the sites in the Levant" (Valla 1998: 182–3).

How one determines sedentism, however, has been much debated and it is clear that there are no absolute criteria, although Saidel (1993: 76) and Bar-Yosef

(2001: 5–7) provide coherent discussions of such markers. Bar-Yosef and Meadow (1995: 51) noted that it is critical to recognize that there is a mobility continuum: people are usually neither completely mobile nor completely sedentary.

So, a critical question still remains: were the Natufians sedentary? It appears that many Natufian populations were (especially during the Early Natufian), while others were not, and still others spent a good portion of the year in one place, but still moved seasonally. A reasonable examination of the constellation of evidence leads to the conclusion that sedentism played a significant role during much of the Natufian and that this, regardless of its causes, laid the foundation for true villages.

Unlike earlier Epipaleolithic groups, human skeletal remains are well represented in the Natufian, with approximately 400 skeletons recovered (Valla 1998: 177; Eshed et al. 2004a, 2004b). Interestingly, there is virtually no sign of violence in Natufian populations (Valla 1998: 178). This contrasts with burials from contemporary Shanidar Cave in Iraq. Here, there is a high frequency of stress markers, disease, and trauma; most of these traumas, however, also reveal evidence of careful "medical" attention (Agelarakis 2004).

Most Natufian skeletal analyses indicate that, despite some essentially day-to-day health issues, Natufian populations were not seriously stressed. They show few signs of diseases or deficiencies, the most common pathology being arthritis. The teeth were generally healthier than those of subsequent Neolithic populations (Smith 1991; Valla 1998: 177–8). An exception is Tell Abu Hureyra, where there is considerable evidence of pathologies, particularly amongst women (although the Epipaleolithic sample size is limited). These are attributed to extensive time spent grinding grain (Molleson 2000). Peterson's (2002: 98–106) "muscular stress marker" (MSM) study also lends limited support to this conclusion, although severe stresses were not noted. Likewise, Eshed et al. (2004a, 2004b) noted higher MSM scores (compared to Neolithic samples) that may relate to grinding activities. Overall, though, they indicate that mean Natufian MSM scores are lower than those for their Neolithic sample. They also suggest that the Natufians had a higher mortality rate for individuals aged between 20 and 40 than did Neolithic peoples, although they conclude that Natufian women lived longer than men, probably because of a relatively lower birth rate amongst them.

Determining ritual and symbolic behavior in the archaeological record is not easy, but there is abundant evidence that the Natufians engaged in a variety of such activities. Burials in particular provide much of the evidence. All villages in the Natufian core contain burials, as do many smaller sites. While some graves were dug into abandoned dwellings, or outside these, many burials were in organized cemeteries and some were marked by hollow "stove-pipes" or other markers (Bar-Yosef 1998a: 164).

There is considerable variability in Natufian mortuary practices. Some burials are of individuals with no apparent body orientation, while, in other cases,

burials were deliberately placed in flexed or extended positions. There also are secondary as well as group burials, either deposited collectively or one after the other. While most Natufian graves only contain bodies, some of the dead were interred with ornaments or decorative cloths which appear to have had symbolic meaning. Most decorated burials are Early Natufian (Bar-Yosef 1998a: 164). Some Natufians were buried with animals, which do not appear to represent food offerings (Valla 1998: 176). Two burials, one from Hayonim Terrace and another from Ain Mallaha, were accompanied by presumably domestic dogs (Davis and Valla 1978; Tchernov and Valla 1997).

Multiple or collective burials were more common during the Early Natufian, while single interments occurred more frequently during the Late Natufian. Skull removal was more common at Late Natufian sites as well, foreshadowing a common Neolithic practice. Secondary burials were also more frequent during the Late Natufian. Some researchers have interpreted this as reflecting increased mobility (Bar-Yosef 1998a: 164), although others (e.g., Kuijt 1996a) attribute more social significance to Late Natufian mortuary patterns.

Symbolic artwork from the Natufian, which includes anthropomorphic and zoomorphic figures, geometric engravings, and body ornaments, also suggests ritual or symbolic behavior (Garfinkel 2003: 7). One aspect of ritual behavior is tantalizingly suggested by incised slabs and stones that Marshack (1997: 73–86) believed represent seasonal notations. Another find, a small slab with incised, parallel lines, has been interpreted as possibly reflecting territories or fields, suggesting ownership concepts (Bar-Yosef and Belfer-Cohen 1999).

Architecturally, there also is some evidence of ritual, or at least public, buildings. For example, at Ain Mallaha the large structure mentioned previously may have served such a role. At the same site, a smaller building with a rounded bench covered with lime plaster also may have been used for ritual purposes. At Nahal Oren, postholes surrounding a large hearth were found within a cemetery area, possibly reflecting ritual activity. One room at Rosh Zin in the Negev contained a slab pavement and a limestone monolith which could have served ritual purposes (Bar-Yosef 2002a: 108–10).

Collectively, data from several Natufian sites suggests substantial ritual behaviors. While their meaning is elusive, it is significant that so many types of images and symboling are represented. It seems likely that small groups of people, living together for much of the year, developed certain ritual practices or habits to deal with their new lifestyles.

Much has been written about Natufian social organization and social structure, with scholars arguing for nuclear families, extended households, and everything in between. Sedentism brings with it increased potential for interaction and conflict given the presence of more people in the same place at the same time; thus sedentary people often lead more structured lives than do hunters and gatherers. Relevant to social organization is a common question that relates to sedentism: "How many people lived at the site?" Unfortunately, this has no easy answer:

estimating population size in archaeology is notoriously difficult. Most Natufian settlements were small, although some could have housed several families. Henry (1989: 214) proposed that Natufian sites could have contained from 45 to more than 200 individuals. Large sites, such as Abu Hureyra 1, may have been home to 100–300 people (Moore et al. 2000: 489). Using data from several sites, Kuijt (2000a: 85) estimated a mean population of 59.

Moore et al. (2000: 488–92) presented a well-reasoned, social organizational reconstruction of Abu Hureyra 1. This community was a new type of settlement for people: it was large, long-lived, and sedentary. There likely was an increase in birthrate and new forms of social arrangements would have been mandated by higher populations. This would have included people with leadership and mediation skills who had the ability to exercise authority and regulate the village's affairs, to control access to agricultural land, and to organize the large-scale gazelle drives indicated by the faunal assemblages. It is likely that the community was divided into working bands, probably according to sex. Furthermore, the presence of exotic, imported materials, while rare, would have provided opportunities for obtaining marriage partners from outside of the community.

There have been other attempts to reconstruct the social structure of Natufian settlements and considerable debate regarding the make-up of households during the Natufian and subsequent Neolithic. Central to the discussion is the shift from circular or oval architecture during the Natufian and Pre-Pottery Neolithic A (PPNA) to rectangular architecture during the later Pre-Pottery Neolithic B (PPNB). One of the most cited studies is Flannery's classic model (1972), which inferred a number of social consequences from Natufian circular hut compounds. He suggested that each, generally small Natufian structure would have housed only one or two members of loose extended families. Critical to his argument is that during the Natufian and PPNA, risk was assumed to exist not at the individual or nuclear family level, but across groups of people as a result of widespread sharing of food and supplies. Flannery's model has been criticized (e.g., Saidel 1993) but in an effective rebuttal he eloquently defended his argument (Flannery 1993).

K. Wright's (2000: 93–8) study of cooking and dining also has social organization implications. She suggested that during the Early Natufian most food preparation occurred inside houses. During the Late Natufian, however, there is more evidence for activities in shared spaces. The general similarity of ground stone tools between sites suggests that similar rules of food sharing were recognized and that there was a formality and social ritual in food sharing that possibly included feasting.

While much information on Natufian social structure comes from burials, just as with ritual behavior, these data frequently result in conflicting interpretations. For example, G. Wright (1978) examined Early Natufian decorated burials and concluded that social stratification and ascribed status were indicated. Others followed Wright's lead, suggesting that there was an evolution from egalitarian to

ranked society and that Early Natufian group burials reflected kinship relations, whereas Late Natufian single interments suggested community-wide ranking (Henry 1989: 206–9). Along these lines, Saidel (1993: 93, citing earlier arguments) noted that there is evidence of Natufian social and territorial boundaries.

More recent studies are critical of Wright's conclusions. Both Byrd and Monahan (1995) and Belfer-Cohen (1995) argued that there was little evidence of stratification or ascribed status during the Natufian. Belfer-Cohen believes that while there are broad similarities in Natufian treatment of the dead, sites had their own local traditions and that evidence for social stratification is simply nonexistent. Conversely, Bar-Yosef (2001: 15) suggested that these burial data do in fact represent some sort of ranking.

Byrd and Monahan (1995: 280–3) felt that Natufian burials indicated achieved status, reflecting several ideological, identity, and membership elements. They suggested that the emergence of on-site group burials during the Early Natufian indicated fundamental changes in community organization. Likewise, during the Late Natufian, there was a virtual absence of mortuary elaboration. This was coupled with a more pronounced emphasis on individual burials, frequently with skull removal, that demonstrated continuity with later Neolithic mortuary practices.

Kuijt (1996a: 331) suggested that Late Natufian mortuary rituals served to maintain a balance and cohesion among people who were becoming increasingly socially differentiated. He felt that Late Natufian and PPNA communities intentionally limited and controlled the accumulation of power and authority.

Finally, can we say anything about sexual labor divisions or gender during the Natufian? The Neolithic witnessed substantial changes in both male and female roles. During the Natufian, however, there is not much direct evidence pointing to distinct gender divisions, although there are tantalizing hints. Peterson (2002: 22–3) has summarized some proposed models, noting Flannery's (1972: 25, 31) view that most productive Natufian work was accomplished by single-sex task groups, not families, and Henry's (1989: 206–11) suggestion of highly segregated Natufian labor systems. Peterson (2002: 135–8) has criticized aspects of both models.

Skeletal data offer some specific indications of gender distinctions. Peterson (2002: 98–106, 124) concluded that there was only limited evidence of sexually dimorphic MSM patterns during the Natufian. Her data revealed muscle signatures indicating that killing game was accomplished primarily by males using projectiles and that some males were engaged "in habitual hunting, preparatory target practice, as well as ritual displays of prowess and/or reenactments" (2002: 103). Female musculature was more tentatively linked with processing tasks involving bilateral motions, but many strenuous activities were shared by the sexes. This led Peterson to conclude that the sexual division of labor was only weakly developed during the Natufian. Gender differentiation may be reflected in some Natufian burials (Belfer-Cohen 1991: 580–1) but this is not clear.

It is unlikely that the Natufians were culturally isolated and regional interactions between Natufian (and other?) groups is also related to social complexity. The presence of imported materials, such as shell and obsidian, attests to exchange over relatively large geographical areas, covering many hundreds of kilometers in some cases. The nature of this may never be clearly known, but certainly many Natufian people lived in an ever expanding world.

In summary, the nature and degree of Natufian social organization is somewhat ambiguous. Some researchers believe the Natufian society consisted of incipient "chiefdoms" (e.g., Henry 1989: 206–11), while others (e.g., Byrd and Monahan 1995) dispute such characterizations. Bar-Yosef (2002a: 112–14) suggested that the Early Natufian reflects the emergence of a non-egalitarian society that changed back to a more egalitarian mode during the Late Natufian as a direct result of the impact of the Younger Dryas and greater mobility. Given the diversity of interpretations, Peterson's (2002: 22) suggestion of keeping an open mind about the composition of Natufian social structure is a wise one. Nonetheless, while opinions vary, it seems clear that the Natufians represented a departure from earlier groups in several respects and these all point toward the development of more complex societies.

6 Early Seafaring: The Epipaleolithic on the Mediterranean Islands

The Mediterranean islands generally do not figure in discussions of Late Pleistocene and Early Holocene peoples. The traditional view was that, due to limited resources, the islands were unsuitable for hunter-gatherers and not occupied until the Late Neolithic. With few exceptions, there are only limited data supporting pre-Neolithic occupation on the islands and most are unsubstantiated (Cherry 1990; Simmons 1999: 14–27). This perspective changed dramatically, however, with discoveries on Cyprus (Knapp 2010). Evidence from Akrotiri *Aetokremnos* challenged conventional dogma, documenting an occupation (the Akrotiri Phase) at c.12,000 BP, roughly equivalent to the mainland's Natufian. This small, collapsed rock-shelter ranks as the earliest well-documented human presence on any of the Mediterranean islands. Not only is *Aetokremnos* the oldest site on Cyprus, but, more controversially, it is associated with a huge assemblage (more than 500 individuals) of the endemic and extinct Cypriot pygmy hippopotamus, as well as smaller amounts of other animals (Simmons 1999). Although disputed by some, the constellation of evidence strongly suggests that humans were instrumental in finalizing the extinction of these unique animals, which were already suffering ecological stress induced by the Younger Dryas (Simmons 1999; Simmons and Mandel 2007).

Since the discovery of *Aetokremnos*, new research on Cyprus has challenged traditional paradigms about when, how, and why the Neolithic spread. While it

was previously believed that the Neolithic there was relatively late (c.9000 BP), earlier phases (Cypro-PPNB and even a PPNA occupation) have now been documented (Simmons 2008). These studies have shortened the gap with *Aetokremnos* and it appears likely that future research will erase this hiatus completely. The pre-Neolithic occupation of at least Cyprus has implications for the spread of Epipaleolithic peoples to the other Mediterranean islands.

One obvious aspect of human visits to any island is the need for an adequate seafaring technology (there is no evidence of land bridges). Marine travel as early as c.12,000 BP was already attested by the presence of obsidian from the island of Melos at Franchthi Cave in mainland Greece (Perlès 2001: 36). Melos, however, is not far from the mainland and voyaging to oceanic islands such as Cyprus was a more difficult task, although it now appears not to have been a rarity.

Although *Aetokremnos* is thus far the sole well-defined representative of the Akrotiri Phase, several dune sites nearby contain similar artifacts and may be contemporary (Simmons et al. 1999). In addition, recent investigations suggest the presence of contemporary coastal sites on poorly stratified, Aeolian dunes near Nissi Bay and Aspros (Ammerman et al. 2008). Roodias, in the Troodos Mountains, may also contain Epipaleolithic materials (Efstratiou et al. 2010). Thus far, however, the antiquity of these sites is largely based on technological and typological similarities to chipped stone from *Aetokremnos*. To be verified, claims for early sites must be supported by rigorously defensible datasets that include, above all, solid radiocarbon dates from good contexts as well as detailed, artifactual studies and systematic geomorphological investigation.

While Cyprus has been the primary source of data on pre-Neolithic Mediterranean island occupations, recent research on Crete hints at an even earlier occupation, one that could pre-date 130,000 years BP (Strasser et al. 2010). If verified, this would imply that pre-*Homo sapiens* had the technology and cognitive ability for seafaring. Until further detailed studies can be conducted, however, these claims must be viewed with caution.

7 Prelude to the Neolithic: Final Epipaleolithic or Early Neolithic?

At the Epipaleolithic's conclusion, there were a few entities that have vexed researchers for decades. These are sometimes regarded either as very early (albeit non-agricultural) Neolithic groups or as the very end of the Natufian. In the Negev Desert, the Harifian is one such group (Henry 1989: 219–24). Harifian radiocarbon dates are similar to those from some Early Neolithic communities. Large Harifian basecamps were located in the higher Negev, while small seasonal camps, characterized by high frequencies of projectile points (Harifian points), were distributed in the lowlands. Structural remains and a fair number of

pounding and grinding tools were uncovered at the "hamlet" of Abu Salem. Gazelle and ibex hunting occurred in almost equal proportions and traded mollusks came mainly from the Indian Ocean and the Red Sea, though Mediterranean species also were present. So, in a sense, the Harifian contains some components that many would consider Neolithic, but without domesticates. This may reflect the coexistence of both hunter-gatherers and farmers that began with regional differences in the Natufian culture and continued into the Neolithic.

There also are at least two other terminal Epipaleolithic, or very Early Neolithic, entities, the Khiamian and the Sultanian (Henry 1989: 224–6). The Khiamian is another variety of Late Natufian, with a specific point type. Stratigraphically, it occurs above the Late Natufian and below the Early Neolithic, although it is also present at some sites without Neolithic deposits. Architectural evidence is poor and subsistence seems to have been a continuation of the Natufian. Finally, the Sultanian is best known from Jericho, but also occurs at a few other sites. This is really the first Neolithic. At Jericho, the Sultanian is frequently referred to as PPNA and is perhaps best considered an archaic term.

8 Summary

The Levantine Epipaleolithic is characterized by a high degree of regional and chronological variation. The Early Epipaleolithic is known as the Kebaran, and during the Late Epipaleolithic there were at least three different entities: the Geometric Kebaran, the Mushabian, and the Natufian. Each is divided into several phases and facies. The Natufian is certainly the most complex, with some Early Natufian sites reflective of small "villages," primarily concentrated in the core Mediterranean zone. The Late Natufian is more widespread, but somewhat curiously "villages" are not common, except in the Middle Euphrates. In some instances, the distinction between the Late Natufian and the Early Neolithic is blurred by assemblages such as the Harifian, the Khiamian, and, especially, the Sultanian. New evidence also indicates that the Late Epipaleolithic had spread to some of the Mediterranean islands, minimally including Cyprus.

In the Natufian lies the key to the origins of agriculture and village life. Whatever one calls the various Late Epipaleolithic entities, there is no doubt that many of these people established the foundation of subsequent Neolithic societies based on sedentary communities and domesticated plants and animals.

GUIDE TO FURTHER READING

For general information on the Natufians, see Bar-Yosef (1998a, 2002a) and Simmons (2007). Edited volumes that contain considerable detail and more detailed information

include Bar-Yosef and Valla (1991) and Delage (2004). For a summary of the pre-Natufian Epipaleolithic, see Goring-Morris (1998). Although somewhat dated, a detailed work on the Levantine Epipaleolithic that includes all "cultures" is Henry (1989). For research on the Mediterranean islands, Cherry (1990), while dated, is a standard. For more up-to-date discussions related specifically to Cyprus, see Simmons (2008) and Knapp (2010).

CHAPTER EIGHT

Anatolia

Klaus Schmidt

1 Anatolia and Its Neighbors

When we talk about Anatolia, we usually use the name synonymously with the territory of the Republic of Turkey, excluding its European province of Thrace. We can see as we look back in time that Anatolia was smaller than it is today, restricted to the peninsula of Asia Minor, with its eastern border formed by the Taurus mountain range. Southeast of the Taurus are the neighboring landscapes of the northern Levant, which encompass the present-day Turkish provinces of Hatay, Maraş, and Gaziantep. Toward the east we reach Upper Mesopotamia, the region between the Upper Euphrates and Tigris rivers, a landscape that today is divided between Turkey, Syria and Iraq. There is no question that, when dealing with prehistory, it is appropriate to use the geographical units and their different climatic and ecological conditions. However, the history of research has been shaped by political boundaries and therefore, in what follows, I use a combination of both categories, focusing on the territory of Turkey, including its European, Levantine, and Mesopotamian regions. When discussing Upper Mesopotamia in the Pleistocene/Holocene transition, we will also cross the borders into Syria and Iraq, since archaeological research in this region in recent decades has been able to present a hitherto unknown and unexpected part of the puzzle of the early history of humankind, which contributes to a completely new understanding of the process of sedentism and the beginnings of agriculture. But, before entering into this new and exciting chapter in history, we should start by looking at the Pleistocene roots of the cultures of this period.

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

2 The Paleolithic Period

Compared to most European and Levantine countries, Anatolia remained a neglected area in terms of Paleolithic research. Interest started relatively late (Pfannenstiel 1941; Müller-Beck 1960; Minzoni-Déroche 1993) and our knowledge of the Paleolithic period, based upon only a few excavated sites, remains limited. Recently, the TAY-database, an electronic gazetteer of archaeological sites in Turkey (www.tayproject.org), listed only 39 excavated sites, as opposed to 452 sites for the entire Paleolithic period. However, we must recognize that only a few lithics, including some blades, suggesting a Paleolithic date, have been collected at many of these sites.

Most of the reported Paleolithic sites are clustered in five areas, which are close to five of the most important cities in Turkey: Ankara, Antalya, Antakya, Istanbul, and Gaziantep. Thus, our knowledge of the Paleolithic settlement of Anatolia is more a function of convenient access to the sites from these major cities than to the real distribution of human cultures in Anatolia during the Pleistocene. Huge parts of Anatolia remain largely unknown and unexplored.

A concentration of sites in the Ankara region have been unearthed as a result of surveys carried out over the past century, but none of these has been systematically explored. A second cluster of sites around Istanbul in the northern Marmaris region includes Yarimburgaz Cave in Thrace, one of the main excavated sites in Turkey. Below Chalcolithic and other later remains, intact Lower Paleolithic levels were excavated in 1988–90 (Arsebük 1998). Lower Paleolithic layers have also been revealed at Dursunlu, a site exposed in an abandoned lignite mine in central Anatolia (Kuhn 2002: 200) and at Karain (Yalçinkaya 1998). But as the Lower and the early part of Middle Paleolithic belong to the Middle Pleistocene phase, which is beyond the scope of this article, I shall focus our attention here on more recent periods, of Late Pleistocene and Early Holocene date.

These are well represented at Karain (Table 8.1), which belongs to a cluster of sites in the mountainous region north and west of Antalya where several other caves have been explored (e.g., Beldibi, Belbaşi, and Öküzini). To date, Karain Cave remains the most important Paleolithic site in Anatolia. The cave system contains several stratigraphic sequences. The 10 meter deep sequence of cultural layers in chamber E is particularly well explored. Layers A–E are Lower Paleolithic. Middle Paleolithic cultures appear around 250,000 BP in layers F, G, H, and I, which are linked to the Mousterian industry of Levallois type. A group of fossil hominids, identified as Neanderthaloid, was discovered in layer F. Given that Neanderthals represent a European branch of hominid evolution, the date of 250,000–200,000 BP at Karain is quite early, well before the Neanderthals reached the Levant around 120,000 BP.

One important issue in present-day research is how the transition between the Middle and Upper Paleolithic should be reconstructed, because in Europe this

Table 8.1 Late Pleistocene and Early Holocene periods in southwest Asia (simplified) with important Anatolian sites and approximate dates

Periods	*Main cultures in southwest Asia*	*Important Anatolian sites*	*cal. BC*
Late Neolithic	Pottery Neolithic	Çatal Höyük	6,200–6,900
	Pre-Pottery Neolithic B/C	Çayönü, Nevali Çori	6,900–8,800
Early Neolithic	Pre-Pottery Neolithic A	Göbekli Tepe, Çayönü	8,800–10,200
Late Epipaleolithic	Natufian	Direkli	10,200–13,000
Middle Epipaleolithic	Geometric Kebaran	Karain B	13,000–15,000
Early Epipaleolithic	Kebaran	Öküzini	15,000–23,000
Upper Paleolithic	IUP/Ahmarian/ Aurignacian	Üçağizli, Karain	23,000–45,000
Middle Paleolithic	Mousterian	Karain	45,000–250,000

transition is commonly linked with the advent of *Homo sapiens*, the Cro-Magnon man. One of the most intriguing questions is what the Neanderthal/Cro-Magnon collision looked like. Is it possible to detect the advent of the new hominid in its material culture, especially in the lithic industries? In the past, the European Aurignacian, with its spectacular art, has been taken as evidence of the spread of *Homo sapiens*. But according to recent investigations, the Aurignacian originated in Europe and later spread through Anatolia into the Levant and Zagros. As *Homo sapiens* is connected with the second dissemination of hominids from Africa, and there is no relation between archaic *Homo sapiens* and the distribution of Aurignacian, we must clearly "tackle the currently popular off-hand equation of 'Aurignacian' with the early dispersal of modern humans into Europe" (Bar-Yosef 2006: 11).

Being aware of this background, it is no wonder that there are only a few sites with Aurginacian industries in Anatolia and the Near East. Artifacts that have been identified as "Aurignacian" at several sites in Turkey relate, for the most part, to the Upper Paleolithic or even to the Pre-Pottery Neolithic, as in the case of the so-called "Adiyamanian" variant of the Aurignacian (cf. Bostanci 1971, 1973). The best candidate for true Aurignacian comes from Karain, where a thin layer containing carinated scrapers was found between Mousterian and Epipaleolithic layers (Kuhn 2002: 206).

For the transition from Neanderthals to *Homo sapiens*, the so-called "Initial Upper Paleolithic" industries (IUP) are critical. We know that IUP industries in Western Asia and eastern Europe seem to be older than the western European Aurignacian, and we know that archaic modern humans are attested in the southern Levant around 100,000 BP, whereas they arrived in Europe as late as 35,000

BP. Why did humans take more than 40,000 years to reach Europe? It is obvious that, as a bridge between the Levant and Europe, the Anatolian peninsula is one of the most interesting regions in which to study this problem.

Nevertheless, even today "the range of things one would like to know about Anatolia contrasts sharply with what is actually known" (Kuhn 2002: 198). The evidence of IUP industries (c.45,000–40,000 BC) is very scant in Anatolia (Kuhn et al. 1999; Sagona and Zimansky 2009: 21). Yet, it seems unlikely that Anatolia was sparsely settled during that period, as neighboring landscapes like the Balkans or the Levant display no major gaps between the Middle and Upper Paleolithic. There is an urgent need for more excavations and better definition of the lithic industries, which can be achieved by combining the study of operational sequences (*chaînes opératoires*) with traditional typologies.

Some work has already been carried out in this direction. In the Hatay province, with its capital Antakya, are several caves, the most important of which is the recently explored Üçağizli Cave. The cave is situated on the steep rocky coast close to the point where the Orontes river empties into the Mediterranean sea. The material found there offers some of the best evidence for the Early Upper Paleolithic period (Minzoni-Déroche 1992; Kuhn 2002: 204; Kuhn et al. 2003). At Üçağizli the earliest deposits (c.43,000–41,000 BP) are representative of an IUP industry. Hard-hammer techniques were used for blank manufacture. These layers are followed by Ahmarian industries, characterized by blade manufacture applying soft hammer or indirect percussion techniques. The uppermost layers have been dated to 30,000 BP (Kuhn 2004). Taken as a whole, the sequence seems to document a complex, in situ transition between the IUP and the Ahmarian. Frequencies of different blank and retouched tool forms appear to have shifted quite gradually, whereas the shift from hard hammer to soft hammer or indirect percussion was relatively abrupt. Kuhn suggested an in situ transition from IUP to Ahmarian at Üçağizli, a process with parallels at Ksar Akil in Lebanon. These results confirm the suggestion that if there was a major break in the Levantine Upper Pleistocene sequence corresponding to the appearance and spread of *Homo sapiens*, it must have been – as expected – between the Mousterian and the IUP (Kuhn 2004).

The main Upper Paleolithic cultures in Europe are – besides the abovementioned Aurignacian – the Gravettian, the Solutrean, and the Magdalenian. The Solutrean and the Magdalenian are the cultures in which we encounter the fascinating art in the Franco-Cantabrian caves. The Gravettian has a rich inventory of *art mobilier* in many sites in the loess region of eastern Europe, like the famous Venus statuettes, e.g., from Willendorf, Dolni Vestonice, or Kostienki. There remains an unsolved question as to why this aspect is nearly completely lacking in the Upper Paleolithic of the Near East. However, only a few sites are known there, and some regions of Upper Mesopotamia are blank spots on the map during that period. Perhaps future research will surprise us with exciting discoveries. For the moment there are only the few Upper Paleolithic sites with – in

comparison to Europe – a small number of art objects from the Anatalya sites and Palanli, a cave near Adiyaman in the foothills of the Taurus mountains (Anati 1968).

In the Near East the final stage of the Upper Paleolithic is usually labeled Epipaleolithic. This period is attested at Öküzini and Karain B (not located in the vicinity of the aforementioned Karain, but on the coast southwest of Antalya). Both sites provide good information on the time between 18,000 and 8500 BP. The lithics are characterized by microlithic-backed bladelets, including micro-gravettes. The main geometric types are triangles, lunates, and a few trapezes. The industries resemble more closely the Zarzian of the Iranian Zagros region rather than the Levantine Natufian (Bar-Yosef 1998b).

The last region with a cluster of Paleolithic sites is situated around Gaziantep, including the province of Kahramanmaraş where Direkli Cave is the main site. It was discovered by I.K. Kökten in 1958 and explored in 1959 (Kökten 1960) when the existence of Upper Paleolithic and Epipaleolithic layers was recognized. New excavations were begun by C.M. Erek in 2007 (Erek 2009). The inventory includes microlithic crescents, several bone tools and beads made of stone, bone, and shell. It seems possible that Direkli Cave will fill the gap between the Levantine Epipaleolithic and that of the Antalya sites, but it is still too early to come to a final conclusion on this. To date we know little about the Epipaleolithic cultures of Anatolia, and we do not have enough data to adequately characterize an important event that occurred at the end of this period, one equal in importance to the Mousterian–IUP interface 25,000 years ago, namely the Neolithization of Anatolia.

3 The Beginning of the Neolithic Period

The discovery of the Pre-Pottery stage of the Neolithic period in the 1950s at Jericho by Kathleen Kenyon was pivotal to prehistoric research after World War II (Kenyon 1957). The stratigraphic sequence at Jericho starts with an Epipaleolithic Natufian layer at the base. The following period of the Pre-Pottery Neolithic (PPN) could be divided into an older and a younger layer, the PPNA and PPNB. Two layers of Pottery Neolithic (PN), PNA and PNB, stand at the end of the Neolithic sequence. A third stage of the PPN, PPNC, was added much later. As a result of concentrated research on the Epipaleolithic–Neolithic transition in the southern Levant over the course of several decades, an image of that process has developed based upon the primacy of this region in this fundamentally important aspect of Old World history. This was complemented by discoveries at Çatal Höyük in the 1960s (Mellaart 1967). Much younger than PPN Jericho or other contemporary sites in the Levant, this pottery Neolithic site in central Anatolia obviously belonged to a second wave of Neolithization, originating in its core area to the southeast.

For many years Çatal Höyük (7400–6000 BC) stood apart as a remarkably rich concentration of early symbolism, ritual, and art. The apparently odd focus on death, vultures, bulls, and breasts has challenged archaeological interpretation. In his foreword to James Mellaart's 1967 book about the site, Sir Mortimer Wheeler described a "curious and sometimes a trifle macabre artistry," which nevertheless distinguished a site that "represents an outstanding accomplishment in the upward grade of social development" (Hodder and Meskell 2011).

But the image of Anatolia as an area of secondary Neolithization has changed slightly (Aurenche and Kozlowski 1999; Watkins 2010a-b) as have views on Çatal Höyük (Hodder 2006a). As a result of research conducted in the northern piedmont zone of the Taurus mountains since the 1980s, we now understand that the southern Levant was only the western wing of a development whose center was in Upper Mesopotamia. And today Çatal Höyük seems to be a quite bizarre, but somehow marginal, phenomenon which had few lasting influences on the cultures of the periods that followed.

The significance of these "hilly flanks of the Fertile Crescent" was recognized early by Robert J. Braidwood, who maintained that farming originated in those regions where the progenitors of the principle domesticates grew naturally (Braidwood 1960). From 1948 to 1955 he led a team from the Oriental Institute in Chicago to investigate the site of Jarmo in Iraqi Kurdistan, and in the 1960s, together with Halet Çambel of Istanbul University, he initiated a survey in southeastern Turkey. Several early sites were listed in a report published in 1980 by Çambel and Braidwood, but only a few were selected for soundings or excavations. Important among these is Biris Mezarliği in Urfa province, with a lithic industry quite similar to that of Kebaran/Geometric Kebaran; unfortunately, however, the excavated material remains unpublished.

Only one of the sites discovered during the survey – Çayönü – was selected for intensive excavation. It soon became famous because of its spectacular architecture and finds which were not only so different from those of Çatal Höyük, but much older (Özdoğan 1999). The domestic architecture of the earliest phase is represented by round buildings. The next layer consists of large, rectangular houses of so-called grill plan-type, which is modified into houses with channels below the floor. These houses with a living space in front and a rectangular storage area behind were up to 6 meters wide and 18 meters long. The next layer is characterized by houses of cell-plan type, and in the last PPN layer there are large-roomed buildings. Several large buildings differ from these common types. The flagstone building, the skull building, and the terrazzo building are the most important examples of architecture used for communal and, probably, ritual purposes.

Like Çatal Höyük, the settlement of Çayönü long held an isolated position on the distribution map of early village farming communities. Later, in the 1980s, excavations at Nevali Çori, a site submerged by the floodwaters of the Atatürk Dam Lake in 1992, caused a sensation (Hauptmann 1991–2, 1993). It opened a new window on a previously unexpected world of Stone Age culture. As at

Figure 8.1 Göbekli Tepe, main excavation area on the southern slope of the mound.

Çayönü, so here too a terrazzo building was unearthed, but at Nevali Çori huge, T-shaped pillars of limestone and sculptures of humans and animals were discovered, objects previously unknown in PPN contexts. Also as at Çayönü, large rectangular houses were excavated at Nevali Çori, most of them of the type with channels.

4 Göbekli Tepe and the Revolution of Symbols

Today, the most interesting site from the Neolithic period in archeological terms is neither Çatal Höyük, Çayönü, nor Nevali Çori; the most remarkable Anatolian site in this regard is Göbekli Tepe (Figure 8.1), currently being excavated by the German Archaeological Institute in cooperation with the Archaeological Museum of Şanliurfa, one of the larger cities in southeastern Turkey (Schmidt 1995, 2006, 2009a, 2009b, 2009c). The site lies about 15 kilometers northeast of the town, at the highest point of an elongated mountain range that can be seen for miles around. It is a landmark that is visible from far away and comprises accumulations of occupation layers, up to 15 meters high, accrued over the course of several millennia in an area covering about 9 hectares.

Göbekli Tepe is more indicative of the close affiliation between humans and their spiritual world than any other early PPN site presently known. Amazingly,

no residential buildings have yet been discovered. The site was a sacred area, not a mundane settlement. It seems to have been a regional center where communities met to engage in complex rites. At least two phases of religious architecture have been uncovered. The site is characterized by T-shaped stone pillars with a height of 3–5.5 meters in the older layer, each weighing several tons. These were erected to form large, circular enclosures, in the center of which stood a pair of such pillars towering above all the rest. Four such monumental circles, named A–D in order of their discovery, have diameters of 10–20 meters. The 10–12 pillars of each circle are connected by walls, constructed from quarried stone.

It is clear that after a period of time, the duration of which is still uncertain, the monumental sanctuaries of Göbekli Tepe were intentionally and rapidly buried, a process that seems to have been intended from the very beginning. The origin of the fill used is unknown. The question of where the material was taken from is by no means unimportant: the backfill of enclosure D alone, the largest of the four circles, comprised nearly 500 cubic meters of debris. Furthermore, the material is not sterile soil. It consists mainly of chips and pieces of limestone, most of them smaller than fist size, and it also contains numerous artifacts, mostly flint, as well as fragments of stone vessels, grinding stones, and other groundstone tools. In addition, there is a large quantity of animal bones of various species, mostly broken into small pieces, as is usual for garbage.

While there are unsolved questions about the origin and genesis of the debris used to bury the sanctuaries, it is clear that this process has preserved the monuments throughout the millennia until today. The older layer (I) and its monumental enclosures can be dated to the PPNA, i.e., the late 10th millennium BC, a time when people had just started to become farmers but when in fact their subsistence was still based on hunting and gathering. The younger layer (II) belongs to the Early PPNB and has been dated to the 9th millennium BC. Whereas the large circular structures of the PPNA were replaced in the younger layer by small rectangular rooms, the main feature of the enclosures, the T-shaped pillars, survived. Therefore, most of the buildings of this layer can be identified as sanctuaries as well. Yet, not only did the scale of the architecture decrease, the number and size of the pillars is also much smaller than in the 10th millennium. The pillars of layer II have a height of only about 1.5 meters. The decline was followed by the complete abandonment of the site after 8000 BC.

Given the monumental aspect of its architecture and art, Göbekli Tepe is interpreted as a cult center from PPNA times onward of supra-regional importance. The site served as a meeting place (Schmidt 2005a, 2005b); theories about the importance of feasting during the earliest phases in the domestication of plants and animals (see, e.g., Dietler and Hayden 2001) seem well supported, as one can be quite sure that the meetings at Göbekli Tepe involved important and ongoing feasts, providing manpower for the construction of the megalithic enclosures. The hypothesis that the need for food "on demand" – probably food of high quality and in large amounts – was responsible for the invention of

Figure 8.2 Pillar 43, one of the decorated pillars from enclosure D at Göbekli Tepe.

domestication seems to offer a convincing addition to models that previously considered only ecological factors.

5 The T-Shaped Pillars

Many of the pillars show animal motifs in bas-relief (Schmidt 2007a). Serpents, foxes, and wild boars are the most commonly depicted taxa, but the repertoire also includes many other species, such as aurochs, gazelle, mouflon, and the wild ass, as well as cranes, ducks, and vultures (Figure 8.2). The animal reliefs are quite naturalistic and correspond to the archaeofauna of the site, which is a very rich hunting fauna dominated mainly by gazelle, followed by wild cattle, ass, and pig. When calculating the volume of meat provided by species, wild cattle were the most important, followed by red deer, onager, wild pig, and wild ovicaprids (Peters and Schmidt 2004). Domesticated animals are non-existent and the same is true of plants. However, the animals depicted did not necessarily play a special role in the everyday lives of the people – e.g., as game – since scorpions, spiders, and toads are also depicted. All these beasts were, rather, part of a mythological world which we already encounter in cave paintings of the Upper Paleolithic.

Besides the animals, there are some abstract symbols, mainly in the shape of the Latin letter H, both in its proper position and at a 90° angle (Morenz and Schmidt 2009). Other symbols include crescents, disks, and antithetic motifs. There are also two human portraits. The first occurs on pillar 43 in enclosure D, and is presumed to be an ithyphallic, headless man. The second image is on a pillar in enclosure F, and shows a standing person with long neck and head. Above the person is a small dog, recognizable by the tail bent over its back.

The T-shape of the pillars may be considered anthropomorphic as some pillars display arms and hands, undoubtedly like those of humans. They are, in other words, stone statues of human-like beings (Schmidt 2006: Fig. 43a). The head is represented by the cross of the T-shaped pillars, the body by the pillar's shaft. Differentiation of sex was evidently not intended. It is also clear that the minimalist form of representation was intentional, because the other statues and reliefs found at the site offer sufficient proof of the ancient artists' ability to produce naturalist works when they chose to.

An important role must be ascribed to the pairs of pillars in the center of each enclosure which tower above the other pillars. The idea that they might represent the classic duality of man and woman may be excluded after a recent discovery in enclosure D, where the two central pillars and the flat reliefs depicting arms had been visible for several years (Schmidt 2006: Figs. 73–75, 79–81). In 2009 the hitherto concealed lower parts of the pillar shafts were exposed (Figure 8.3).

Figure 8.3 Enclosure D during the 2009 excavation of Göbekli Tepe.

Figure 8.4 Pillar 18, the eastern central pillar of enclosure D at Göbekli Tepe.

It was no surprise when hands and fingers soon became visible, but a few hours later a sensational discovery was made: both pillars wear belts just below the hands, depicted in flat relief. A belt buckle is visible in both cases, and on the eastern pillar there are some decorations on the belt in the form of H- and C-shaped signs. But the most interesting discovery is that a loincloth hangs from each belt and covers the genital region (Figure 8.4). It is apparently made of animal skin, as hind legs and a tail are visible. Judging by their shape, both animal skins seem to belong to foxes. As the loincloths cover the genital region of the pillar statues, we cannot be sure about the sex of the two individuals, but it seems highly probable that they are both male, since clay figurines with belts from the PPN are never female (Morsch 2002: 148, Pls. 3.3–4.6).

Distinctly feminine motifs, whether human or animal, are not found at Göbekli Tepe. There is only one exception: a nude woman engraved on a stone slab placed between the so-called lion pillars (Schmidt 2006: 235, Fig. 104). But this depiction does not seem to be part of the original decoration of the building; more likely, it belongs to a group of engravings which can be classified as graffiti (cf. pillar 10: Schmidt 2000: 23, Fig. 10b). The *Magna Mater*, or great goddess,

whose existence might be expected within the spiritual world of these sanctuaries, is absent at Göbekli Tepe.

Moreover, the complete absence of terracottas at Göbekli Tepe, both in the more recent and in the older PPN layers, is most remarkable. In the PPN settlement of Nevali Çori several hundred anthropomorphic clay figurines, half of them female, half of them male, were discovered. This difference surely reflects the different functions of the two sites. The clay figurines of Nevali Çori seem to be connected with certain aspects of daily life, while at Göbekli Tepe, a sanctuary possibly connected with burial customs, similar finds are non-existent. The smaller stone figures discovered at both sites exhibit a completely different and much richer iconographic repertoire, which repeats the stock of motifs associated with the large stone sculptures and reliefs at Göbekli Tepe.

6 The Non-stylized Statues: Guardians of the T-Shapes?

When considering the anthropomorphic identity of the T-shaped pillars, one inevitably asks the question: Who are they? As their faces were never depicted, they seem to be impersonal supernatural beings, from the otherworld, beings who gathered at Göbekli Tepe for as yet unknown reasons. Their identity is obviously different from that of several life-size, more or less naturalistic, anthropomorphic limestone sculptures found at Göbekli Tepe and in nearby Şanliurfa (Bucak and Schmidt 2003, 2006: Fig. 93). A 1.80 meter tall sculpture was found in the 1990s during construction work north of the Balikligöl (fish lake) in Urfa, where an important Islamic sanctuary is located. There is no detailed information about its findspot, but it has been suggested that the statue comes from a PPNA site north of the springs which has been almost completely sealed off by the old town since medieval times.

The so-called "skinhead" from Nevali Çori seems to come from a similar statue (Hauptmann 1991–2: Fig. 22). Unfortunately, the sculpture lost its face in Neolithic times as a result of intentional damage, but on top of the back of the head is a snake which is reminiscent of the Egyptian Uraeus serpent that protects the pharaoh. An answer to the question: "Who are the T-Shapes?" may be somewhat easier to arrive at if we take these non-stylized statues into account. They seem to represent powerful and important persons, but inferior to the much taller T-Shapes, who remain in mysterious, faceless anonymity. Whilst the T-Shapes apparently belonged to the otherworld, the non-stylized statues seem to have played the role of guardians of the sacred sphere.

But a recent discovery of a totem pole-like piece at Göbekli Tepe (Figures 8.5a–c) demonstrates that even more categories of sculpture exist. It had been set in the northeastern wall of a rectangular room of the younger layer and originally was not visible because the wall completely covered the pole. It stands 1.92 meters tall, with an average diameter of 30 centimeters (Köksal-Schmidt and Schmidt

Figure 8.5a–c A totem pole-like sculpture of limestone from Göbekli Tepe.

2010). It seems obvious that such a piece made of stone must also have had parallels in wood which have failed to survive the millennia. However, it should be noted that fragments of another totem pole-like sculpture made of limestone were discovered some 20 years ago in the northeastern bench of the Terrazzo Building at Nevali Çori (Hauptmann 1991–2, 1993). From Kilisik comes another example of such a composite statue (Hauptmann 2000). A detailed study of these remarkable objects and their contexts still remains to be undertaken.

7 Mastering Handicrafts and the Symbol System of the Stone Age

The monumentality of Göbekli Tepe proves beyond any doubt that the PPN culture of this region was far beyond the "simple" social organization we usually

expect in a hunter-gatherer society. Undoubted expertise was required to detach very large blocks of limestone, weighing tons, from stone quarries and to move these raw materials to their desired destinations. It would be impossible to erect megaliths without any technical knowledge or without applying methods such as pulling by rope, rolling, and using levers. To be able to smooth the surfaces of these T-shaped pillars to such an impeccable standard and with such incredible precision is an admirable feat in itself, but in addition the pillars were carved intricately to produce embossed motifs all over their monumental cubic forms. This would have undoubtedly required expert craftsmen and stonemasons. The variety of motifs depicted on the pillars would also demand a depth of knowledge on the subject of iconography.

Several of the embossed motifs seen on these pillars are often repeated. They appear to be either stenciled or copied from a single source, as they are depicted with only minor differences and look almost identical. It is most likely that Stone Age sculptors did not need to use implements in order to be able to produce an almost identical copy of the same motif on two different pillars. However, it can be observed that in depicting representative figures of different species, they did follow some iconographic rules which would have been impossible to achieve without training, practical experience, or a certain amount of research.

It is also possible to deduce that the sculptors and other artisans of the period were educated in applying their arts by observing other, less obvious and subtle groups of products (Köksal-Schmidt and Schmidt 2007). The tiny, pierced channels in stone beads, some of which measure several centimeters in length, are one of these fields of application that proves the same theory. The long channels that perforate beads were sometimes made more than once, especially on beads with an angular, flat shape, a type called spacer beads. It is highly unlikely that these beads and other groups of surprisingly masterful objects, like the buttons made of stone with a slanted hole pierced through a minuscule handle, could have been produced by just anyone. On the contrary, these small objects reveal that those who produced them were masters of their trade who had reached the peak of practicing their particular handicraft.

The spacer beads and buttons, frequently observed at Göbekli Tepe, have been found at only a very few other sites The rarity of these objects points to the possibility that the people who produced and used these items formed a small elite, perhaps a separate class that was involved with the cult center and the ritual areas. The fact that the majority of these buttons and beads have been recovered at Göbekli Tepe, Çayönü, and Nevali Çori, all sites with large cultic buildings, strengthens this theory.

Although one group of items could, in view of their shape, be considered pestles and classified as an item with a practical use, closer inspection of their figural adornment suggests the possibility that they may have been scepters with a symbolic meaning. These were most probably used in ritual and symbolic events and were status symbols or signs of hierarchical position. Items such as these have

been recovered in excavation at Nemrik (Kozłowski 2002), Hallan Çemi (Rosenberg 1999), Körtik Tepe (Özkaya and San 2004), and Göbekli Tepe. Their style and form exhibit a distinct pattern of change, beginning with animal and human heads and developing into more abstract forms. It is especially noteworthy that the more abstract examples are somewhat similar to the T-shaped pillars of Göbekli Tepe, though the arms and hands depicted on the sides of the larger sections of the T-shaped pillars are considered indications of the fact that these were anthropomorphic objects, whereas the scepters appear to be zoomorphic.

The level of expertise exhibited in the production of jewelry is surpassed when we examine the stone bowls of the period. A distinct group with incised decorations was first recognized at Hallan Çemi and is therefore referred to by this name (Rosenberg 1999). Stone vessels of the Hallan Çemi type have also been recovered at Demirköy (Rosenberg and Peasnall 1998), Nevali Çori, Çayönü, and Göbekli Tepe, as well as at Jerf el-Ahmar in northern Syria and other sites such as Tell Abr 3 (Yartah 2005) and Tell Qaramel (Mazurowski 2004). They were mostly produced from relatively soft, greenish-black serpentine, which is easy to work. This group mainly consists of open forms which resemble bowls and are decorated with deeply incised grooves on the outer surfaces. Geometric designs were used more frequently than figural motifs, but there are several exceptions to this generalization, especially in the extensive collection of vessels from Körtik Tepe (Özkaya and Coskun 2008). An exceptional fragment that must have been part of an oval bowl is adorned with several rows of scorpions, serpents, and relatively small animals, probably insects, placed vertically alongside each other, their faces directed toward the rim of the vessel. Their presence can be considered a continuation of the theme of depicting undesirable and disliked animals.

Another group of decorated finds consists of objects which have a deep, wide groove running through their center. These are usually called shaft-straighteners. The fact that these objects bear certain symbolic emblems does not seem accidental. There are as many figural motifs on these tools as there are geometric designs. The designs mostly consist of serpents and arrow-like and branch-like motifs. And although they are far less frequent, there are some examples – e.g., at Jerf el-Ahmar – which exhibit a wealth of designs including quadrupeds and birds (Jammous and Stordeur 1999; Helmer et al. 2004).

Stone plaques represent another group of decorated objects. However, the purpose and meaning of these objects are unclear. There are no grooves on them that could indicate that they were used as tools like the shaft-straighteners, nor holes that might indicate that they were used as pendants. They are, however, decorated with motifs that are very similar to those on the shaft-straighteners. Therefore, it is most likely that these plaques served no other purpose than to display the symbols and signs inscribed on their surfaces, much like clay tablets with cuneiform writing thousands of years later.

The communities that resided at and around Göbekli Tepe during the 10th millennium BC were composed of individuals who were able to produce special-

ized objects, possessed a wealth of traditional practices and systems, and had the desire and ability to pass on their accumulated knowledge about the world of symbols to the next generation. The production of many of the objects discussed here would have required planning and preparation, the procurement of raw materials, and the mastery of the use of tools and knowledge about the particular handicraft. There is no doubt that the decorative elements used had meanings attached to them and were not used simply as shapes to create certain motifs. The combinations produced can be evaluated as a form of mnemonic training for the viewer, a way of telling a story through pictures. New findings made in excavation further support the belief that motifs used in incised or embossed designs were not merely modes of representation, but were parts of a complex system of Stone Age symbolism. The most frequently repeated motifs among all the symbols used are animals that have always induced fear and worry in humans, such as serpents and scorpions. These are creatures that conjure up images of evil and danger in our minds. However, we remain mystified when it comes to explaining the meanings of abstract symbols at sites like Göbekli Tepe.

8 Conclusion

The Late Pleistocene and Early Holocene hunter-gatherers of southwest Asia confront us with the emergence of the first large, permanently settled communities. Permanent settlements, c.12,000–10,000 BP, are currently under excavation and producing unexpected monumentality and extraordinarily rich symbolism that challenges our ability to interpret them. Particularly in Upper Mesopotamia, in the center of the so-called Fertile Crescent, a number of large sites with exciting finds have been unearthed in recent years.

The results of these excavations do not turn our picture of world history upside down, but they are adding a splendid and colorful new chapter to our understanding of the period between the hunters and gatherers of the Ice Age and the food-producing cultures of the Neolithic period, a chapter, which – only a few years ago – had scarcely been thought to exist. Now, the 12,000-year-old sites in Upper Mesopotamia lead us to believe that something new and very important was happening. No doubt the amount of time, energy, craftsmanship, and manpower necessary for the construction and maintenance of Göbekli Tepe is indicative of a complex, hierarchical social organization and a division of labor involving large numbers of people. Feasting was presumably the immediate reason for the gathering of hundreds of individuals at the site. Seen from this perspective, the emergence of food production in the course of the PPN may represent the outcome of a series of innovations and adjustments to subsistence patterns in order to meet and secure the energy demands of these large sedentary communities, though a major driving force behind the process of plant and animal domestication may have been provided by the spiritual concepts of these

PPN peoples, in particular the investment of effort by generations of PPNA groups in the materialization of their complex, immaterial world. The people who domesticated plants and animals, who invented the Neolithic way of life, are the same as those who invented all the skills necessary to build the monuments at Göbekli Tepe. We are finding our way back to quite a diffusionistic point of view in which we observe the success of the people who owned the "Neolithic package," which had been "packed" first in Upper Mesopotamia. Beginning in the 9th millennium BC the new way of life started to spread from the region between the Upper Euphrates and the Upper Tigris rivers across the Old World, reaching Europe and Africa in the late 7th millennium (for northwestern Africa, especially Egypt; cf. Shirai 2010).

GUIDE TO FURTHER READING

For a more comprehensive overview on the Paleolithic in the Near East, see Goring-Morris and Belfer-Cohen (2003). A deeper insight into the Neolithic of the region is given by Watkins (2010b). Schmidt (2006) and Anonymous (2007a) provide a more detailed look at the Göbekli Tepe excavations.

PART III

Developments in Farming, Animal Husbandry, and Technology

CHAPTER NINE

The Beginnings of Cereal Cultivation and Domestication in Southwest Asia

George Willcox

1 Introduction

Cultivation began independently in several areas of the globe, including Central, South and North America, northern and southern China, southeast Asia, Africa, and southwest Asia. Each area had a different set of native plants that were brought into cultivation from the wild and then spread as cultivation diffused into new areas. The area in southwest Asia which concerns us here includes southeast Turkey, Syria, Israel and Jordan, and the Zagros area of Iraq and Iran. This area has attracted much attention because the plants that were adopted laid the economic foundations for a highly successful agricultural system based on nine native Near Eastern, hard-grained, annual plants that spread rapidly westward into Mesolithic Europe and eastward into Central Asia. It was these plants that fueled the development of city-states in Mesopotamia and Egypt. The economy of Greece and Rome was based on the same set of crops and animals, which ultimately spread around the globe. Hunter-gatherers who came into contact with these farmers either adopted farming or were forced into marginal zones, resulting in an often drastic reduction in their numbers.

Cultivation, when its diverse origins are considered, might be defined as assisting the reproduction and hence multiplication of plants. It does not necessarily imply field systems and tillage. In the long term, cultivation developed to make plant products available far from their natural habitats and in ever-larger quantities, which laid the way to an increase in the density of human populations and

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urbanization. The term domestication is defined by archaeobotanists as selection of traits in cultivars, for example the loss of the dispersal mechanism. When examining the origins of agriculture, we first need to distinguish between the nurturing of plants, which is a kind of incipient cultivation, and established cultivation, which may be considered a production economy. Humans who rely on gathering have a detailed knowledge of the ecology and biology of a large number of plants (which probably exceeds that of the average professional botanist). Nurturing of plants is practiced by modern gatherers such as native Australians or the Bushmen of the Kalahari, who may encourage the reproduction and multiplication of the plants they gather in order to avoid exhausting resources and thereby assuring future supplies (for more detail on this kind of plant manipulation, cf. Harris 1977; Steensberg 1986; Harlan 1995). Given that modern gatherers manipulate plants in this way, it would be wrong to assume that Upper Paleolithic gatherers had no knowledge of how seeds germinate and tubers multiply. So it is probable that nurturing or incipient cultivation may have been practiced by Paleolithic gatherers. However, this kind of plant manipulation would probably be impossible for archaeologists or archaeobotanists to detect in the archaeological record. It therefore follows that the first archaeobotanical signs of cultivation in the archaeological record represent an already elaborated form of cultivation.

The physical evolution of *Homo sapiens* was essentially conditioned within a hunter-gatherer economy, cultivation having been adopted (in the sense of a production economy) only in the last 12,000 years and then only by certain groups of humans. So the period during which humans have been farming represents less than 10 percent of the known history of the species. Human physical evolutionary development triggered by farming is probably very limited; examples of physiological adaptation such as gluten and lactose tolerance were selected as a result of changes in diet associated with farming.

Why did humans not adopt cultivation and a production economy earlier? Cultivation is a symbiosis in which a particular relationship develops between two species, giving them both an advantage (Rindos 1984). However, for this relationship to develop, prerequisite environmental and behavioral conditions are necessary. These conditions were only met at the end of the Pleistocene and the beginning of the Holocene. It is hoped that this chapter will provide some explanations.

2 Early Research on the Origins of Cultivation in the Near East

The history of the study of the origins of agriculture was provided with a head start by V.G. Childe more than 80 years ago. Like many scholars who followed, he lacked detailed, hard data and so proposed a model based on the small amount of information available at the time. Influenced by Marx's concept of social revo-

lution, he coined the term "Neolithic Revolution." Today we would not consider the adoption of farming revolutionary because it was extremely slow. However, the consequences of the adoption of farming might be considered revolutionary. During the decades that followed World War II, American scholars such as Clark, Binford, and Flannery were influenced by the new science of ecology and hypothesized in terms of theories based on ecological equilibrium, broad-spectrum revolutions, and population pressure (Flannery 1969; Rindos 1984). However, as more sites were excavated, and with an increasing number of radiocarbon dates, scholars had more hard data on which to base their theories. This hard data was provided in large part by archaeobotanical studies, or more precisely by the study of charred plant remains which are common on most archaeological sites in the Near East. In contrast to uncharred plant materials, which undergo natural decomposition rapidly in the aerobic archaeological deposits of open-air sites, charred plant remains resist oxidation. Charred seeds contain carbon that was absorbed during a single year and can be directly dated using the accelerator mass spectrometry (AMS) radiocarbon method. Pioneering archaeobotanical studies were carried out in the 1960s by Hans Helbaek at Çatal Höyük and by Maria Hopf at Jericho. They also studied impressions of cereal chaff used as a temper in building earth, which is frequently found on archaeological sites. During the 1970s the use of flotation to recover charred remains became a common practice and was used on an ever-increasing scale. Willem van Zeist analyzed charred remains recovered by flotation at several Neolithic sites and was the first to publish detailed reports of his findings accompanied by meticulous drawings of the seeds, grains, fruits and chaff elements. His high standards set a precedent for future work. At the same time, Gordon Hillman, working in Turkey, provided an equally important contribution. His original approach included not just the analyses of charred plant remains but also detailed studies of contemporary, pre-industrial cultivation and crop processing as a basis for interpreting archaeobotanical assemblages. Hillman's archaeobotanical studies, which started in the early 1970s, culminated in his publication of the Late Natufian plant remains from Abu Hureyra (Hillman 2000). Following the work of these pioneers, some 50 sites which cover the period of the origins of agriculture in the Near East have been sampled and have provided hundreds of thousands of well-preserved remains from which hundreds of taxa have been identified. This excellent preservation on Near Eastern sites contrasts sharply with the temperate and tropical areas of the world, where bio-perturbations do not allow this kind of preservation.

3 The Contributions of Agronomists and Geneticists

In parallel with research on charred plant remains recovered from archaeological sediments, geneticists and agronomists have made important contributions to our understanding of the origins of agriculture through the study of the wild living

ancestors of the domesticated crops. These progenitors grow today in their natural habitats in the Near East and are little changed from those species that were first taken into cultivation in the Near East at the end of the Pleistocene/beginning of the Holocene. The biological attributes of these plants played an important role in the way they behaved under cultivation and therefore in how they were domesticated. For example, the fact that wheat, barley, and the pulses are self-pollinated means that favorable genes are readily transmitted to future generations. Dormancy inhibits germination and is particularly important for understanding the domestication of the pulses. Some cereals require vernalization, which necessitates that sowing be carried out before the winter season. In addition, tolerance to moisture, temperature, and soil types were all factors that would have played a role in the domestication process and would affect how, when, and where the wild progenitors of cereals and pulses might have been brought into cultivation. Morphological characteristics such as height, grain size, and ear architecture were also important elements. Pioneering studies were carried out in the 1960s by Jack Harlan and Daniel Zohary (Harlan 1967; Zohary 1969), who studied the physiology of domestication and the wild progenitors of which there are nine (Table 9.1) and were the first to provide an outline of geographical distributions. However, we still lack detailed knowledge of the habitat limits and ecology of wild progenitors. There is an urgent need for future research on living progenitors because their habitats are seriously threatened by ever-increasing human impact.

Geneticists and agronomists have theorized about how rapidly wild progenitors such as einkorn or barley might have adapted to their new habitat, which was the cultivated field. Some of these specialists have argued that morphologically wild plants would have been under high selective pressure because they had biological attributes which are a disadvantage under cultivation. The most observ-

Table 9.1 The nine founder plants which were the basis of early farming in the Near East

Wild Progenitor	*Cultivar*	*English name*
Triticum urartu	?	
Triticum boeoticum	*T. monococcum*	einkorn
Triticum dicoccoides	*T. dicoccum*	emmer
Hordeum spontaneum	*H. distichon*	barley
Lens orientalis	*L. culinaris*	lentil
Pisum humile	*P. sativum*	pea
Cicer reticulatum	*C. arietinum*	chickpea
Vicia ervilia	*V. ervilia*	bitter vetch
?	*Vicia faba*	broad bean
Linum bienne	*L. usitatissimum*	flax

able of these is seed dispersal, which results in seeds or grains being lost when they fall to the ground at maturity, unless the cultivator harvests them before they ripen. A second attribute is dormancy; this is a major handicap for the cultivation of wild pulses, which have high levels of dormancy, so a large proportion of seeds will not germinate but will lie dormant for two, three, or more years after they have been sown. This is an advantage in the wild when populations are reduced during years of drought because it provides a reserve of seeds which will germinate the following year. These disadvantages led agronomists and geneticists to suppose that selective pressures would be so high under cultivation that wild populations would evolve rapidly by natural selection. Mutant genes which deactivated these traits were selected under cultivation. Thus natural selection in the long term led to the evolution of domestic populations which retained their seeds after maturity and germinated in the first year. Estimates based on mutation rates and selection pressure suggested that the number of generations needed to transform a morphologically wild population into a morphologically domestic population varied from a few to 200 years (Hillman and Davies 1990). In archaeological terms these estimates imply that the domestication process would have been "archaeologically" instantaneous. In other words, the beginnings of cultivation were synchronized with morphological domestication. These estimates were based on a simplified model where a single population was taken into cultivation and then kept in isolation.

Since the early 2000s, this scenario of rapid domestication has been rejected by several scholars who have suggested that the adoption of cultivation and domestication involves a complex and protracted processes. Wild populations may not only have been taken into cultivation at different times and in different places, but may also have been lost or abandoned. Domestication or the selection of favorable traits is no longer seen as an event or even events, but as a gradual, continuous process (Fuller 2007). Finally, recent studies demonstrate that wild types occurred alongside domestic types in ancient field systems long after the first domesticates appeared, which strongly suggests that the process of selection and domestication was slow (see below).

4 Gathering During the Paleolithic

Archaeological evidence for the use of plants during the Paleolithic is limited because plant materials do not survive for long periods. While Lower and Middle Paleolithic societies are seen primarily as hunters, this may be more apparent than real, simply because bones survive frequently and plants rarely do. The gathering of small seeds as a source food by living hunter-gatherers has been widely recorded in different parts of the world. It appears to be a form of subsistence well adapted to arid and semi-arid areas, but we have very little evidence for this prior to the Neolithic. The earliest finds of plant foods in the Near East

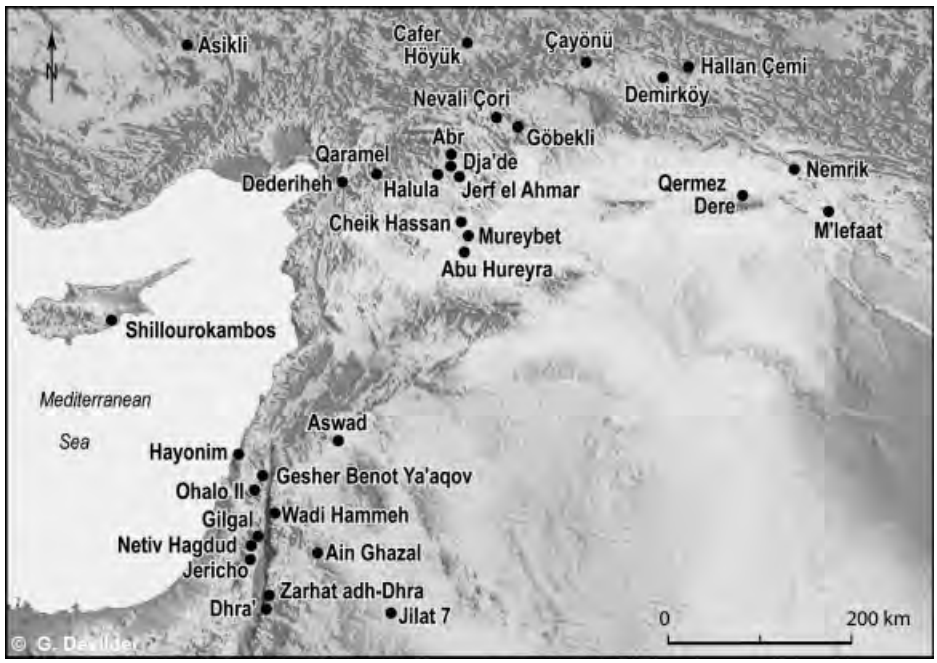

Figure 9.1 Locations of the major sites mentioned in the text with altitude contours.

Table 9.2 Approximate dates in BP (before present) calibrated calendar years (minus 2,000 years for BC cal dates)

Cultural period	*Economy*	*cal. BP*
Upper Paleolithic	First known gathering of wild wheat and barley	23,000
Natufian	First known permanent dwellings	14,000–12,000
Khiamian and PPNA	Earliest signs of pre-domestic cultivation	12,000–10,700
Early PPNB	First signs of domestication of cereals	10,700–10,200
Middle PPNB	Surface area of sites increases dramatically	10,200–9,500

(Figure 9.1 and Table 9.2) come from the Acheulian site of Gesher Benot Ya'aqov, dated to about 750,000. Situated on the shores of Lake Hula in the northern Jordan Valley where very unusual conditions favoured the survival of plant remains, the site yielded 224 fruits and seeds; for example, acorns (*Quercus*), pistachio nuts (*Pistacia atlantica*), water chestnut (*Trapa natans*) and seeds of prickly water lily (*Euryale ferox*) were found as well as wood charcoal from wild

almond trees (*Amygdalus*) (Goren-Inbar et al. 2002). Following a long chronological gap, the Upper Paleolithic site of Ohalo II (c.23,000 BP) produced at least 60,000 identified plant remains including wild cereals, emmer (*Triticum dicoccoides*) and wild barley (*Hordeum spontaneum*) (Kislev et al. 1992). This chronologically and geographically (for the period) isolated site provides the earliest evidence to date for the gathering of wild grasses. It owes its survival to exceptional preservation conditions. The gathering of grass seeds was certainly not limited to one site during this period, but to date this is the only site of this period which has produced plant remains. This was followed by another gap until further evidence for plant use was found in the Natufian period.

5 The Question of Cultivation During the Natufian

Natufian sites in the southern Levant have thin deposits which are not conducive to the survival of charred plant remains. Therefore it is difficult to reach a conclusion concerning the plant economy. Only a few cereal grains were found at sites such as Wadi Hammeh and Hayonim. In the northern Levant two Natufian site have produced a profusion of plant remains, Abu Hureyra on the Euphrates and Dederiyeh in northwest Syria. Weiss et al. (2004) demonstrated how cereals increased in the diet of humans in the Near East from the Late Pleistocene to the Early Holocene. Table 9.3 presents a summary of their data on the volume of cereal compared to wild grasses, to which preliminary results from Dederiyeh have been added.

This increase is a sign of more reliance on cereal, but at what point did cultivation begin? Indeed, identifying cultivation of morphologically wild plants is problematic. How can we distinguish gathering from cultivation? Hillman

Table 9.3 Relative volume of cereals compared to grasses in the PPNA

Site	*Date*	*% volume*
Ohalo II	23,000 Kebarian	65.4
Dederiyeh*	12,500 Natufian	80.0
Abu Hureyra I	12,500 Natufian	78.2
Jerf el-Ahmar	11,300 PPNA	90.0
Mureybet I, II	10,800 PPNA	98.6
Netiv Hagdud	11,000 PPNA	82.9

* Preliminary results

Note: The right column gives the volume of cereals compared to grasses recovered from each site which can be seen to increase between the Late Pleistocene and the beginning of the Holocene. This increase coincides with sites where pre-domestic cultivation has been identified.

Source: data from Weiss et al. 2004; work currently under way by Tanno, Willcox, and Nishiaki; Willcox et al. (2008)

discussed the possibility of rye and einkorn being cultivated during the Late Natufian at Abu Hureyra 1 (Hillman et al. 2001). He suggested that these cereals were gathered near the site during the early phases of occupation there, but during the later phases increased aridity (during the Younger Dryas, see below) resulted in a shift of rye and einkorn habitats far to the north. The extinction of local cereals provided an incentive for the inhabitants to cultivate locally in favorable microhabitats. He also noted that a few charred rye grains from the site were plump, resembling domestic rye. These interpretations were the first to attempt to trace foraging to farming at a single site using archaeobotanical data. Recently, they have been questioned. For example, the onset of the Younger Dryas may have in fact coincided with the beginnings of Abu Hureyra 1. There is also the question of the distance the inhabitants would be prepared to travel in order to gather their cereals. Could the river have been used as a means of transport? In the case of the plump grains, they are a minority compared to the typical wild grains, and could be the result of puffing due to charring. The arable weed assemblage is not as well developed as at other sites. In conclusion, while we should not exclude the possibility of cultivation at Natufian Abu Hureyra, the evidence in favor of it is slim, suggesting that if it did take place, it was practiced on a small scale.

6 Pre-Domestic Cultivation and Large-Scale Cereal Exploitation: The PPNA

Pre-domestic cultivation has been proposed for a number of Pre-Pottery Neolithic A (PPNA) sites where wild cereals have been found at high frequencies. In Table 9.4 we list the sites and the references where pre-domestic cultivation has been proposed.

What is the evidence for pre-domestic cultivation for PPNA sites? Willcox et al. (2008, 2009) found six archaeobotanical lines of evidence which support the hypothesis of cultivation before morphological domestication. These are outlined below. Individually they would not stand up to scrutiny; however, when they occur together, as they do at PPNA sites on the Euphrates in northern Syria, the argument for cultivation of wild cereals is persuasive. It is probable, too, that gathering continued to be practiced, particularly during famine years when the inhabitants would be forced to consume seed stock and then would have to gather from the wild to renew their stock in order to continue cultivation.

The first line of evidence is a decline of gathering marked at Jerf el-Ahmar by a gradual reduction in gathered plants from the lower to the upper levels at the site. Frequencies of small seeded grasses such as *Stipa*, Panicoid types, and other, small-seeded grains such as Cyperaceae and *Polygonum/Rumex* decline (Willcox et al. 2008). The decrease in gathering of these seeds was compensated for by an increase in the use of founder crops, notably barley, emmer, einkorn, lentil,

Table 9.4 Sites where pre-domestic cultivation has been proposed

Sites	*Period*	*References*
Mureybet, Syria	PPNA	Van Zeist & Bakker-Heeres (1984) Colledge (1998)
Çayönü, Turkey	PPNB	Van Zeist & Roller (1994)
Netiv Hagdud, West Bank	PPNA	Kislev (1997)
Abu Hureyra, Syria	Natufian	Hillman (2000)
Zahrat adh-Dhra, Jordan	PNNA	Edwards et al. (2004)
Jerf el-Ahmar	PPNA	Willcox et al. (2008)
Tell Abr	PPNA	Willcox et al. (2008)
Dja'de	PPNA/B	Willcox et al. (2008)
Jerf, Dja'de, Tell Abr	PPNA	Willcox et al. (2008)
Gilgal, West Bank	PPNA	Weiss et al. (2006)
Dhra', Jordan	PPNA	Kuijt & Finlayson (2009)
el-Hemmeh, Jordan	PPNA	White & Makarewicz (in press)

and pea, which were probably cultivated. It appears that these changes in plant use represent an increasing reliance on cultivation.

The second line is the introduction of crops from elsewhere. In order to observe this, we need to compare the presence of cereals and pulses across a wide chronological sequence in the Euphrates region of northern Syria. Thus we see that rye and two-grained einkorn were the only cereals present at Late Pleistocene Abu Hureyra. At later sites such as Jerf el-Ahmar and Dja'de, first barley and then single-grained einkorn and emmer were introduced in that order. Pulses were also introduced; this can be seen at Dja'de, where *Vicia faba* and *Cicer* appeared for the first time far from their natural habitats.

The third line is the presence of weeds of cultivation. Weeds of cultivation, or arable weeds, are plants which thrive when the soil is disturbed by cultivation. They have been evolving since the Neolithic and increasing in numbers as agriculture spread into new habitats. They should not be confused with ruderals, which grow around habitations sites where there is trampling and/or nitrogen-rich soil. Of the known weed taxa, one only was found at Ohalo II. This is not surprising because these plants occur naturally in or near wild stands of cereals. However, the numbers of weed taxa increase during the Natufian and show a sharp increase during the PPNA. The number of arable weed taxa on PPNA sites is equal to, or in some cases higher than, that found on Middle PPNB sites. Thus the weed flora was already well developed by the PPNA.

The fourth line is an increase in grain size. An increase in grain size is often cited as a sign of domestication (Hillman et al. 2001). A study of barley grain size at Jerf el-Ahmar and Dja'de demonstrated that there is a small increase in thickness and breadth between the lower and upper levels at these sites, but that

in the same geographical area there is no further increase for several millennia (Willcox 2004). Is this size increase due to phenotypic changes resulting from improved growing conditions where a higher proportion of grains reached full development, or to genetic selection of larger grains? (A third possibility is the introduction of a plump-grained population from elsewhere.) Genetic selection for plump grains is more complex than selection for non-shattering ears, because the former involves multiple genes compared to the latter (loss of dispersal) which involves one or two genes. For this reason, it has been argued that this size increase is due to cultivation. However, Fuller (2007) argued that this increase in grain size was due to genetic selection. Only further data will resolve this issue.

The fifth line is the location of sites beyond wild cereal habitats. At many PPNA sites in the Near East, the ancient cereals identified correspond to the wild cereals that grow locally as part of the present-day vegetation near the sites. But this is not true of all sites, for example at Zahrat adh-Dhra in the Jordan valley and on the Euphrates in northern Syria. At the former, emmer was found on the site, which is situated in an area far too dry for this plant to grow naturally. At the Euphrates sites, wild einkorn and wild rye were found about 200 kilometers south of present-day wild rye habitats and between 100 and 150 kilometers south of wild two-grained einkorn habitats at PPNA Mureybet and Jerf el-Ahmar. It has been argued that, even taking into account the cooler conditions of the Early Holocene, it is improbable that these cereals could have grown in these areas naturally (Van Zeist and Bakker-Heeres 1984). This leads to the question of whether it was possible to cultivate these cereals in areas where, as we have seen, they would not have been able to grow naturally in the wild. The answer is yes, because under cultivation, fields would have been chosen on edaphically favorable land where moisture was retained and competition from other plants and animals was removed, creating a favorable microhabitat in a hostile region. Several scholars have discussed an alternative explanation, the possibility of transportation of grain. This of course is a possibility, but has the disadvantage of being precarious and would not last as a subsistence strategy in the long term.

The sixth line is large-scale cereal exploitation. This will be discussed with special reference to Jerf el-Ahmar on the Euphrates. At this site 15,727 remains of charred wild barley, wild rye, and wild einkorn were recovered from occupation layers. This represents more than half of all the seed and fruit remains, indicating that cereals were a major component of the diet. Frequencies alone give a limited picture of the role of different food plants in the diet, but by combining archaeobotanical and archaeological evidence of cereal use we get a much more comprehensive picture (Stordeur and Willcox 2009). First, large-scale milling is indicated by the arrangement of querns at the site (Figure 9.2). These were used for grinding cereals (Willcox 2002b) and many were found in situ inside the buildings, frequently occurring three to a room, suggesting that grinding was being practiced in an organized manner with three querns working simultaneously in a single architectural and social unit. The querns were stabilized

Figure 9.2 A room in the PPNA site of Jerf el-Ahmar (northern Syria) showing three quern bases in a line that were used to grind cereal grain on a large scale.

by being set into solid bases. The layout of the querns suggests that cereals played an essential role in the everyday economy of the site and that cereal processing was probably intertwined with the social structure of village life. Second, cereal chaff, the inedible residue, was found in vast quantities in the form of impressions in building earth at Jerf el-Ahmar, Tell Abr, and Mureybet. The building earth was made of a mixture of fine sediment to which cereal chaff was added as a tempering medium in order to reduce shrinkage and increase strength (Willcox and Fornite 1999). This technique is still used today in many parts of the world, including northern Syria. When the buildings burned at Jerf el-Ahmar (a frequent occurrence), the earth was baked and hardened leaving perfect impressions of the chaff, consisting of awns, glumes, lemmas, and spikelet bases which were finely fragmented. Examination of large quantities of building earth showed that chaff was systematically used as a tempering medium. Given the size of the buildings at Jerf el-Ahmar and the fact that they were regularly maintained, destroyed, and rebuilt, chaff must have been available in massive quantities at the site. The quantity is surprising if we consider that the dehusking of hulled cereals, particularly barley, produces a low proportion of chaff to grain. Third, large-scale, collective storage occurred in communal buildings where large quantities of pure charred cereal grain were found. In building 30 at Jerf el-Ahmar, small cells or silos provided storage facilities (Stordeur et al. 2000). Fourth, rodent infestation

was evidenced at Jerf el-Ahmar by charred rodent droppings, many of which correspond in size to those of the domestic house mouse (*Mus musculus domesticus*). Indeed, six archaeozoological finds of domestic mouse were identified at Dja'de and one at Jerf el-Ahmar (Cucchi et al. 2005). These mice most probably fed on stored grain. In total, 51 charred droppings were found at Jerf el-Ahmar and 221 at Dja'de. Other early village sites where domestic house mice have been found include Hayonim B and Netiv Hagdud in the south and Mureybet and Cafer Höyük in the north. Fifth, sickle blades used for harvesting show an increase in the intensity of a characteristic gloss caused by the build-up of a film of plant silica on the cutting edge of the tool. At Jerf el-Ahmar and contemporary sites on the Euphrates, there is an increase both in size and quantity of these tools compared to earlier sites (Abbès, personal communication). So these five different categories of evidence all point to intensive cereal use during the PPNA.

7 Early PPNB Sites and the Earliest Signs of Morphological Cereal Domestication

Sites of this period are not well represented in the archaeological record. It was during this period that we see the first signs of morphological domestication, albeit still not totally confirmed. Morphological domestication can be identified by the loss of the dispersal mechanism in barley and hulled wheats. This is visible when examining the abscission scar where part of the upper spikelet adheres to the scar, indicating an artificial break. The earliest finds of einkorn domestication date to approximately 10,500 BP and have been reported from sites such as Nevali Çori, and Cafer Höyük in the northern Levant, but at these sites only low proportions of domestic spikelets were found compared to wild types. Further south at Aswad, in the southern Levant, Van Zeist's early work suggested that domestication had already taken place during the PPNA, but new excavations at the site (Stordeur 2003) revealed that these layers were later. The grains from his samples have been subsequently radiocarbon-dated. The earliest levels date to the Early PPNB and contain domestic barley and possibly emmer wheat. Domestication of emmer and barley was also reported at Wadi el-Jilat 7. At the time of writing, the dating and the status of identifications at many of these sites need to be re-examined.

Evidence from Cyprus demonstrates that emmer, einkorn, and probably pulses were introduced from the mainland, possibly before they were domesticated. We know that emmer and einkorn were introduced there because these species are not native to the island. This is the first sign of a diffusion of agriculture, including sheep, goat, and cattle, which were morphology wild. With this agricultural package came the domestic mouse, presumably introduced accidentally with grain supplies. The introduction of mice at sites such as Shillourokambos implies that important stocks of cereal were being regularly imported (Cucchi et al. 2005).

It is significant that when domestic cereals first appear during this period they are always accompanied by high proportions of wild types (Tanno and Willcox 2006). Domestication appears to have arisen independently in the northern and southern Levant and perhaps elsewhere – e.g., on Cyprus. Evidence of domestication in Iran occurred about two centuries later.

8 Mega-Sites, the Middle PPNB and Established Farming Communities

This period saw the development of sites which cover a much larger surface area. The early levels at these sites, which may represent the transition from the Early PPNB, are not well understood. This is because, as the sites developed, the overlying strata combined with lateral expansion obscured the lower levels, hindering access by excavators. The levels which have been excavated demonstrate that established farming communities had developed. It was a production economy that allowed these sites to expand. The site plans illustrate densely packed habitations, suggesting population increase. These sites are characterized by high frequencies of domestic cereals, including new cultivars such as naked wheat and an extinct variety of glumed wheat. Flax was cultivated alongside the cereals and pulses, and herding of sheep and goat was practiced. Middle PPNB mega-sites include Halula and Abu Hureyra on the Euphrates, Aswad and Ain Ghazal in the southern Levant, and Aşikli in Anatolia. They mark the end of the history of the origins of farming in the Near East because these sites represent full-scale farming villages. Demographically, these sites had probably reached a threshold at which the food requirement exceeded what the natural environment could supply from gathering. Societies had passed a point of no return and had become totally dependent on farming for their subsistence. Wild plant and animal resources may have already started to diminish through over-exploitation. The expanding economy, no longer contained within the confines of the Near East, spread to new lands in Anatolia and Iran.

9 Climate Change in Relation to the Beginnings of Agriculture in the Near East

How did climate change affect the availability of food plants and the beginnings of agriculture in the Near East at the end of the Pleistocene and beginning of the Holocene? Paleoclimatic data from the Near East come mainly from analyses of lake-bed sediments, but they are rather sparse and poorly dated. Given that climate change is a global phenomenon, we may look elsewhere, in particular to high-resolution data from Greenland and Antarctic ice cores. These give information about global temperature change from oxygen isotope oscillations, providing

an indispensible and solid backdrop to the limited data available locally (Willcox et al. 2009).

The favorable conditions of the Late Glacial was a crucial factor in allowing societies in the Near East to settle in permanent dwellings. Analyses of sediments recovered from cores at Lake Hula at 70 meters and Lake Ghab at 240 meters above sea-level indicate that deciduous oak and grass pollen frequencies increased after the Glacial Maximum (Baruch and Bottema 1999; Yasuda et al. 2000). For the Euphrates region (280–500 meters above sea-level) in northern Syria, charcoal and seed analyses from the earliest levels at Abu Hureyra indicate a forest steppe vegetation consisting of *Pistacia atlantica* trees, grasses, and occasional oaks. Thus, between the end of the Glacial and the beginning of the Younger Dryas, forest vegetation expanded in low-lying areas. Temperatures were probably lower than at present and there was more available moisture for plants. These conditions were favorable for the expansion of oak, *Pistacia atlantica*, almond, and the grasses, including wild cereals. The vegetation was more luxuriant than that occurring today, providing abundant food resources for animals and humans. The land had a high carrying capacity, especially in the southern Levant, with plentiful high-energy foods, namely cereals, nuts, and meat. The grains and nuts were easily storable. This subsistence economy allowed Late Paleolithic hunter-gatherers to become settled in permanent dwellings.

This favorable period was followed by a return to glacial conditions, called the Younger Dryas. This can be discerned from lake-level changes in the Near East. The climate was cooler and drier than today. The aridity may have been offset because low temperatures would have meant less evaporation and less transpiration by plants. Isotope data indicate that the Younger Dryas was more severe at the high-altitude continental sites than at those nearer the Mediterranean vegetation zones, and sea-levels were lower than today. Evergreen oak and olive pollen were absent or rare at lakes Hula, Ghab, and Acigöl during the Late Pleistocene and did not increase until the Holocene. In the Euphrates area during the Younger Dryas at Mureybet 1 and 2 (290 meters above sea-level), *Pistacia*, grasses, and oak were exploited (Willcox et al. 2008; Van Zeist and Bakker-Heeres 1984), so these resources were still available despite climate deterioration. During the Younger Dryas, many Natufian sites were abandoned, particularly in the southern Levant.

The Younger Dryas was followed by a period of climate amelioration. This was the beginning of the Holocene and the start of more stable climatic conditions. The Late Pleistocene and the Younger Dryas were periods with high amplitude oscillations in the climate record, indicating climate instability. These conditions were not favorable to cultivation. Climate variability leads to a high frequency of failed harvests. So if humans did cultivate before the Holocene, it is unlikely that a reliable and sustainable economy could have developed. The Early Holocene was characterized by an increase in both temperature and rainfall. Data from low altitude lake sites and marine cores indicate forest expansion in

the Near East. This can be seen at the Euphrates valley sites by the finds of *Pistacia* and *Amygdalus* charcoal and fruits at Jerf el-Ahmar and Dja'de (Hillman 2000; Willcox et al. 2008). With this warming came more stable climatic conditions. It has been argued by many scholars that this stability allowed cultivation to develop into a reliable subsistence economy (Feynman and Ruzmaikin 2007). This change in the economy is reflected in architectural developments in northern Syria. Compare, for example, the humble pit dwellings at Natufian Abu Hureyra with the large, communal buildings that were used for storage at Tell Abr, Jerf el-Ahmar, and Mureybet in the PPNA.

10 A Center or No Center for Domestication?

There are two models: the first suggests that domesticated cereals spread rapidly from a center or core area resulting from an event; the second suggests that the process of domestication was protracted, occurring independently over a wide geographical area. At the time of writing, the second model has gained the favor of most specialists because the archaeobotanical information reveals that (a) local populations of cereals were taken into cultivation independently in different regions, as demonstrated by the fact that charred cereal assemblages vary from region to region corresponding to the known wild cereal distributions and hence the availability of locally occurring wild cereals; (b) within different areas the assemblages show continuity from the PPNA to the Early PPNB – that is, for at least 1,000 years; and (c) domestic varieties arose independently in different areas. The taking into cultivation of local stock is not surprising because local cereals would have been the best adapted to local conditions. Indeed, prior to adaptation by selection, emmer from the southern Levant would have grown poorly in Anatolia, just as einkorn from Anatolia would not have been adapted to the southern Levant. We do not know exactly when the plants started to acclimatize, as early farmers started to exchange preferred varieties which would have led to the diffusion of crops. But during the Middle PPNB the fact that emmer was adopted at many sites would appear to be the first indication.

DNA fingerprinting has been used in an attempt to locate where original stock might have come from by comparing the DNA of modern cultivars with modern wild homologues (Salamini et al. 2002). The two crops which interest us the most are emmer and barley, although much work has been done on einkorn. The difficulty in these studies arises because the sample is modern and may not be representative, since both the wild progenitors and the cultivars have been drastically reduced over millennia. Today's cultivated wheat and barley represent survivors of long chains of speciation. Many varieties have become extinct. Indeed, a number of archaeobotanical morphotypes have no modern homologues – for example, the early naked wheat, a glumed wheat, and a two-rowed einkorn from northern Syria which is possible *Triticum urartu* (see Table 9.1). This suggests

that we should be cautious when trying to pin down a locality using DNA fingerprinting. A study by Özkan et al. (2010) looks at the evidence for emmer wheat.

11 Why Was Morphological Domestication Slow to Become Established?

Theoretically, less than 200 years of cultivation could have been enough time to select cereals which retained their spikelets after maturity (Hillman and Davies 1990). Yet there is no evidence for this; cereals or pulses remained unchanged despite a prolonged period of cultivation, up to 1,000 years. Why, then, did domestication not appear earlier? One reason is that seed stock may have been regularly replenished by gathering from wild stands when reserves were diminished following famine years. These might result from disease, pillage, or drought, the latter probably a frequent occurrence in the Near East. Another reason is that harvests would have been carried out before the ears shattered, which would mean that the probability of selection for the rare mutants that had lost their dispersal mechanism would be extremely slim. With premature harvests, non-shattering ears would have had little advantage; plants with ears that shatter compete well with non-shattering forms in cultivated fields. This is demonstrated by wild einkorn and barley, which are common weeds of cereal fields in the Near East today.

Rapid domestication has the disadvantage that it would drastically reduce biodiversity, resulting in a population more susceptible to natural catastrophes and with a poor yield stability from year to year as compared to wild populations. In addition, rapid domestication requires the wild crops to have been isolated from their wild homologues. This would be extremely difficult for farmers to attain because early agriculture sites are situated within the habitat areas of the wild progenitors.

In the archaeobotanical record, we see that wild types continued as part of the crop long after domestic forms appeared, so wild and domestic types were cultivated together in the ancient field systems for a millennium or more. This continued admixture suggests that during the Early Neolithic, non-shattering and shattering forms were inseparable and so similar that Neolithic farmers treated them both as part of the crop. Studies on a wider geographical scale and for rice and millets exhibit the same phenomenon (Fuller 2007), also indicating that morphological domestication was slow to be established and mixed populations of wild and domestic cereals persisted side by side for long periods (Tanno and Willcox 2006).

12 Conscious vs Unconscious Selection

Farmers who cultivate plants with vegetative reproduction such as tubers or fruit trees produce cloned crops. They may consciously choose a variety or trait which will appear in the following generation. But this is not the case for annual grain

crops such as the founder crops of the Near East. One reason is that domestic traits are not readily visible to the naked eye, and a second is how would selection take place? The only effective way to select consciously is to build up a single line population from a single seed. This would require keeping the descendants isolated from other plants, which would have been difficult. This single line population would have the disadvantage of reducing genetic diversity which was necessary to create healthy crops with stable, year-to-year yields. Most preindustrial farmers appreciate variety and diversity in their crops, because they know that in order for healthy crops to develop they would need to have numerous landraces, each with its own advantage.

As we have seen, wild and domestic crops were cultivated side by side, as cultivators did not succeed in separating them. Without a plant breeder's hindsight, cultivators probably felt secure and confident with the crops as they were, and it did not occur to them to attempt crop improvement. Finally, we should not confuse choice with selection. Early farmers may have chosen crops or landraces for which they had a preference – for example, wheat over barley – or they may have exchanged varieties, but this is not selection.

13 Major Questions

The when, where, and why questions for the origins of agriculture were, until a decade or so ago, seen in rather simplistic terms, some scholars favoring environmental determinism and others development of human behavior as pivotal factors affecting the adoption of cultivation. Until the 1990s, Jericho was seen as the center of origin for farming; ten years later, this switched to Göbekli Tepe (Ch. I.8) as the center, with Jericho on the periphery. Natufian Abu Hureyra was reported to be the earliest site inhabited by cultivators, but today some might refute this. These answers are dependent on the available evidence at the time of writing. So what is the consensus at present? Let us try briefly to answer each question.

When did cultivation begin? Paleolithic peoples may have assisted in the multiplication of food wild plants. During the Upper Paleolithic in the Near East, cereals were being gathered 23,000 years ago. This would have resulted in unintentional cultivation when grain accidently spilled onto the ground during processing and germinated the following year. For the Natufian period that follows, the archaeobotanical record is poor in the southern Levant and in the northern Levant only one of the two relevant sites has been studied to date, so it is difficult to reach any firm conclusions. By the beginning of the Holocene, about 11,500 years ago, the inhabitants of PPNA villages across much the Near East were taking local, wild cereals and pulses into cultivation; this is the phase of pre-domestic cultivation. In areas where wild cereals were abundant, such as southeastern Anatolia, cultivation may have been adopted more slowly, while in areas away from wild cereal habitats, such as the dry steppe areas of northern

Syria and Jordan, cultivation was adopted more rapidly. By the Middle PPNB, a production economy, consistent morphological domestication, and established, fully fledged farming communities arose concurrently across the region. The mega-sites are the unequivocal evidence of this.

Where did cultivation start? Agriculture developed totally independently in many different regions of the world. This may have happened because the knowledge of plant husbandry (assisting in the multiplication) was part of the human collective memory going back into the Paleolithic. So it is not surprising that, on a smaller scale, plants were also taken into cultivation independently in different areas of the Near East. The mega-sites arose from small PPNA villages, not just in one central area but across the geographical extent of the Near East. These sites were culturally distinct, indicating that they evolved independently of each other. Thus, there is no evidence that the mega-sites originated from a single center or core area. On the contrary, they evolved independently in different regions along with local crops.

Finally there is the "why?" question. Could the development of belief systems and the social structures which accompany them be, in part, responsible for the shift to farming? This is difficult to answer. Were the complex social systems at sites such as Jerf el-Ahmar or Göbekli Tepe a consequence of cultivation or, on the contrary, were they a necessary prerequisite? It could be argued that the evolution of complex societies and farming were so interwoven that we cannot put one before the other. A more pragmatic approach might be to suggest that Natufian or Upper Paleolithic societies had the potential to cultivate, but that in the Near East cultivation was adopted in the long term only when there was a lack of easy access to desired wild stands combined with stable climatic conditions. At individual sites, over-exploitation of wild stands, competition from inhabitants of neighboring sites, choice of cereal species, and the desire to stockpile may have been additional reasons why humans adopted cultivation.

GUIDE TO FURTHER READING

For a comprehensive introduction to the biology and history of the founder crops used in the ancient Near East, which is co-authored by a geneticist and an archaeobotanist, see Zohary and Hopf (2000). A similar authoritative work on the same subject, but with a different angle, is given by the American agronomist Jack Harlan (1995). More details on climate issues, including methods and techniques written by a geographer, can be found in Roberts (1998). Climate change specifically relating to the beginnings of agriculture in the Near East is treated in Willcox et al. (2009). A broad view of the origins of agriculture can be found in Mithen (2003: chs 3–6). A book which gives solid archaeological information combined with an original hypothesis for adoption of farming in the Near East is Cauvin (2000). In the same spirit, and inspired by Cauvin's book but relying more on evolutionary psychology, is Lewis-Williams and Pearce (2005).

CHAPTER TEN

Fruit-Growing

Margareta Tengberg

1 Introduction

Following the domestication of cereals, pulses, and flax in the area of the Fertile Crescent during the early Neolithic, agricultural economies in the Near East focused on the cultivation of these annual crops, rich in carbohydrates, proteins, and vegetable fat. Even though crop assemblages evolved and became more diversified through time (e.g., via the introduction of new cereal species such as spelt and bread wheat and the creation of numerous cultivated varieties – or cultivars – adapted to local ecological conditions), their basic composition stayed more or less the same throughout many generations of farming. It was not until several millennia after the Neolithic revolution that the first signs appeared of the cultivation of a new and important category of food plants – fruit-bearing trees.

Progressively, and according to local conditions, grape (*Vitis vinifera* L. subsp. *vinifera*), olive (*Olea europaea* L.), fig (*Ficus carica* L., *F. sycomorus* L.), and date palm (*Phoenix dactylifera* L.) were added to local plant economies. Their fruits can either be eaten fresh or preserved through drying or brining. In some cases, secondary products such as olive oil and wine quickly gained tremendous importance, not only as a complement to local diets but as valuable commodities traveling along the trade routes that developed during the Late Chalcolithic and Early Bronze Age. Finally, the incorporation of fruit trees into traditional agrosystems opened the way for mixed plantations associating perennial trees and shrubs

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with annual crops to mutual benefit. This became the principle of the Mediterranean *cultura promiscua* and the date palm gardens of the arid Arabian deserts.

Even though the cultivation of fruit trees began later than that of grain crops, fruits from wild trees, as shown by the recurrence of fruit remains in early archaeological sites, had comprised part of the human diet since prehistory. The steppe forest vegetation that developed over large parts of the Fertile Crescent during the post-glacial warming period included many trees that produced edible fruits. As archaeobotanical analyses have shown, Neolithic populations in this part of the Near East benefited from this natural diversity by collecting and consuming a wide array of wild species, including olives, figs, grapes, almonds, pistachios, pears, hackberries, and acorns (Willcox in press).

Claims have been made of a precocious domestication of the fig tree in the Jordan Valley more than 11,000 years ago, thus largely predating the first domestication of cereals (Kislev et al. 2006). Careful consideration of the complex reproductive cycle of the fig tree suggests that this hypothesis probably has to be revised (Denham 2007). Fruit tree cultivation is thus still thought to have developed considerably later than that of grain crops. How can we explain this? The answer certainly lies mainly in the biology of these different categories of food plants and in the way human populations interfered with their natural cycles. While cereals and pulses are annual plants, fruit trees are perennials developing over several years into woody plants: trees, shrubs, or lianas (woody vines that use trees for support). Several years are also necessary before the first harvest can be obtained: at least 3–4 years for grape and fig and 4–6 years for date and olive (Zohary and Hopf 2000). Cultivating fruit trees is therefore a long-term investment that can only be done when the subsistence base has already been secured by other means. On the other hand, once it has reached maturity, a fruit tree can produce for a long time, sometimes, as in the case of the olive tree, up to several hundred years.

Another major difference between grain crops and fruit trees lies in the way they are pollinated. In self-pollinated (autogamous) species, such as most domesticated cereals and pulses, sowing a seed will result in a new plant that is genetically and morphologically very like the mother plant. Fruit trees, on the other hand, are generally cross-pollinated (allogamous), with the pollen from one individual fertilizing the female parts of another plant. Some species (fig, date, wild grape) are even dioecious – i.e., with male and female flowers separated on different individuals. The resulting offspring inherits characters from both parents in a new and unique combination. In nature this genetic diversity is usually an advantage, allowing populations to adapt to changing conditions. In horticulture it becomes a problem, as the outcome of sowing is unpredictable, especially when it comes to fruit size and pulp quality, characters of prime importance to man. Indeed, the sexual reproduction (by seed) of fruit trees more often than not results in an offspring with smaller and less tasty fruits. One way of avoiding this problem is to propagate fruit trees vegetatively by the use of various techniques

such as the rooting of twigs and offshoots or the planting of cuttings. Grafting is another somewhat more complex procedure that seems to have occurred later, probably in Greek and Roman times (Zohary and Hopf 2000: 143). Vegetative reproduction of plants is synonymous with producing clones that are genetically identical to the mother plant. At the beginning of fruit cultivation, preferred morphotypes – e.g., individuals with large, tasty fruits – were selected from a wild population and reproduced by one of the abovementioned techniques. Repeated cloning results in the creation of a cultivated variety maintaining the same desirable characters as the original mother plant even after many generations.

Vegetative or asexual propagation does not alter the original species much, and in that sense fruit trees are much less "domesticated" than, for example, cereals. This means that they can easily return to a wild state and in most fruit-growing regions we find "escapees" or feral plants that are fully inter-fertile with the cultivars. Crossing between cultivated and wild trees is common, both intentionally, to diversify the gene pool and create new varieties, and accidentally. All of this makes the boundary between wild and cultivated fruit trees much less clear-cut than, for example, between wild and cultivated cereals, both from a genetic and from an archaeobotanical point of view. This has long been of concern to archaeobotanists trying to determine the status of the seeds and fruits they find in archaeological sites. The distinction between wild and cultivated is indeed important in order to correctly understand the relationship between humans and this type of plants, particularly in terms of food procurement strategies (gathering versus cultivating). While the mere size of a fruit or a seed does not seem to be a reliable criterion of differentiation, morphometric analysis, taking into account the geometric shape of fruits and seeds, has proven useful in distinguishing wild from domesticated olives, grapes, and dates (Terral et al. 2004, 2010, in press).

Our knowledge of fruit cultivation in the ancient Near East is based on textual and iconographic evidence, as well as fruit remains from archaeological sites (Figure 10.1). The latter are most often preserved in a carbonized state even though mineralized, desiccated, and exceptionally waterlogged remains may also occur. Usually only the most resistant elements of the original fruit – i.e., the seeds and lignified stones (botanically: endocarps) – are found, while the soft, edible parts of drupes and berries have long since disappeared. Dates, figs, and grapes can be dried and transported, sometimes over long distances. Thus, their occasional presence on a site does not necessarily mean that they were produced locally. However, when numerous fruit remains are found along with other plant parts, notably wood remains, this is a strong indication of indigenous cultivation.

From the 3rd millennium BC onwards Mesopotamian cuneiform sources mention fruits (Sumerian **níg-sa-(h)a**, Akkadian *(a)zamru* or *muthummu*) and fruit cultivation (Postgate 1987; Powell 1987; Joannès 2001). While some species are well identified, such as date (Sum. **zú-lum**; Akk. *suluppû*), grape (Sum.

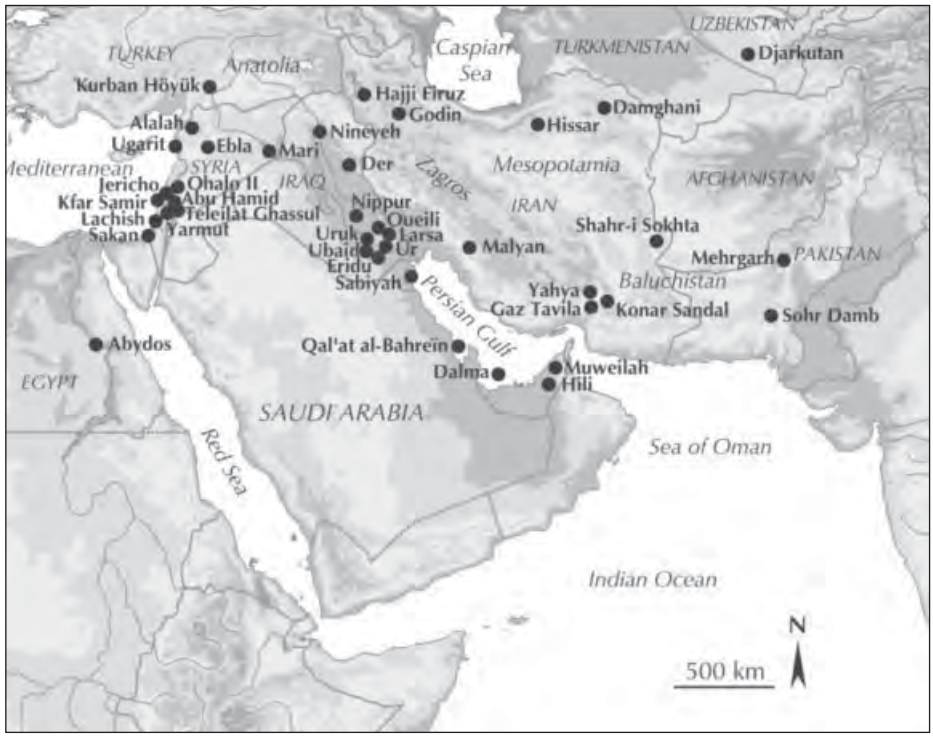

Figure 10.1 Map showing sites mentioned in the text.

geštin; Akk. *karânu*), fig (Sum. **pèš**; Akk. *tittu*), and pomegranate (Sum. **nu-úr-ma**; Akk. *nurmû*), in other cases it is difficult to match a Sumerian or Akkadian name with a particular botanical species. Fruit appear in lexical lists, records of economic transactions, notes of delivery to temples and palaces, legal documents, medical texts, descriptions of banquets, and lists of offerings to deities.

In this chapter we shall discuss in some detail the evidence for the cultivation and use of the four major fruit species of the ancient Middle East: grape, olive, fig, and date palm. Mention will also be made of other species about which we know less, such as pomegranate, apple, almond, and pistachio. The time period covered extends from the earliest evidence of the exploitation of fruit species, mostly in the Neolithic, until the end of the Bronze Age.

2 Grape Vine

It seems symptomatic that, according to the story of the Bible, the very first thing that Noah planted after having survived the great flood was a vineyard (Genesis

9:20). The fruits (botanically berries) of the grape vine (*Vitis vinifera* L. from the *Vitaceae* family) present the double interest of being sweet in taste, whether eaten fresh or dried as raisins, and easy to ferment into an alcoholic beverage ("And he drank of the wine and was drunken," Genesis 9:21). So great is the appeal of the latter that the history of viticulture (the cultivation of grapes) and that of viniculture (the cultivation of grapes for making wine) are often considered one and the same even though the two are not necessarily synonymous.

The progenitor of the cultivated vine (subsp. *vinifera*) – the wild grape vine (subsp. *sylvestris* [C.C. Gmelin] Hegi) – has a wide distribution in the Old World, from the western Mediterranean (Spain, Morocco) to Central Asia (Tadzhikistan) (Zohary and Hopf 2000: 152). Even though it does particularly well in humid and mild forest environments, such as those found in the Caucasus and along the southern shores of the Caspian Sea, *Vitis* can adapt to many situations. In dry environments it is usually found as an element of gallery forests along watercourses. It also grows in cooler conditions, e.g., Central Europe, where wild grape vines can still be found, as relict populations, along the Rhine and Danube rivers. *Vitis vinifera*, whether wild or cultivated, is a heliophilous liana that will climb in order to rise toward the light. In the wild it generally uses neighboring trees as a support and can reach heights of 30–40 meters. When cultivated, vines are usually pruned in order to control growth and enhance fruit production.

As shown by finds of seeds and occasional fruits on prehistoric sites (e.g., in Anatolia and the Levant: Kislev et al. 2004; Miller 2008: 938), wild grapes were collected and consumed long before cultivation began. These differ from their cultivated counterparts mainly in being smaller and more astringent and by having a tougher skin. Despite their lower sugar content, they can also be transformed into wine by fermentation. Besides differences in fruit quality, the major change induced by cultivation concerns the reproduction biology of the plant: from being generally dioecious and thus cross-pollinated in the wild, the cultivated subspecies bears hermaphroditic flowers and is self-fertile. The selection and reproduction of hermaphroditic vines, occasionally present in nature due to a mutation, is interesting to the cultivator both for facilitating pollination and maintaining desired genotypes. Cultivated grape vines were first propagated by the rooting of twigs and later by grafting.

Morphologically distinguishing wild from cultivated grape seeds in archaeobotanical assemblages, taking into account factors such as the effect of charring on seed morphology (Smith and Jones 1990), has been attempted since the early 20th century (Stummer 1911; Mangafa and Kotsakis 1996; Jacquat and Martinoli 1999). While there seems to be a general consensus that seeds from the *sylvestris* subspecies are usually smaller, more globular, and equipped with a shorter stalk than those of the cultivated grape vine (described as "pyriform" and with a more well-developed stalk), the attribution of archaeological material to one or the other category is rarely unambiguous. A morphometric study of a large number of modern cultivars and wild specimens collected in the Mediterranean area

(Spain, France, Italy, and Greece) has succeeded in differentiating wild from cultivated specimens, as well as different cultivars (Terral et al. 2010). The analysis of seeds from a Roman well excavated in southern France reveals similarities between the cultivated grapes there and those of the wild *sylvestris* group. This probably reflects a common practice of crossing cultivated varieties with local wild grape vines as well as accidental hybridization between cultivated, wild, and feral populations. Indeed, in the ancient Old World in general, *Vitis vinifera* seems to cover a wide array of more or less "domesticated" forms.

To date, the earliest evidence of wine production comes from Iran. Liquid chromatography analysis of organic residue in the bottom of a jar from the Neolithic site of Hajji Firuz Tepe in the northern Zagros mountains revealed the presence of tartaric acid (McGovern et al. 1986; McGovern 2007: 64–84). The most probable interpretation is that the jar, found together with other jars sunk into the floor of a "kitchen" dated to c.5400–5000 BC, had contained wine. Indeed, few other liquids, except perhaps grape juice or vinegar, would have had a similar composition. Besides the tartaric acid, the chemical analysis also detected the presence of a resin corresponding to pistachio (*Pistacia*). Later, in the Mediterranean, the addition to wine of resin from the terebinth tree (*Pistacia terebinthus* L.) was a well-known practice aimed at improving its conservation and medicinal properties by the creation of a type of *retsina* (McGovern 2007: 70–2).

It is unclear whether the grapes used for making wine at Hajji Firuz in the late 6th millennium BC came from cultivated or wild vines. It does seem possible, though, that *Vitis vinifera* was already cultivated at this early date. McGovern argued for an origin of grape vine cultivation in Transcaucasia, somewhere between the Black and Caspian Seas (McGovern 2007: 16–39), the same region identified as the homeland of *Vitis vinifera*, on the basis of the high genetic diversity of grape vine there, by the Russian botanist and geneticist N.I. Vavilov (1887–1943). The discovery of a Late Chalcolithic (c.4000 BC) winery consisting of a platform, jars, and numerous desiccated grape remains in the Areni-1 cave complex in southeastern Armenia shows the importance, at least during somewhat later periods, of this region for early wine production (Barnard et al. 2011).

A second deposit of wine residue has been identified in a large storage jar found in a late 4th millennium BC context at Godin Tepe in the Iranian central-western Zagros (McGovern 2007: 40–63). The question of wild versus cultivated seems less problematic in this period when *Vitis vinifera* seeds and wood appear at many sites across the Near East, indicating that viticulture was by then well established and widespread. The earliest grape remains from eastern Iran come from a 4th millennium BC context at Tepe Yahya in Kerman province (Meadow 1986b). The species is also attested at sites in the Indo-Iranian borderlands (eastern Iran/western Pakistan) during the Bronze Age, with remains found as far east as Mehrgarh and Sohr Damb in central Pakistani Baluchistan (Costantini 1984; Thiébault 1989; Benecke and Neef 2005). At 3rd millennium BC Shahr-i

Figure 10.2 Carbonized grape seeds of Bronze Age date from Ulug Depe (Turkmenistan).

Sokhta in Iranian Sistan, twigs were found parallel to seeds, probably as a result of pruning (Costantini 1977: 162). Viticulture also developed elsewhere in Iran during the 4th and 3rd millennia BC. At Tal-e Malyan in Fars (southwestern Iran), grapes first appeared during the Banesh period (c.3400–2600 BC), becoming commoner in later levels (Miller 2008). In northeastern Iran, both Tepe Hissar and Tepe Damghani have yielded numerous grape seeds (Costantini and Dyson 1990; Tengberg et al. in press).

A similar situation is found in southern Central Asia. While grape remains are not attested so far in the Chalcolithic, the species is omnipresent on Bronze Age sites (Miller 2008) such as Ulug Depe (Figure 10.2). The emergence of viticulture thus seems to have been rather rapid, perhaps as a result of stimulus from the Iranian plateau. Whether the grape vines cultivated in Central Asia were of local origin or introduced is difficult to say, but the area was, and still is, located within the natural distribution range of wild *Vitis* which could have been brought under cultivation locally.

Numerous sites in Anatolia and the Levant dating to the Late Chalcolithic and Early Bronze Age have also yielded remains of grapes (Zohary and Hopf 2000: 156; Miller 2008: 938). The evidence from Kurban Höyük in southeastern Turkey is particularly striking (Miller 1984, 2008). Both seeds and carbonized

residues from grape-pressing were identified, and the proportion of *Vitis* remains increased steadily from the late 4th to the early 2nd millennia BC, accounting for over 60 percent of the identified plant remains in the Mid- to Late Early Bronze Age (Miller 2008: 942).

Wine rapidly became an important trade item in the Near East, traveling far over land and sea from wine-producing areas to those where conditions for grape cultivation were less favorable. The most spectacular example of this is certainly the discovery of 700 wine jars in a late 4th millennium BC royal tomb at Abydos in Egypt. With an estimated liquid volume of 4,500 liters, these jars were imported from the southern Levant as shown by neutron activation analysis of the pottery (McGovern 2007: 91–103). Grape remains are plentiful at archaeological sites in the Gaza strip – e.g., at Early Bronze Age Tell es-Sakan where the earliest occupation is contemporary with the tomb at Abydos. The Gaza region may well have been one of Palestine's main wine-exporting regions.

Mesopotamian texts also bear witness to the wine trade. The 18th century BC archives from the royal palace at Mari on the Syrian Euphrates are particularly eloquent on this subject. Wine was imported to Mari by boat from northern kingdoms such as Emar and Karkamish and the jars were kept in the palace's storerooms. A drink of prestige and high cost at Mari, wine was consumed on specific occasions and offered by the king as a gift to dignitaries and foreign allies (Joannès 2001: 138–9).

From Sumerian texts dated to the Ur III period (2100–2000 BC) we learn that wine was imported to southern Mesopotamia, too, even though beer seems to have been the preferred alcoholic beverage there. Grapes were cultivated in date palm gardens in the south, but these seem to have been consumed mainly as fresh fruits (Sum. **geštin duru$_5$**) or dry raisins (**geštin hád$_2$**) and not transformed into wine (Joannès 2001: 70).

Wine-making and wine consumption have left traces in the archaeological record in the form of various utilitarian objects – jars, jugs, cups, and other vessels – used to store and serve the beverage. Some of these, manufactured from precious materials, were used on specific occasions or deposited in tombs (Francfort 2005b; McGovern 2007). Grape-growing and, more often, wine-drinking, also constitute regular motives in the iconography of the Near East and Central Asia (Francfort 2009). One of the more famous banquet scenes is that of the Assyrian king Assurbanipal (668–627 BC) celebrating his victory over the Elamite king Teumman by drinking wine together with his queen in a garden setting (Figure 10.3a). For our purposes, the interesting detail here is not the severed head of Assurbanipal's unfortunate adversary hanging from a branch, but rather the way the grape vine is depicted, climbing up two trees and forming a vault over the feasting royals. The training of grape vines on a tree is shown in another Neo-Assyrian relief from the North palace at Nineveh (Figure 10.3b). In scenes depicting the capture of the city of Lachish by the Assyrian king Sennacherib (704–681 BC) grape vines growing without support form a backdrop to the military activities (Figure 10.3c).

Figure 10.3 (a) Representations of grape vine on Neo-Assyrian stone slabs: the banquet scene, reign of Assurbanipal (669–631 BC), North Palace, Nineveh. (b) Lions in a garden, reign of Assurbanipal, North Palace, Nineveh. (c) The capture of Lachish, reign of Sennacherib (704–681 BC), Southwest Palace, Nineveh.

3 Olive

Of all the species discussed in this chapter, the olive tree (*Olea europaea* L.) from the *Oleaceae* family is the one that has the most strictly Mediterranean distribution (Zohary and Hopf 2000: 7). It is particularly well adapted to the climatic conditions of this region and is often considered archetypally Mediterranean, both from an ecological and a symbolic point of view. The wild olive or oleaster (subsp. *oleaster*) is largely restricted to the Mediterranean basin, where it grows as an element of shrub formations of maquis and garrigue type. It differs from its cultivated counterpart in having smaller fruits and spinescent young branches. The oleaster is cross-pollinated with a progeny that is highly variable. Under cultivation, the genetic diversity of the olive tree is controlled by the practice of

vegetative reproduction achieved through the planting of cuttings or of knobs that develop on the base of the trunk. Grafting is also a technique used in traditional oleiculture.

The olive tree has many uses and has been exploited around the Mediterranean since prehistory. The fruits (botanically drupes) are inedible when fresh as they contain an exceedingly bitter substance called oleuropein. It can be eliminated through various treatments, notably by fermentation or brining. The mesocarp or pulp is rich in a vegetable oil that is extracted by pressing and used for dietary purposes as well as for lighting and ointments. The crushed remains resulting from the oil extraction (*jift* in Arabic) are used for fuel and are often recovered in a charred state in archeological contexts. The wood from the olive tree is highly valued for construction, the manufacture of tools, and as fuel. Finally, the young shoots, resulting from the pruning of cultivated trees, are traditionally used as leaf fodder for livestock.

The earliest archaeobotanical remains of *Olea europaea* in the Near East have been found at the Epipaleolithic site of Ohalo II located south of the Sea of Galilee in Israel (Kislev et al. 1992). The gathering of wild olives is further attested at several Natufian and Neolithic sites in the Levant (Zohary and Hopf 2000: 149). The first evidence of the production of olive oil comes from prehistoric sites off the Israeli coast between Haifa and Atlit. Underwater excavations have yielded rich and exceptionally well-preserved organic remains associated with the extraction of oil dating to the late 6th and early 5th millennia BC (Galili et al. 1997). These consist of thousands of crushed olive stones, olive pulp, pits, stone basins, mortars, grinding tools, and baskets. The interpretation of these Late Neolithic remains is the subject of some debate. The olive stones from Kfar Samir, the most important of the submerged sites, have been considered to have a wild-type morphology and are thus interpreted as the remains of gathered oleaster fruits (Kislev 1995). In contrast, palynologists interpret a parallel increase of *Olea* in the pollen record from the Hula basin in northern Israel as evidence of the beginnings and spread of olive cultivation (Baruch and Bottema 1999: 82). In any case, oleiculture seems firmly established in the Jordan valley from the 4th millennium BC where several Chalcolithic sites (Teleilat Ghassul, Abu Hamid, Tell esh-Shuna), clearly located outside the natural distribution range of oleaster, have yielded rich remains of *Olea* wood and fruits (Neef 1990). At these sites, the waste from olive-pressing (*jift*), mixed with dung, seems to have been used as a common fuel.

The number of sites with olive remains multiplies during the Early Bronze Age. Oil production became a major economic activity in the eastern Mediterranean during the 3rd millennium BC with several sites, such as Tell es-Sa'idiyeh and Tell Yarmut (Figure 10.4) (Tubb 1998; Salavert 2008), showing evidence of an almost industrial level of production. This period also witnessed the diffusion of olive cultivation to regions beyond the Levant, such as southeastern Anatolia (Herveux 2007). In regions where rainfall was low, the cultivation of

Figure 10.4 Crushed and carbonized olive endocarps, waste from oil production in the Bronze Age, from Tell Yarmut, Israel (photo A. Salavert).

olive trees required irrigation. This must have been the case, for example, in Egypt where olive trees seem to have been grown by the 18th Dynasty (mid-2nd millennium BC), as shown by finds of fruits, leaves, and wood (Vartavan and Asensi Amorós 1997: 183–6), as well as by artistic representations. The cultivation and production of olive oil is mentioned in 3rd millennium BC texts at Ebla and in 2nd millennium texts at Ugarit and Alalakh (Archi 1991). Olive oil, a typical Mediterranean product, was imported into Mesopotamia where it was considered a luxury.

4 Figs

Two species of fig (*Moraceae* family) are known from the ancient Near East. Together with date and grape, the common fig (*Ficus carica* L.) is one of the most frequently mentioned fruits in Mesopotamian cuneiform sources (Sum. **pèš**; Akk. *tittu*). Figs were consumed fresh or dry and the latter were sometimes threaded on strings (Postgate 1987: 117). The tree was widely cultivated in the ancient Near East. In southern Mesopotamia it was often grown together with

other plants in irrigated date palm gardens. The second fig species is the sycamore fig (*F. sycomorus* L.). This grew in Egypt and perhaps also in the southern Levant. It is difficult to distinguish the two species on the basis of the minute fruits or drupelets (botanically achenes) that develop inside the fleshy receptacle, the *syconium*, or what we commonly call a fig. A distinction can be made, however, on the basis of wood anatomy even though the two species are similar in this respect too (Schweingruber 1990: 551). While the common fig is a large shrub or small tree, the sycamore fig can grow up to 20 meters tall. Its wood was valued in ancient Egypt and used to make tools, sculpture, furniture, and coffins (Vartavan and Asensi Amorós 1997: 114–17).

The wild common fig (*F. carica*) has a natural distribution range that is essentially Mediterranean even though the species also grows further east, in the Caucasian and southern Caspian regions (Zohary and Hopf 2000: 162). It has been identified at archaeological sites in the Levant and the eastern Mediterranean from the early Neolithic onwards and was part of the prehistoric fruit assemblage collected in the wild. Distinguishing between wild and cultivated figs in archaeological remains is not yet possible, but circumstantial evidence suggests that cultivation began in the Late Chalcolithic and Early Bronze Age, concurrent with the development of olive and grape cultivation. Even though figs are attested at a fair number of sites – e.g., in Jordan and in Palestine (Zohary and Hopf 2000: 163–4) – a large part of the fig remains is likely to go unnoticed because of the very small size of the achenes. The only possible way to recover them from an archaeological excavation is by flotation or wet-sieving with a very fine-meshed sieve (<0.5 mm). Our perception of the use of figs in the ancient Near East is thus probably somewhat biased due to insufficiently fine-grained recovery techniques.

The common fig is dioecious with male pollen-producing, so-called carpifigs (*Ficus carica* var. *caprificus*) and female fruit-bearing "true" figs (*F. carica* var. *domestica*). Pollination is thus necessarily allogamous and dependent on a particular wasp species (*Blastophaga psenes*). In an intricate pattern involving several generations of syconia (the fleshy fruit of the fig), the female wasp brings pollen from one variety to the other and thus ensures fertilization (Denham 2007). However, due to a mutation, figs can also be parthenocarpic (with fruits developing without pollination) and cultivators have often selected for this trait as it dispenses from the symbiotic pollinator species. The multiplication of cultivated figs is done by the rooting of twigs. Like other fruit species, the fig tree can easily escape from cultivation and numerous ferals can be found in fig-growing areas, for example around the Mediterranean.

5 Date Palm

The date palm (*Phoenix dactylifera* L.) of the palm or *Arecaceae* family (previous *Palmae*) was the "king of trees" in the arid regions of the ancient Near East. The

species is frequently mentioned in both literary and economic texts from Mesopotamia beginning in the 3rd millennium BC (Landsberger 1967; Postgate 1987) and appears as a common motif on everything from cylinder seals to monumental reliefs. In a famous poetic dispute between the date palm and the tamarisk tree, the earliest version of which dates to the Old Babylonian period (early 2nd millennium BC), the date palm argues for its superiority based on the usefulness of its different parts: "The king eats from my dish, from [my] goblet . . . From my plate. The warriors eat from my bread-basket. . . . The baker takes up flour. I am a weaver, [beating up] the threads. I clothe the troops. . . . of the god. I am the chief exorcist and renovate the temple. [I am] indeed an aristocrat. . . . I certainly have no rival" (Lambert 1960b: 159).

The main product of the date palm is its fruit or date. Botanically, the date is a berry with one lignified seed ("date stone") surrounded by a fleshy pericarp which is rich in sugar (over 80 percent) and also contains dietary fibers and a small amount of protein. The importance of this sweet and nutritious fruit in the arid regions of the Middle East should not be underestimated and we know that, until recent times, dates and fish constituted the basic diet of many inhabitants of the Persian Gulf region (Nesbitt 1993). Besides their dietary value, dates and date stones can also be fed to animals as a complementary fodder.

According to Mesopotamian sources dates were consumed fresh (Sum. **uhin**; Akk. *uhinnu*), dried (Sum. **sulum**; Akk. *suluppû*) or as an ingredient in recipes that combined date flesh with other foodstuffs such as flour and seeds (Landsberger 1967; Nesbitt 1993). Syrup or "date honey" was prepared in special rooms (Arabic *madbasa*) where ripe dates (in clusters or in bags) were placed on a plastered floor with channels leading to a storage tank or vessel in which the sweet liquid exuding from the disintegrating fruits was collected. A common feature in medieval and traditional houses in the Gulf region, an early *madbasa* has been excavated in an early 2nd millennium BC context at Qalat al-Bahrain o (Højlund 1990; Rougeulle 1982). In the Neo-Babylonian period an alcoholic beverage made of dates – a "date beer" – was popular in southern Mesopotamia (Joannès 2001). Dates also accompanied the dead on their last journey into the underworld, as shown by the discovery of stoned date fruits in a collective burial dating to the Umm an-Nar period (c. 2700–2000 BC) at Hili North in the United Arab Emirates (Méry and Tengberg 2009). Carbonized date stones were also found in several graves of the mid-3rd millennium BC in the Royal Cemetery of Ur (Ellison et al. 1978). Moreover, the jewelry found there in the tomb of Queen Pu-abum (grave 800) included several gold pendants representing male inflorescences and the fruit-bearing branches of the date palm (Miller 2000).

In addition to its fruit, the date palm provides many other useful products attested in archaeological contexts. The straight, cylindrical stem or trunk of the date palm can grow to a height of more than 20 meters and is used, either whole or split into halves, as posts or roof beams. Its length makes it particularly useful for spanning large rooms, and pieces of palm wood are frequently found in

archaeological contexts. Of particular interest is the discovery of the remains of a couple of date palm columns, flanking the entrance to an Early Dynastic III temple at Tell al-Ubaid (Woolley and Hall 1927: 115–16), that were thought to have been covered with sheet copper. A similar device is thought to have been used a few centuries later in front of an Ur III period (2100–2000 BC) temple at Nippur (McCown and Haines 1967: 10) even though the wood there has not been precisely identified. Finally, according to the Mari texts we know that the internal courtyard of the palace there was decorated with an artificial date palm and actually called the "palm courtyard" (Margueron 1987a).

The characteristic pinnate (feather-like) leaves of the date palm form each year from an apical shoot located in the center of the palm crown. The older leaves on the periphery begin to wither after three to seven years when they are usually cut in order to maintain the vigor of the tree. Palm fronds are used for covering roofs or for the construction of huts. The leaflets are transformed into basketry, matting, and cordage. The central woody midrib of the leaves can be used for basic furniture or as fuel. Finally, the rough fibers – the *fibrillum* – surrounding the leaf bases are useful for making ropes and baskets as well as for packaging and padding. Although the soft parts of the palm leaves are rarely preserved in archaeological contexts, baskets and mats have frequently left impressions on floors and mudbricks.

Phoenix dactylifera is cultivated throughout the hot deserts of the Middle East and North Africa, from western India to the Atlantic coast of Morocco. The species is highly thermophilous and necessitates warm and dry conditions for flowering and pollination. Its northern boundary is thus limited by the influence of cooler temperatures. Palmyra (ancient Tadmor) in central Syria and Samarra in Iraq are traditionally considered the northernmost points for the successful production of dates in the Near East, even though date palms can grow and occasionally bear fruit further north. Besides heat, the date palm needs a regular supply of water, generally obtained through irrigation. The development of date palm cultivation in the ancient Near East is thus inseparable from the evolution of irrigation techniques, either extracting water from the water table or diverting water from rivers, such as the Euphrates.

The ecological requirements of cultivated *Phoenix dactylifera* are illustrated by the saying "its head is in the fire, its feet in the water," and this gives us a hint of the conditions in which wild date palms would also thrive. In this respect, the marshlands of southern Iraq, especially the Shatt al-Arab (the combined delta of the Euphrates, Tigris, and Karun rivers), would seem appropriate with its high summer temperatures and omnipresent water. The Persian Gulf region has indeed been suggested as a potential area of origin for the date palm. Other suggestions include the Arabian peninsula, Egypt, tropical North Africa, and India (for a summary, see Barrow 1998: 549).

Identifying the beginnings of date palm cultivation still remains problematic, mainly because no wild ancestor of *Phoenix dactylifera* has been found and the

original distribution of the species, prior to its cultivation, is poorly understood. Spontaneously growing date palms are present throughout the area where the species is cultivated today, but these seem to be feral populations that have escaped from cultivation rather than genuinely wild specimens. "Truly wild" date palms are reported to grow in primary habitats (e.g., wet gorges and rocky *wadi* beds) in the Jordan Valley and Khuzestan (Zohary and Hopf 2000: 167). However, it must be remembered that these regions have a long, continuous tradition of date palm-growing and it is possible that such trees are the remnants of ancient palm groves or have arisen through the natural dispersion of seeds – e.g., by birds.

It has been suggested that the wild ancestor of the date palm has been wiped out by millennia of intensive cultivation and human impact on its natural habitats. It is more likely, though, that it never existed, or at least not as a distinct species. Indeed, recent genetic research suggests that the date palm was domesticated from wild populations within the same species. *Phoenix dactylifera* would thus span a variable complex of wild, cultivated, and feral palms that are all genetically very similar (Pintaud et al. 2010). The difference between the forms resides mainly in the way they reproduce/are reproduced and the ensuing fruit quality.

Like the fig and wild grape vine, the date palm is a dioecious plant species in which the female and the male flowers are born on separate individuals. In a spontaneously growing population, the ratio of female to male palms is more or less 1:1. Under cultivation the female fruit-bearing palms are favored and only a few pollen-producing males are kept in order to ensure fertilization. In nature, pollination is mainly wind-born (anemophilous), but in a date palm garden, where only a few males are preserved, the transport of pollen has to be done artificially. This practice consists in climbing up each female palm and "dotting" the pollen onto the flowers. Artificial pollination of date palms is documented in cuneiform sources from the time of the Babylonian king Hammurabi – i.e., the 18th century BC (Landsberger 1967) – but it was probably practiced long before, as suggested by the presence of date palm gardens in the region since at least the early 3rd millennium BC. The propagation of date palms is mainly done vegetatively by replanting the offshoots or suckers that form on the lower part of the stem. However, like other fruit trees, new cultivars are regularly selected from seedlings, a practice that enriches and diversifies the cultivated gene pool.

The earliest examples of date consumption in the Near East come from two sites in the Persian Gulf region dating to the mid-Holocene. At the Neolithic site of Dalma 11, the subsistence economy was based on the exploitation of marine resources, combined with the hunting of gazelles and the herding of ovicaprids (Beech et al. 2000). Two carbonised date seeds (one of which was fragmentary) were identified at the site and dated by radiocarbon to 5290–4940 BC and 4810–4540 BC, respectively (Beech 2003b: 17). In addition, two fragments of mudbrick bearing date stone impressions were noted. H3, a second site with early date remains, is located at As-Sabiyah in Kuwait. Radiocarbon dates

obtained on ash from a hearth indicate that the site was occupied during the late 6th millennium BC (Beech 2003b). Three carbonized date stones were retrieved from ashy refuse layers that also contained the remains of shellfish.

The interpretation of these late 6th and early 5th millennium BC *Phoenix* remains is not straightforward. Were the dates collected from wild date palms growing spontaneously along the coasts of the Persian Gulf, or was the date palm already cultivated in this area, around 2,000 years earlier than previously thought? A third possibility is that dates may have been imported from Mesopotamia (Beech 2003b). Indeed, Dalma 11 and H3, as well as around 40 other Neolithic sites located along the coasts of eastern Arabia, are characterized by the presence of imported southern Mesopotamian ceramics typical of the Ubaid culture (c.6500–3700 BC). The Ubaid-era population cultivated cereals (einkorn, emmer, barley) and bred cattle and pigs. It is possible that they also cultivated date palms in the late 6th millennium BC.

Unfortunately, archaeobotanical evidence is still very scarce from southern Mesopotamia, particularly for the prehistoric period. Many excavations in Iraq were carried out before systematic retrieval and analysis of plant remains became standard archaeological practice. Moreover, earlier occupations are often buried under later architectural levels and have rarely been excavated extensively. Only two sites from the Ubaid period have so far produced date palm remains: Tell Oueili, where carbonized stem fragments were found in levels dated to the Ubaid 4 period, c.4700–4200 BC (Neef 1991); and Eridu, where large quantities of date seeds were retrieved from contexts dating to c.4000 BC (Safar et al. 1981: 31). In later Mesopotamian contexts, date palm remains become more common even though the record is still fragmentary and most often due to fortuitous discoveries. Thus, date seeds and wood have been identified at Larsa (Isin-Larsa and Neo-Babylonian periods; Neef 1989) and at Tell ed-Der (17th century BC; Van Zeist and Vynckier 1984: 122). Stem remains, resulting from the burning of construction material, are reported from Nippur (Kassite period; Gibson et al. 1978: 15) and Uruk (Sinkashid palace, Old Babylonian period; von Haller 1961: 21).

In southeastern Iran, a single carbonized date seed dating to period VII (c. 5400–4800 BC) in the Tepe Yahya sequence has been reported from Tepe Gaz Tavila, in Kerman province (Costantini 1985), although its age needs to be confirmed by direct C14 dating. This region also seems like a plausible candidate for the earliest site of date palm cultivation. With its numerous artesian springs and hot climate, the neighboring Halil Rud valley was certainly a suitable habitat for wild *Phoenix dactylifera* (Fouache et al. 2005). The Neolithic seed from Gaz Tavila is unique in the area; other remains come from later periods, notably the Bronze Age, when date palm is attested at Shahr-i Sokhta, Tepe Yahya (Costantini 1985: 211) and Konar Sandal. Moreover, the importance of date palm cultivation is reflected in the numerous, detailed representations of palm trees on finely engraved, soft-stone vessels discovered in 3rd millennium BC tombs near the modern city of Jiroft (Perrot and Madjidzadeh 2005).

Date palm cultivation seems certain in the Arabian peninsula during the early 3rd millennium BC where several sites provide both large quantities of seeds and stem fragments (Zohary and Hopf 2000: 169; Tengberg 2003). At Hili 8, in the northern part of the al-Ain oasis (Emirate of Abu Dhabi), date palm remains were found together with seeds and fruits from other cultivated plants, such as two-row and six-row barley, wheat, and garden peas (identifications by L. Costantini, in Cleuziou 1997: 400). This crop assemblage is likely to have been grown in a "multi-storeyed" date palm garden of the kind that is traditional in Arabia and North Africa. The system is ingenious and particularly adapted to hot and arid climates where water resources are scarce. The tall date palms constitute the upper "story," providing shade and protection for the plants growing beneath. Smaller fruit trees constitute the middle level, and annual crops (cereals, pulses, vegetables), cultivated in plots between the trees, complete the picture.

This particular agrosystem continued to dominate the landscapes and subsistence economies of the Arabian peninsula during the Bronze (c.2700–1300 BC) and Iron (c.1300–400 BC) Ages (Figure 10.5). While cereals of Near Eastern origin as well as date palms are omnipresent at sites dating to these periods, other crops are rare (Tengberg 2003). At later sites, dating to the Achaemenid through Islamic periods, more diversified crop assemblages are found, but this may in part be a reflection of better preservation conditions. At Qalat al-Bahrain date palm, jujube, pomegranate, grape vine, barley, wheat, cotton, coriander, and sesame

Figure 10.5 Carbonized seeds and fruits from date palm, Iron Age, Muweilah, United Arab Emirates.

were cultivated during the Achaemenid period (c.539–330 BC), in palm gardens irrigated by artesian springs, common in the northern part of Bahrain (Tengberg and Lombard 2002).

This type of mixed date palm garden was far from unique to the Arabian peninsula where it may, in fact, have been adopted from elsewhere. Cuneiform sources describe the orchards (Sum. **giš-kiri**; Akk. *kirû*) of southern Mesopotamia, where date palms, fruit trees, and other crops were planted together from the 3rd millennium BC onwards (Cocquerillat 1968). The sources also make it clear that not only edible resources were produced in the Mesopotamian palm groves, but also trees for timber (Van de Mieroop 1992c).

6 Other Fruit-Bearing Trees

While grape, olive, fig, and date appear, both in texts and the archaeobotanical record, as the main fruit species of the ancient Near East, several other species deserve mentioning even though their history and importance in past economies are less known to us. Some of these are fruit trees in the common sense of the word, while others, such as almond and pistachio, provide oil-rich nuts.

The pomegranate (*Punica granatum* L.) from the *Punicaceae* family is often mentioned together with the classical Near Eastern fruits discussed above. However, evidence of this species, probably of Caucasian or south Caspian origin, is rare. The fruit (Sum. **nurma**; Akk. *nurmû* or *lurimtu*) appears sporadically in cuneiform sources (Postgate 1987: 121) but its remains – seeds and fragments of its leathery skin – are rarely found preserved on archaeological sites. Only two sites in the Bronze Age Levant, Jericho and Arad, have yielded pomegranate remains (Zohary and Hopf 2000: 171). In later periods, the pomegranate has been identified by its wood in Achaemenid levels at Qalat al-Bahrain (Tengberg and Lombard 2002) and its carbonized fruits have been recovered at Late pre-Islamic Mleiha in the Emirate of Sharjah. As in southern Mesopotamia, pomegranates in Arabia seem to have been grown in irrigated date palm gardens (Postgate 1987: 122).

Small apples (average diameter 15.5 millimeters), cut in half and threaded on a string, were identified in tomb PG/1054 in the mid-3rd millennium BC Royal Cemetery at Ur (Ellison et al. 1978). The apple tree, a species that grows in temperate forest environments in Europe and western Asia, is not very well suited to climatic conditions in southern Mesopotamia. The fruits found at Ur are thus usually thought to have been imported from more northerly regions, where wild, so-called crab apples (*Malus sylvestris* (L.) Mill., *Rosaceae* family) would have grown. Yet one of the most frequently mentioned fruit species in cuneiform texts (Sum. **hašhur**; Akk. *hašhûru*) is generally translated as "apple" (Postgate 1987), and these fruits are often described as dried and/or threaded on strings just like the apples from Pu-abum's tomb. They are also said to have been consumed

fresh, suggesting local cultivation, and this is further corroborated by texts describing the cultivation of *hašhur* trees in orchards along with dates and pomegranates (Van de Mieroop 1992c). Until more archaeobotanical evidence becomes available from southern Mesopotamia, it is difficult to evaluate the actual scale of apple-growing in the hot Mesopotamian lowlands. In any case, no fruit species, apart from the apple, seems to match the descriptions of *hašhur* in the cuneiform sources.

The cultivated almond (*Amygdalus communis* L. or *Prunus dulcis* [Miller] D.A. Webb) from the *Rosaceae* family is part of a genus of 26 different species which is widely distributed in southwest and Central Asia (Browicz and Zohary 1996). The remains (ligneous endocarps) of several types of wild almonds have been found on Epipaleolithic and Neolithic sites in the Levant and Anatolia (Zohary and Hopf 2000; Willcox in press). Some of these are morphologically very similar to the cultivated almond that was most probably brought under cultivation in this part of the Near East. Even though a distinction between wild and cultivated almonds is not yet possible from a morphological point of view, it is likely that almond cultivation began during the early Bronze Age in the context of the expansion of the fruit tree economy. Almonds (Sum. [**giš.**]**lam**; Akk. *iqdu* or *uqdu*) are occasionally mentioned in Mesopotamian cuneiform sources alongside other fruits in offering lists (Postgate 1987: 133). Almond trees are propagated both by rooting and from seeds. Under cultivation, individuals producing non-bitter seeds, as well as those with thinner and softer shells, are selected for. Indeed, many wild almonds are bitter and highly toxic as they contain prussic acid, a natural defence against herbivores. Their toxicity can be reduced by roasting or leaching.

Several species of pistachio (genus *Pistacia* of the *Anacardiaceae* family) grow in the Near East, two of which are known to have been exploited in the past: the wild Atlas mastic tree (*Pistacia atlantica* Desf.) and the "true" pistachio (*P. vera* L.), today widely cultivated for its fruits. The fruits (botanically drupes) can be eaten fresh or roasted and pistachio oil can be extracted from the oil-rich seeds. This seems to have been practiced since prehistory, as shown by the numerous remains of crushed *P. atlantica* shells at Epipaleolithic and Neolithic sites from the Levant to western Iran (Willcox in press). The species is also attested in later periods – e.g., at Old Babylonian (early 2nd millennium BC) Tell ed-Der (van Zeist and Vynckier 1984) – and is mentioned, often together with almond, in cuneiform texts (Sum. [**giš**-]**lam-gal**; Akk. *butnu*) (Postgate 1987). Besides its fruits, the wild pistachio provides wood for construction and fuel, as well as a resin for medicinal purposes. The true pistachio has a more easterly distribution in northeastern Iran, Afghanistan, and Central Asia (Zohary and Hopf 2000: 191). The earliest evidence of true pistachio consumption dates to the Bronze Age and comes from Djarkutan in Uzbekistan (Miller 1999). Cultivation of *P. vera*, dependent on grafting, does not seem to have appeared in the Near East before the Classical period.

7 Conclusion

As we have seen in this chapter, texts and archaeobotanical remains from the Near East bear witness to a major evolution in plant economies in the Late Chalcolithic/Early Bronze Age, with the introduction of fruit species into the existing crop assemblages. Besides enriching local diets, fruits and their derivates entered trading systems and sometimes acquired great commercial value. Even though the major expansion of fruit cultivation in the Near East seem to have taken place in the late 4th and early 3rd millennia BC, fruits from various trees were long known and exploited in those regions where they grew naturally. The evidence at hand suggests that cultivation might even have begun in these areas earlier than previous thought. Thus, it is possible that the grapes used for making wine at Hajji Firuz Tepe, the olives used for oil production along the Carmel coast, and the dates found in the Persian Gulf region, in the late 6th and early 5th millennia BC, all came from cultivated plants. The vegetative reproduction of these species is rather straightforward and may have been practiced since prehistory. It is possible, too, that fruit trees were brought under cultivation not once but many times in different chronological and cultural contexts by the simple multiplication of individuals with desirable characteristics. Future archaeological, archaeobotanical, and genetic research will help us to better understand the long and ancient history of fruit tree cultivation in the ancient Near East.

GUIDE TO FURTHER READING

There are few synthetic works on fruit-growing in the Ancient Near and Middle East and most information is available in chapters in books or articles. From an archaeobotanical point of view, the most complete treatment of the subject can be found in the chapter dedicated to fruits in Zohary and Hopf (2000); a new and revised edition of this book is in preparation. Several books by Jean-Pierre Brun (2004a, 2004b, 2005) deal with the archaeology of wine and olive oil in the Mediterranean area, from prehistory to the Roman period. For those particularly interested in the cultivation of grape vine and the production of wine, two publications by Patrick McGovern bring together data from different fields – archaeology, chemistry, archaeobotany, iconography – in order to reconstruct the history of wine and other beverages (McGovern 2007, 2009).

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

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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 Nevali 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

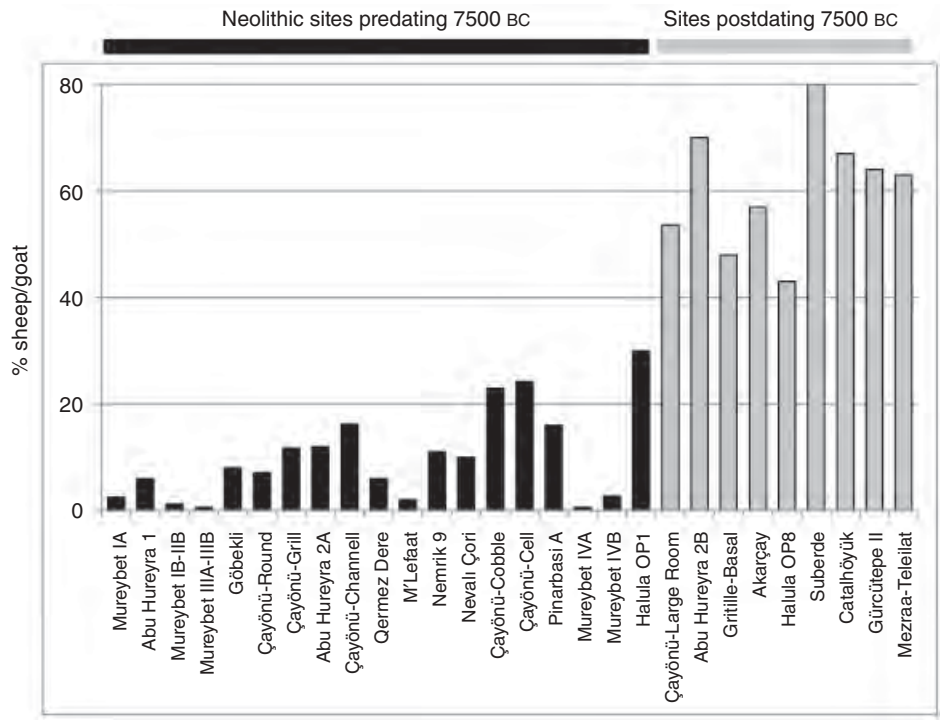

Figure 11.1 Frequencies of sheep and goats in Aceramic Neolithic period faunal assemblages in the northern Levant and Anatolia prior to and after 7500 BC.

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 Pinarbaşi 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 Aşikli 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

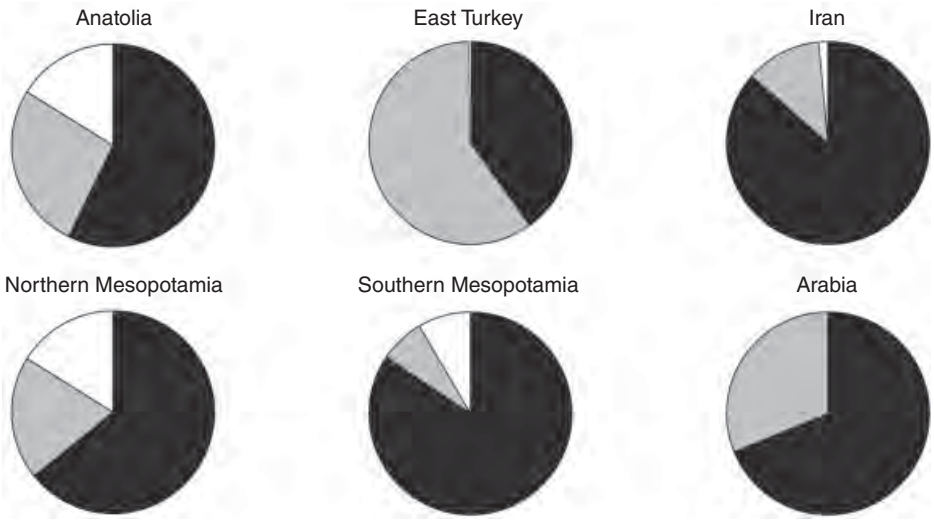

Figure 11.2 Frequencies of the main domesticates from a sample of 88 Bronze Age sites across six regions within the Near East.
Black = sheep and goats; grey = cattle; white = pigs.

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 wooly fleece but instead, like their wild progenitor the mouflon, exhibited a coat of course, 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 wooly 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 Mieroop 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 wooly 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*), hemiones (*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 hemiones, 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 corpuses 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-*

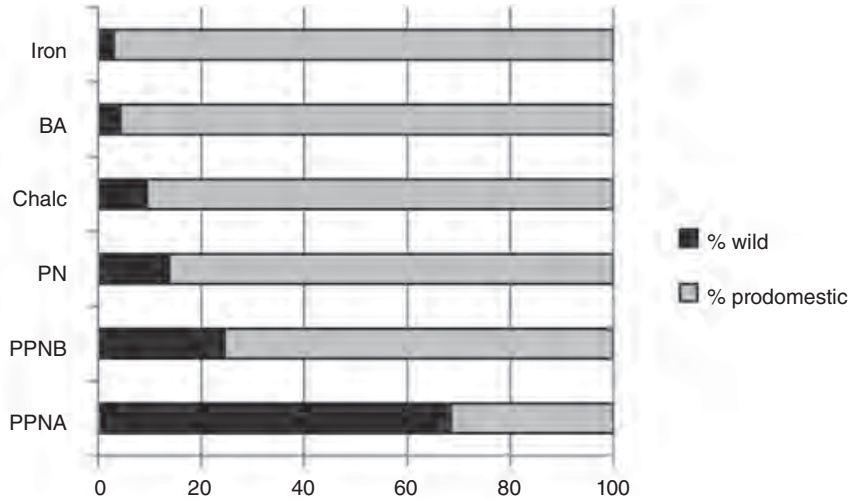

Figure 11.3 Changing frequencies of prodomestic taxa (including sheep/goat, cattle, pigs) and wild taxa (gazelle, deer, wild equids, hare) in faunal assemblages from across the Near East in the PPNA, PPNB, Pottery Neolithic (PN), Chalcolithic (Chalc), Bronze Age (BA), and Iron Age.

laphus), 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.

CHAPTER TWELVE

Fish and Fishing

D.T. Potts

1 Introduction

The benefits of fish in the human diet have long been recognized. With an average protein content of 18–22 percent and other important elements (essential amino acids, calcium, flourine, iodine, iron, phosphorus; Vitamins A, B, and D), fish have been an important component of the low-protein, high-carbohydrate diets that have been common in the Near East throughout the pre-Modern era (Englund 1990: 7 n33; see in general Van Neer 1994). Nowadays, the benefits of Omega 3 fatty acids in fish oil are promoted for their ability to help the body combat everything from Alzheimer's disease to cancer, ulcers, and many more afflictions. Nevertheless, considering the fact that the region dealt with in this volume contains long stretches of shoreline on at least seven seas (Aegean, Mediterranean, Black, Red, Caspian and Arabian Seas, and the Persian Gulf), as well as a number of major rivers (Tigris, Euphrates, Karun, Orontes, Khabur, Balikh, Jordan, Greater Zab) and lakes (e.g., Lake Kinneret, Lake Van, Lake Parishan, Hamun-e Helmand), not to mention thousands of manmade irrigation canals, neither freshwater nor saltwater fish in Near Eastern antiquity have received the attention that they deserve. The purpose of this chapter is to provide a broad overview of a number of issues associated with fish. Topics discussed below include fish remains in archaeological contexts; evidence of fishing sites; fishing techniques and equipment; written sources on the organization of fishing; fish preparation for consumption and the dietary contribution of fish in antiquity;

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fish iconography; and the symbolic role of fish in ancient belief systems. While no claim is made to complete coverage of this extensive subject, examples have been drawn intentionally from a wide range of chronological periods and habitats across the ancient Near East.

2 Fish Remains in Archaeological Contexts

Fish appear in the archaeozoological record at sites of all periods, in all parts of the Near East. Fish skeletons, or parts thereof, including fins, and especially vertebrae, are capable of surviving in archaeological deposits for thousands of years, and there is perhaps no better example of this than Gesher Benot Ya'aqov, a 750,000-year-old Middle Pleistocene site with Acheulian (Old Stone Age) stone tools in the northern Jordan Valley, near the shore of a seasonal freshwater paleolake (Lake Hula). With more than 2,500 identified specimens, 99 percent of which are carp (Cyprinidae), concentrated in two loci, one of which is near a hearth, it is clear that these fish do not represent a "natural-death assemblage" – which would look very different (Zohar et al. 2001, 2008) – but rather a deposit created by anthropogenic activity (Alperson-Afil et al. 2009: 1679), most probably cleaning and eating. While the depositional conditions and taphonomy of every site are to some extent unique, the evidence from Gesher Benot Ya'aqov makes a mockery of claims that "fish bones rarely survive" (Singh 1974: 59). Indeed, it would be more accurate to say, "archaeologists and their workmen rarely take the trouble to recover fish bones" in their quest to excavate the architectural complexes, whether private houses, palaces, temples, or other structures, that seem more exciting.

The underrepresentation of fish in the archaeological record reaches a level of absurdity in the case of sites located close to a water source but at which fish remains seem curiously to be absent. One must question whether it is credible that the inhabitants of the Early and Middle Bronze Age settlements at Tall Habuba Kabira (north of the better known, 4th millennium BC site of the same name), although living by the banks of the Euphrates, largely avoided eating fish, as suggested by the presence of only three fish bones in an assemblage of c.5,000 identified bones. Is this a true reflection of their diet, or did 20th century archaeologists simply not employ the careful recovery techniques, including wet-sieving using fine mesh, required to prevent fish bones from ending up on the spoil heap instead of in the lab? Indeed, the fallacy of supposing that the inhabitants at Tall Habuba Kabira ate little fish is exposed by the fact that many copper fishhooks were discovered at the site (Sahrhage and Lundbeck 1992: Fig. 21; von den Driesch 1993: 54). Similarly, given what we know from cuneiform sources about fishing in Mesopotamia (see below), the six fragments of fish bone from the twelfth season of excavations at Nippur (Boessneck 1978: 162) or the 57 fragments from Tell al-Hiba (ancient Lagash) (Mudar 1982: 29), let alone the 85

fish bones from the large, multi-period site of Uruk in southern Iraq as of 1984 – after more than 30 seasons of excavation (Boessneck et al. 1984: 184) – can certainly not be considered a true representation of fish consumption at these sites. Nor do the 15 recovered fish vertebrae from Neolithic levels in the SH area at Ras Shamra (Blot and de Contenson 1992) seem at all representative of dietary practices on the coast of the Mediterranean. By way of contrast, a small excavation (in six squares, each 2 × 2 meters) in the shallow, prehistoric site of Al Markh on Bahrain, where wet sieving was undertaken, yielded an estimated 100,000+ fish bones (Roaf 1976: 150; cf. von den Driesch and Manhart 2000).

These remarks are simply meant to emphasize the fact that fish bones are undoubtedly underrepresented in archaeological deposits, not because they were not there, or because the ancient peoples of the region didn't eat fish when available, but because of coarse excavation and recovery methods. This is not to say, of course, that fine-grained excavation and sieving techniques will miraculously make fish bones appear on every site. At the Pre-Pottery Neolithic A (PPNA) settlement of Göbekli Tepe in southeastern Turkey, for example, the sieved deposits yielded very few fish bones, suggesting that fish genuinely made only a small contribution to the ancient diet there (Peters and Schmidt 2004: 208).

Still, in all parts of the ancient Near East less than a short distance from a coast, river, lake, or canal, fish consumption was universal. Fish bones have been recovered at a long list of archaeological sites in the region, but while overviews exist for mainland Anatolia, the Turkish Euphrates and Tigris basins, Syria, Iraq, and the southern Levant in prehistory (e.g., Van Neer et al. 2005), as well as for the Persian Gulf and coasts of Oman (Beech 2004), comparable reviews are lacking for western Arabia and Iran, and more generally for the periods between the end of the Bronze Age and late Antiquity. As noted above, the use or ignoring of appropriate recovery techniques – effectively whether or not wet-sieving was carried out – have distorted the data that shows the real distribution of species and the intensity of their exploitation, so that the literature is very uneven. At the largely 1st century AD site of ed-Dur in the United Arab Emirates (Van Neer and Gautier 1993), roughly 40 taxa have been identified, while at Saar, on Bahrain, about 25 taxa have been recognized (Uerpmann and Uerpmann 2005a: Table 8.2), and on Failaka island, in the bay of Kuwait, about 11 taxa are documented in both Bronze Age and Hellenistic occupations (Desse and Desse-Berset 1990: Figs. 10–12). In southern Mesopotamia the first lexical texts consisting of the names of different types of fish appeared during the Uruk III period (c.3100–2900 BC). The Archaic fish list contains around 80 entries representing the names of both different "species" built on the base sign SUḪUR, with the addition of modifiers like "split" and "dried" (Englund 1998: 94). An Early Dynastic fish list with at least 101 entries has been reconstructed from numerous copies found at Ur, Fara, Abu Salabikh (for fish remains from the site see von den Driesch 1986), Nippur and Ebla (Pettinato 1981: 91–104; Veldhuis 2004: 149–51).

Texts dating to the Ur III period (2100–2000 BC) contain the names of about 48 different types of fish (Sumerian **ku**$_6$) (Englund 1990: 214–15, 220–1).

Such lists of fish species or taxa should not, however, be taken at face value. Thus, in some cases where speciation in the ichthyofaunal assemblage appears to be very diverse, this is not the case when the totality of species in a given environment is taken into account (e.g., at Qalat al-Bahrain: see Van Neer and Uerpmann 1994: 450). Furthermore, species variety may belie the fact that just a few large fish, such as tuna or sturgeon (Sokolov and Tsepkin 1996), may have provided the overwhelming bulk of the fish protein consumed at a site. Because of environmental change, ancient fish populations, as represented in archaeological finds, do not always replicate modern ones in the same area, and yet it is striking that in some cases, such as Bahrain, the fish species favored in the marketplace today – emperors (Lethrinidae) and groupers (Serranidae) – are the same as those preferred by Bronze Age palates (Uerpmann and Uerpmann 2005a: 295).

Fish consumption in the later periods is well attested. To cite just a few examples, Talmudic sources confirm the consumption of a large carp known as *shibuta* (*Barbus grypus*), the "salmon of the Tigris," as well as many other types of fish (Oppenheimer 1983: 533, with refs) amongst the Jewish population of Babylonia during the first centuries AD (Zivotofsky and Amar 2006). Fishing and fishmongering were major occupations in the Byzantine period at Constantinople (Dagron 1995), in central Anatlolia (Ervynck et al. 1993), and in Israel (H. Lernau 1986; O. Lernau 1995).

3 Evidence of Fishing Sites

Although it is a generalization to say so, most excavations undertaken before the 1960s in the Near East focused on large impressive sites with standing architecture, on sites which could yield cuneiform tablets or major historical monuments, or on prehistoric sites with exceptional painted pottery. Not surprisingly, most of these, with the exception of a few, like Byblos, were in the continental portions of the region, away from the coastlines. In recent decades, however, the number of coastal sites, fronting the Mediterranean, the Persian Gulf, and the Arabian Sea, has grown markedly, particularly in the Persian Gulf, where sites of all periods have been excavated using modern excavation and retrieval methods. These have often yielded a great quantity of fish remains. Just as importantly, their excavators have demonstrated a serious desire to analyze and understand human adaptations to marine environments. In the process, a number of sites have been identified and excavated which, if not exclusively fishing or fish-processing sites, were certainly inhabited by groups that devoted a good part of their time, even if only seasonally (see below), to fishing. What these sites lack in standing architecture, they more than make up for in stratified deposits rich in fish remains (Uerpmann and Uerpmann 2005b). Examples include the

5th millennium sites around Khor, in Qatar (Desse 1988); Dalma island off the coast of Abu Dhabi (Flavin and Sheperd 1994); and the late Neolithic site of Ra's al-Hamra 5 on the coast of Oman, where a range of fish, from large tuna (Scombridae) to sardines and anchovies, were consumed (Charpentier 1996: 182). Recently, sites at which fishing was an important subsistence activity have also been excavated on the coasts of Yemen at Gihayu (Roselló-Izquierdo et al. 2005) and Israel at Atlit-Yam (Zohar et al. 2001).

Some fish, like tuna, are migratory. Hence their presence or absence in a particular locale may have determined whether a site was permanently or only seasonally occupied (Biagi and Nisbet 2006). In a region like southern Arabia monsoonal rains between May and September increase plant growth and biomass, leading in turn to a growth phase in fish. Further north, where the effects of the monsoon are not felt, the rainy season is between November and March, and the best fishing season is, accordingly, around November/December (Wilkens 2005: 127). The effect of the summer monsoon can be detected in the southern Omani province of Dhofar, where migratory species like the large tuna (*Thunnus albacares*) were helped along by a westerly current coming from the direction of India in the period between April and October. This would have been the season in which they were caught, therefore, at Khor Rori (ancient Sumhuram) between the late 1st century BC and the 5th century AD (Wilkens 2002; 2005: 130). However, the migratory patterns of some species coming from a variety of climatic zones must also be considered and it should not be assumed that the migratory cycles of fish today necessarily reflect ancient patterns (Uerpmann and Uerpmann 2003). Nevertheless, growth rings on fish vertebrae are a valuable tool in determining the season in which a fish was caught and reflect the competence and experience of ancient fishermen. At Ra's al-Hadd 6, for example, a 5th millennium settlement near Muscat, the growth rings on excavated fish vertebrae suggest that most fish were caught in the optimal fishing season (November/December), and only very few at any other time of the year (Wilkens 2005: 127), though some scholars dispute the idea that fish vertebrae exhibit discernible evidence of growth increments (M. Uerpmann, pers. comm.). At Sumhuram most of the tuna caught were taken in October–November, corresponding with their arrival on the monsoon current (Wilkens 2002: 272). Further west, along the southern coast of Arabia, tuna were also popular at Qani' at approximately the same date (von den Driesch and Vagedes 2010).

A number of ancient ethnographic descriptions of *Ichthyophagi*, or "fish eaters," survive. Herodotus (1.200) wrote of three Babylonian tribes that "live entirely from fish, which they catch and dry in the sun." More detail is available on the *Ichthyophagi* of the Makran coast of Baluchistan, ancient Gedrosia. This is preserved in the account of the voyage made by Alexander the Great's admiral Nearchus from the mouth of the Indus westwards in 325/324 BC (Arrian, *Indica* 29.8–30; cf. Diodorus Siculus, 3.15ff; Longo 1987). The *Ichthyophagi* have also provided inspiration for scholars working in the Oman peninsula (Costa 1988).

The presence of a particular kind of fish at an archaeological site is often helpful in environmental reconstruction. For example, the presence of snow trout (*Schizothorax* sp.), a fish found in higher elevations, at Shahr-i Sokhta in Iranian Sistan, close to a large lake (Hamun-e Helmand), can probably be explained by the fact that it came via the smaller rivers entering the lake from the mountains to the west (Bökönyi and Bartosiewicz 2000: 143), thus showing that these were probably flowing in the 3rd millennium BC. Similarly, at the Pre-Pottery Neolithic B (PPNB) site of Wadi Tbeik in the southern interior of the Sinai peninsula, the discovery of a type of catfish (*Clarias* cf. *anguillaris*) and a type of water fowl known as the purple gallinule (*Porphyrio porphyrio*) are both suggestive of a moister climate with marshes or swamps, standing water, and reed beds (Tchernov and Bar-Yosef 1982: 34).

4 Fishing Techniques and Equipment

Studies of modern fisheries employ the concept of catch-per-unit-effort (CPUE) in attempting to gauge the scale and importance of fishing, both economically and nutritionally, to a population. However, any comparison of the higher CPUE of the modern era and the undoubtedly lower CPUE, using far simpler equipment, of antiquity can be misleading. As some writers have pointed out, because of a depletion of fish stocks in the modern era, a much higher CPUE is required to achieve yields that are economically worthwhile, but "it is quite possible that a *smaller* fishing effort in antiquity would produce a substantially *larger* catch than those of modern times" (Jacobsen 2005: 100).

It is not clear how the earliest fishermen caught their fish. For example, the stone tool assemblage at Middle Pleistocene Gesher Benot Ya'aqov was dominated by choppers, scrapers, and awls (Alperson-Afil et al. 2009: 1680), none of which seems particularly suited to catching and killing fish. These fishermen may have used wooden spears, but this is purely speculative. On the other hand, fishing without any kind of equipment, in which the fisherman dives into a reed "island" and catches fish one by one with his bare hands, is attested in Iraq (Jawad 2006: 10; cf. Wright 1969: 16–17). From the Neolithic period onwards, however, whether fishing in the open sea (requiring boats), from the beach, by the shores of a lake, or on a river, early fishermen employed a variety of equipment, including the hook-and-line, nets, traps, and spears, each of which is attested in the archaeological and/or literary sources.

Fishhooks made of mother-of-pearl from the pearl oyster shell (*Pinctada margaritifera*) are particularly diagnostic of sites on the Arabian Sea coast of Oman (e.g., Suwayh 2 and 4, Ra's al-Jins 2 and 40, Ra's al-Hadd 5, Khor Milkh 1, Ra's al-Khabbah 1) and the Persian Gulf coast (e.g., Akab) from the early 5th through the 4th millennium BC when they were supplanted by copper fishhooks (Charpentier and Méry 1997: 149–50 and Fig. 2). As the discovery of mother-of-pearl

fishhooks in various stages of manufacture at Akab on the Persian Gulf coast of Umm al-Qaiwain attests, these hooks were used in the shallower waters and lagoons of the Persian Gulf as well as in the deeper waters of the Arabian Sea (Charpentier and Méry 2008: 123). The variable dimensions of these hooks, some of which are more than 5 centimeters long, probably reflects the fact that they were made with specific fish in mind, whether inhabitants of the coast, sheltered lagoons, or the open sea (and indeed the inventory of taxa represented at sites on the coast of Oman, such as Ra's al-Hadd 6 and Ra's al-Jinz 1 [Wilkens 2005: Table 3] confirms that a range of different zones were being fished). A series of etched indentations along the uppermost part of the hook would have served in attaching a fishing line (Charpentier et al. 1998: 30). Although the materials used for lines have not been identified, plant and/or animal fibers were probably used. In the 19th century, cotton was used in eastern Arabia to make fish nets, while *Calotropis* (silk tree) fibers were used to make twine and rope (Reade and Potts 1993: 103).

From the Bronze Age onwards copper or bronze fish hooks were widespread, appearing not only at coastal sites in the Persian Gulf like Tell Abraq (Potts 2000: 63) and Umm an-Nar (Beech 2004: Figs. 47–52) in the UAE, and Saar on Bahrain (Moon 2005: Fig. 5.3g–m), but at riverine settlements like Susa, on the Karkheh (ancient Ulai or Eulaios) river in southwestern Iran, where datable examples of the 4th and 3rd millennia BC are attested. Many of these have a barbed tip, much like a modern fishhook (Tallon 1987/2: 196, nos. 361–70). Comparable examples have been excavated in Mesopotamia at Uruk, Tello, Ur, Kish, Jamdat Nasr, and Nippur in the south, and Tell Asmar in the Diyala region (Tallon 1987/1: 154–6; van Ess and Pedde 1992: 5 and Taf. 1.1–6; contra Paul 1978: 186, who suggested that fishhooks "were all but unknown in Mesopotamia"), where they could have been used for fishing in the northern Persian Gulf (Telloh, Ur), the Diyala river (Tell Asmar), on the Tigris, Euphrates, and their ancient branches, or in manmade irrigation canals (Jamdat Nasr, Kish, Nippur, Uruk). Further afield, examples are known from Habuba Kabira on the Syrian Euphrates, Alalakh in southern Turkey, and Megiddo in Israel (van Ess and Pedde 1992: 5, with refs).

As demonstrated by the recovery of thousands of anchovies, herrings, and sardines at Ra's al-Hamra 5 near Muscat (Uerpmann and Uerpmann 2003), casting nets were in use by the 6th millennium BC on the coast of Oman (Charpentier 1996: 182). In Arabia, such nets have not survived in the archaeological record, although their existence is confirmed by an enormous quantity of excavated net-sinkers. The simplest of these are made from stones, often of a fairly uniform size, that have been worked so that they have a transverse groove to assist in tying them to the net (Charpentier and Méry 2008: 123 and Fig. 8.1–8; cf. Charpentier et al. 1998: Fig. 8). Fragments of a preserved fishing net, along with dozens of fired clay, doughnut-shaped net sinkers, 7 centimeters in diameter, and a wooden float "used to keep the upper edge of the net near the surface of

the water", were found in a small room (L 43: 7) adjacent to the mid-3rd millennium BC temple oval at Khafajah in Iraq (Delougaz 1940: 54–6, Fig. 54; cf. Galili and Rosen 2008: 68 for possible wooden floats from a wreck in the east Mediterranean dating to the 7th century AD). In this case, the nets were probably used to fish in the nearby Diyala river, an eastern tributary of the Tigris. A few similar ceramic disks have been found at Haçinebi, a small Chalcolithic site on a bluff overlooking the Euphrates in southern Turkey (Keith 1998: 507). Much later, lead fish net-sinkers were used. These are attested, e.g., in the Late Bronze Age Uluburun shipwreck off the coast of Turkey (Pulak 1998); at Caesarea and in a Roman wreck off the Carmel coast of Israel (Galili et al. 2002); and in a 7th century AD fishing boat excavated off Dor in Israel (Galili and Rosen 2008: 69 and Fig. 5). Fish net-sinkers of stone, fired clay, and lead are also known from at least the 6th century BC to the 4th century AD in the northern Black Sea region (Højte 2005: 135).

Although no identification of the Khafajah net fibers was published, the twist of the netting is clearly visible and one net-sinker still has a part of a net wrapped around it and tied off (Delougaz 1940: Figs. 53, 55). In the Ur III period ox tendons were used to make nets (Englund 2003: §18), while in Hellenistic and Roman Galilee nets were made of flax (Hanson 1997).

Nets are generally classified as cast nets, requiring a single fisherman; surface gill nets, requiring 2–4 fishermen; and seine or dragnets, requiring 15–20 fishermen (Jawad 2006: Table 2). These types are used in different environments for particular target species. In Oman, individual catches of 15–20 kilograms per throw using a cast net from the shore have been reported (Bekker-Nielsen 2005b: 86 and n.9) though this far exceeds the 2–3 kilograms estimated for cast net usage in southern Iraq (Jawad 2006: Table 2). According to the New Testament, both the cast net (*amphiblêstron*, Matthew 4:18), used from a boat or thrown from the shore, and the seine (*sagênê*, Matthew 13:47), thrown from a boat, were used in Roman Galilee (Hanson 1997). According to Nearchus, the *Ichthyophagi* on the Makran coast used nets made "from bark of the date-palm, twisting the bark like twine" (Arrian, *Indica* 29.10). But instead of setting sail and cropping their nets at sea, the fishermen of the Makran coast used the nets to catch fish that had been stranded in hollows on the uneven tidal plain: "When the sea recedes and exposes the land, the fish are not found as a rule where the earth is left dry, but where there are hollows some water is left, containing a very large number of fish, mostly small, but some large ones too, which they catch by throwing nets over them" (Arrian, *Indica* 29.11). At Neolithic Çatal Höyük in Turkey, where more than 16,000 fish bones have been recovered from a wide variety of contexts, including "midden deposits, floors, pit fills, ashy spreads, oven rake-outs, as well as alluvial deposits," the source was the adjacent Çarsamba river (Van Neer et al. 2005: 141). Given the sizes of the fish consumed, and the fact that only one fishhook has been found at the site, basket (see below) and/or net-fishing is presumed to have been the norm.

Fishing with hook-and-line as opposed to casting nets was not an either/or situation. Both techniques were employed according to the microenvironment. For example, in Oman large hauls of herrings and anchovies were caught in the recent past using nets thrown from the beach. Nearby fishing for individual tuna with hook-and-line could be done from a high cliff, while boats were used for more systematic fishing (Uerpmann and Uerpmann 2003).

Fishing with spears offered an alternative to individual hook-and-line fishing. In the recent past, fishing spears were favored by the Marsh Arabs of southern Iraq. According to Philby (1959: 67):

> [T]heir fishing is done entirely by tridents, consisting of a three-pronged bit of metal fixed to the end of a long reed, with which the fisher, standing at the prow of his canoe and intently watching the depths below him as it floats slowly by, stabs the water with a sharp, straight, downward stroke.

An illustration of fishing with a spear can be seen on an Early Dynastic (mid-3rd millennium BC) cylinder seal in Berlin (Sahrhage 1999: Abb. 48). The scene depicted is of two men standing in a boat, one in the stern who propels it using a punting pole and the other in the bow who holds in his raised hands a spear with a fish at the end. What has been interpreted as a three-pronged fishing spear appears occasionally as a symbol on Mesopotamian cylinder seals from the Early Dynastic, Old Akkadian, Old Babylonian/Old Assyrian, and Neo-Assyrian periods (Black and Green 1992: 85). In the *Halieutika* of Oppian (composed c.177–80 AD), a Roman treatise on maritime fishing that draws on both Aristotle and Leonidas of Byzantium (fl. c.100), the author wrote of using fishing spears with trident-like tips to catch young tuna, swordfish, whales, and small sharks (Bekker-Nielsen 2005b: 89). The use of the data contained in the *Halieutika* is complicated by the fact that although Oppian came from Cilicia on the Mediterranean coast of Turkey, the fishing practices he described were not necessarily those of his own lifetime or homeland (Bekker-Nielsen 2005b: 84). A five-pronged, iron striking-head of a fish spear weighing over 0.5 kilograms was found in the 7th century shipwreck off Dor in Israel (Galili and Rosen 2008: 70 and Fig. 6).

Finally, fish traps were probably used widely, but, whereas modern ones are often made of wire, ancient ones were made of organic materials and hence have left no trace in the archaeological record. At the Epipaleolithic site of Ohalo II, dating to c.21,000 BC, on the banks of the Sea of Galilee, the variation in body size of barbels or carp (*Barbus* sp.) has been interpreted as a sign that different fishing techniques, including traps, may have been used at the site (Van Neer et al. 2005: 139). The existence of woven reed fish traps has been assumed in southern Mesopotamia, largely because of their depictions on Egyptian wall reliefs (Sahrhage 1999: 99 and Abb. 47). Diodorus Siculus (3.22) described the use of fish traps in southern Babylonia during the Parthian period that were made of woven reeds like baskets. The Sumerian literary composition known as *The*

home of the fish seems to be a song intended to entice fish into entering a "house" and it has been suggested that "the text becomes meaningful if we imagine the fisherman reciting, or better singing, the text, while he places his trap in the river and waits for his catch. In this case the 'house' would actually turn out to be a metaphor for a weir, and the description of it as an attractive house simply serves the purpose of trapping the fish" (Thomsen 1975: 199). Low stone walls made of beach rock, off the coast of Abu Dhabi, have been interpreted as fish traps, but their date is unknown. Certainly their position in an intertidal zone has suggested a date after 1000 AD, but they could be even younger (Beech 2003a: 294 and Figs. 1–2).

5 Written Sources on the Organization of Fishing

Although fishing undoubtedly began as an individual, periodic activity, it evolved in some regions into a professional one that was, in some cases, highly organized. This was particularly true in Mesopotamia, where we have detailed documentation of fisheries run by state and temple institutions. These sources appear as early as the Uruk III period at Uruk where the Archaic professions list contains two sign combinations that may designate a foreman of fishermen (GAL SUḪUR) and a fisheries administrator (SANGA SUḪUR) (Englund 1998: 143). During the Early Dynastic period the temple of the goddess Bau at Girsu (modern Telloh) in the territory of Lagash (Bauer 1998: 542–51) presided over a number of fisheries supervisors who, in turn, administered units of both freshwater and saltwater fishermen, the former busy on the canals and lakes and the latter, a numerically larger group, subdivided into brackish water, coastal, and "fishermen, who throw a net," presumably denoting open water fishermen (Bauer 1998: 542). A text from the reign of Lugalanda shows that fishermen were required to make monthly deliveries consisting of 130 "fish for the offering table," as well as periodic "fish payments" for the "Feast of the Malt(-eating)" honoring Ningirsu and the "Feast of the Barley(-eating)" honoring Nanshe. These latter payments included four baskets of fish (presumably small fish that were not counted individually but by the basket-load), about 1 liter of fish oil and 10 turtles. In the first year of Lugalanda's reign, 44 fishermen received wool rations. These included 30 coastal fishermen, 6 brackish water fishermen, 3 open-water fishermen, and 5 fishermen attached to the household of the chief temple administrator (Bauer 1998: 543). A text from Lugalanda's second year shows that each saltwater fisherman had to deliver 480 fileted fish, 600 **sumaš**-fish, 10 turtles, and 1 liter of fish oil, though it is not clear in what timeframe, while a further entry in the same text calls for monthly deliverys of 200 fileted and 160 fresh fish per fisherman (Bauer 1998: 545). It was the fisheries supervisors' responsibility to achieve the targets set by the temple, and a number of accounts summarize the debits and credits of these supervisors (Englund 1990: 91–6).

Exactly what happened to these fish after their delivery is unclear. References to storage houses – the "House with the roof" or "House with the roof for fish" – are rare, but fish must have been preserved in some way (dried, smoked, or salted; see below). The fact that fish from Girsu were sent to temples in other cities (Bauer 1998: 550) also implies regular fish preservation, as does a text from Garshana mentioning three construction workers who were sent to Guabba to buy fish on a trip that lasted between 14 and 19 days (Heimpel 2009: 316–17). Normally, fish were not disbursed as rations to workers. On special occasions, like the festival of the goddess Bau, temple staff received fish along with bread, beer, and fat as special rations. Similarly, a couple of centuries later, workers participating in the reconstruction of the Ekur (temple of Enlil) at Nippur received what seems to have been an extraordinary allotment of 1,183 fish filets and 1,070 liters of dried fish, as well as sheep, vegetables, salt, beer, dates, and apples, possibly upon completion of the project (Westenholz 1987: 33–4; cf. Potts 1984: 265). Occasionally, dried fish were given to builders at Garshana in the Ur III period (Heimpel 2009: 316).

More likely than not, however, most of the fish at Girsu were consumed in the daily meals prepared for the deities, an important function performed by the personnel of each temple who presumably ate the fish themselves after dedicating them to the deities. The fisheries supervisors exercised considerable control over the fishermen in their service. In return for their annual performance, supervisors received allotments of wool and barley which they, in turn, disbursed as rations to both freshwater and saltwater fishermen (Englund 1990: 91). The basic picture of fisheries administration gleaned from the Girsu texts is similar to that seen later, albeit with more detail, during the Ur III period (Englund 1990) and indeed at Uruk during the Neo-Babylonian (c.900–539 BC) periods (Kleber 2004). A somewhat different situation seems to have obtained at Ur during the Old Babylonian period (early 2nd millennium BC), where independent fishermen operated in waters controlled by the Nanna-Ningal temple, effectively leasing the fishing rights to these areas. Although they were required to deliver a weekly payment in fish, it appears that the Ur fishermen of the Old Babylonian period were entitled to retain any surplus caught (Butz 1978–9: 35).

6 Fish Preparation for Consumption and the Dietary Contribution of Fish in Antiquity

The need to prevent fish from spoiling was probably always paramount since fish "begin to deteriorate in a few hours of being caught," though this can be prolonged if the fish are gutted immediately (Bekker-Nielsen 2005b: 88). Methods varied greatly, from sun-drying in arid regions and pressing into blocks to packing in salt and pickling (Sahrhage 1999: 149–50), and once discovered were used continuously throughout history (Hanson 1997). Cuneiform sources contain

terms for salted fish (Salonen 1970: 262, 287; Potts 1984: 234) and during the Ur III period fish were smoked as well (Englund 1990: 217–18).

For the ancient inhabitants of sea coasts, river valleys, and lake shores who were in a favorable position to exploit fish resources on a regular basis, preservation may have been initially intended to enable the storage of fish for consumption at some date beyond that of the catch, whether a few days, a few months, or even longer. That some kind of preservation processing began very early in the Near East is illustrated by the Natufian site of Hatoula, which is located in the Judean hills of Israel about 28 kilometers from the coast of the Mediterranean Sea (Lechevallier and Ronen 1994). Not only did the amount of fish consumed there increase steadily from the Natufian through the PPNA, but almost all the species registered were maritime (Lernau and Lernau 1994). Clearly, these fish were being caught and transported inland, presumably in a preserved condition. During the 1st millennium BC strings of fish are referred to in Babylonian sources (Kleber 2004: 143). Sun-dried, smoked, and salted fish could probably have all been carried on cords or strings when it was necessary to transport them and, as we know from numerous Mesopotamian texts, baskets were used to hold and transport fish as well.

In the Natufian period it is probably unwise to speak of "trade" in preserved fish, and many scenarios involving related kin-groups or gift exchange between unrelated groups might be invoked to explain how fish were distributed from the coast to inland sites. Nevertheless, the ability to preserve fish was the first step in a process leading ultimately to commercial trade in fish. In the eastern Mediterranean, the fish trade is probably attested by the Bronze Age. Sites like Megiddo, Jerusalem, Lachish, Tel Harassim, Tell Jenin, and Tel al-Wawayat, each of which is anywhere from 5 to 50 kilometers from the sea, have yielded fish remains. Most importantly, these came not only from the Mediterranean but from the Nile, suggesting that the trade in Nilotic fish (Van Neer et al. 2005: 148), which was so important in the later periods, had much earlier roots. At the same time, landlocked sites in Anatolia, including Sirkeli Höyük (20 kilometers from the sea) and Kilise Tepe (40 kilometers from the sea), were in receipt of fish from the Mediterranean (Van Neer et al. 2005: 149). This pattern continued into the later periods as well. During the Roman and early Byzantine periods, catfish (*Clarias gariepinus*) from the lower Nile river in Egypt were being sent to and consumed at Sagalassos in southwestern Turkey (Arndt et al. 2003). Pelusium, in the Nile delta, was a noted center of the fishing industry that exported both fish oil and fish eggs in the late Roman period, according to Talmudic sources, as was Apamea in Syria and Akko and Caesarea in Palestine (Sperber 1968: 265, 267).

Apart from hearths and midden deposits containing burnt fish bones, we have very little evidence of the actual cooking techniques used to prepare fish. The Mesopotamian culinary texts are notoriously silent on the subject (Bottéro 1995: 16), although several Ur III texts refer to fuel "for cooking fish" (Heimpel 2009: 316) and the verb "to cook fish" is attested as well (Kleinerman and Owen 2009:

104). A fermented fish sauce (Akkadian *šiqqum*) was popular (Reynolds 2007: 180) and is attested at least by the late 3rd millennium BC (Englund 1990: 218 n684, 225). Ur III texts record some of the ingredients that went into it, including **gazi** – possibly licorice or mustard seed – and fine salt (Kleinerman and Owen 2009: 57, 105). Fish sauce continued to be popular in later periods as well. According to Pliny, the Judeans were associated with a type of processed fish known as *castimoniarum* (*Natural History* 31.95) and the town of Taricheae on the Sea of Galilee, listed by Josephus as one of the three largest in Galilee at the time of the First Jewish Revolt (66–74 AD) (Josephus, *Vita* 123, 203) owed its name ("processed fishville" or "fish factory") to its fish-processing industry (Hanson 1997). Fish sauce (Latin *garum*) consumed at Herodian Masada (Cotton et al. 1996) was imported from southern Spain and *garum* vessels have been found at the Nabataean capital Petra in Jordan as well (Studer 1994). The 10th century *Geoponica* (20.46.1–5), which used a variety of earlier Hellenistic and Roman works, described the method of making *garum* in Bithynia (northwestern Asia Minor) (Hanson 1997).

Although nutritious, fish and shellfish can cause a variety of dental and oral health problems. At Ra's al-Hamra 5 in Oman, for example, a sample of 49 individuals displayed extreme dental wear caused by the incorporation of sand and grit in the fish and shellfish consumed there (Macchiarelli 1989). The positive side of this situation, however, was a very low incidence of antemortem tooth loss and caries. Other sites in the region with a more varied diet, consisting of both marine and terrestrial foods, showed only moderate wear but somewhat higher caries rates (Littleton and Frohlich 1993: 444 and Table 8).

In addition to the archaeological evidence of fishing, fish processing, and fish consumption described above, the study of carbon- ($^{13}C/^{12}C$), nitrogen- ($^{15}N/^{14}N$) and sulfur- ($^{34}S/^{32}S$) stable isotope ratios in bone collagen has become an increasingly exploited technique to aid in the reconstruction of the contribution of fish to the ancient diet (Ambrose 1993; Bocherens et al. 2000; Privat et al. 2006). These ratios reflect the ecosystem from which the protein resources consumed by a human population derived. As such, it becomes possible to estimate the relative contribution of different protein resources to the diet, such as the meat of terrestrial herbivores (sheep, goat, cattle), plants, and fish. A growing body of evidence from ancient Near Eastern sites illustrates the utility of this approach. Stable isotope analysis, for example, has revealed that fish made little contribution to the diet of the Late Bronze Age, Iron Age, and Sasanian/Early Islamic-era inhabitants of Geoktchik Tepe, a site located about 80 kilometers east of the Caspian Sea in southwestern Turkmenistan (Bocherens et al. 2006). This conclusion was also mirrored by the very small number of fish bones recovered there in excavation (Mashkour 1998: Table 1).

Trace element analysis was employed in tests conducted on material from Shimal, in the northern United Arab Emirates (UAE), where human bones from three tombs were analyzed. As these could not be directly associated with a spe-

cific settlement (although a settlement existed in the vicinity, it is not absolutely certain that all the individuals interred in the tombs came from the settlement), it was not possible to look simply at the faunal remains from the settlement to infer the diet of the population interred in the tombs. Trace element analysis revealed a shift from a broad diet incorporating fish, shellfish, and terrestrial fauna (principally sheep and goat), to one that was more narrowly focused on marine resources during the course of the 2nd millennium BC (Grupe and Schutkowski 1989).

Fish oil deliveries are well attested in Mesopotamian cuneiform sources, although fish oil manufacture is not. However, the consumption of fish oil can be detected through residue analysis. Studies of ceramics using gas chromatography-mass spectrometry (GC-MS) have been successful in isolating lipid residues from fish oils absorbed into porous ceramic surfaces (Brown and Heron 2005; Privat et al. 2006) and while this has been carried out in Europe and Central Asia, its applicability in the Near East is clear.

7 Fish Iconography

Like many types of Near Eastern fauna, painted, carved, and incised images of fish appear on a wide array of objects, such as pottery, stone vessels, cylinder seals, and reliefs dating to many different periods (see generally with references to many images of fish in different media, Sahrhage 1999). To name just a few examples, fish appear on early 3rd millennium painted pottery of so-called Susa D type from southwestern Iran (Amiet 1966: 149); on the early 2nd millennium BC rock relief at Kurangun in Fars (Seidl 1986); on an early 1st millennium BC soft-stone beaker found in an Iron Age grave at Jebel Buhais in Sharjah, UAE (Sharjah Museums Department 2008: 54–5); and on cylinder seals of many different periods in the greater Mesopotamian region (e.g., von der Osten 1934: 103, with numerous refs; van Buren 1948: Pls. 15–18).

8 The Symbolic Role of Fish in Ancient Belief Systems

Fish remains have been found in a number of ancient Near Eastern temples and these have often been interpreted as offerings to deities (van Buren 1948). In the sequence of superimposed temples dating to the Ubaid (c.6000–4000 BC) period at Eridu in southern Mesopotamia, the excavators found what they considered "fish-offerings, of which there were such ubiquitous traces" (Lloyd and Safar 1947: 94). A typical Ubaid tortoise vessel found in a niche behind the Eridu Temple VIII altar "was full of fish-bones" (Lloyd and Safar 1948: 119). Undoubtedly, fish were brought into sacred buildings for at least two reasons: to feed the clergy and to be sacrificed in offerings. At Saar, on Bahrain, for example, burnt

fish remains were found around several altars and bone fragments were found on top of one altar (Moon and Irving 1997: 82). Fish remains were found in the Barbar temple on Bahrain as well (Bangsgaard 2003: 12–14). Elsewhere, the fish may have been the remains of meals eaten, but at Girsu they seem to have been stored in the "Maison des fruits," possibly for eventual use as offerings, or possibly for human consumption. French excavators in the late 19th century found "whole yellow bundles of fully preserved fish skeletons, complete with skins and scales" (Englund 1998: 130). Depictions of fish on a "table-shaped altar with crossed legs" on Mesopotamian cylinder seals have been interpreted as offerings (von der Osten 1934: 103 and nos. 437, 440).

The three-pronged trident, interpreted as a fishing spear (van Buren 1948: 101; Black and Green 1992: 85), appears on cylinder seals and is thought to have been a divine symbol, though the divinity represented by it is unknown. According to the Sumerian literary composition known as *The home of the fish*, the goddess Nanshe was the "queen of the fishermen" (Thomsen 1975: 199). Thus, there is at least a possibility that the three-pronged trident may have been one of her symbols.

In the Old Babylonian period, the figure of the fish-man or fish-centaur (Akkadian *kulullû*) appears in Mesopotamia (Wiggermann 1992: 182). Statues of fish-women (Akkadian *kuliltu*) in the Nabu temple of Nimrud are referred to in a Neo-Assyrian administrative text (Wiggermann 1992: 182). Beginning in the Kassite period (mid-2nd millennium BC) in southern Mesopotamia, the "fish-garbed figure" or fish-*apkallu* – a standing, bearded human male wearing the skin of a fish, its head mounted like a hat and its scaly body extending down over the shoulders and back, tail extending below the waist – appears, becoming more common in the art of the Neo-Assyrian period (Green 1986; Feldt 2005; cf. Foxvog 2007 for possible 3rd millennium precursors). These are not depictions of priests wearing fish-like garb, but, rather, mythological beings described in cuneiform texts as "creatures of the apsû" – i.e., the primeval, subterranean waters beneath the Earth, and "carp of the sea . . . who were grown in the river" (Wiggermann 1992: 76). A fish-goat (Akkadian *suḫurmāšu*) is also well attested (Green 1986). Figurines of these figures were used in apotropaic rituals, and they sometimes appear on Neo-Assyrian reliefs, as protective spirits.

The spread of Christianity had a marked influence on fish consumption in those parts of the Near East with Christian populations. Although the Christian calendar included more than 100 fasting days per year, when meat was not meant to be eaten, the consumption of fish, shellfish, and crustaceans was allowed (Balon 1995: 33). In order to ensure a ready supply of fish, monasteries began farming some varieties, such as carp, in ponds, following the Roman tradition of the *piscina* (Kron 2008: 206–13).

An early 2nd millennium BC text from Mari, written in the voice of the god Dagan, reads: "Then I, Dagan, will make the Benjaminite sheikhs wriggle/writhe in a fisherman's basket and deliver them in front of you" (Paul 1978: 189).

Although some scholars have likened this to the common metaphor of being packed as tightly as sardines in a tin, it seems more likely to refer to the helplessness of fish once they have been caught and taken out of the water, thereby removing any hope of escape.

9 Conclusion

The dietary and economic importance of fish in the ancient Near East is apparent in most periods, as is the evidence of fishing as an important occupation, whether part time or full time. Studies of subsistence in areas with rivers, lakes, and seas or oceanic coastlines that do not adequately address the role of fish can never adequately represent the lifeways of their ancient inhabitants. Moreover, fish played an important role in the symbolic world of the ancient Near East, even if our insights into that role are dependent on the existence of written records, a resource that is lacking in the prehistoric periods and in many aliterate parts of the Near East. Studies of fish remains have become more and more prevalent and sophisticated in recent decades, and these demonstrate the enormous potential inherent in this often undervalued body of data.

GUIDE TO FURTHER READING

Aside from the almost innumerable reports on faunal remains from archaeological excavations containing references to fish, a sample of which is referred to above, there exist a number of book-length studies on fishing in prehistoric eastern Arabia (Beech 2004), the Black Sea region (Bekker-Nielsen 2005a) and Mesopotamia (Sahrhage 1999). For a broader history of fishing around the world, see Sahrhage and Lundbeck 1992. For an introduction to the methodology of analyzing fish remains from archaeological contexts, see Brinkhuizen and Clason (1986) and Van Neer (1994). For a detailed, authoritative analysis of fishing in Mesopotamia during the Ur III period, largely based on the cuneiform evidence, see Englund (1990). Salonen (1970), which surveys the cuneiform evidence from all periods, must be used with care as it contains a great deal of misinformation.

CHAPTER THIRTEEN

Lithic Industries During the Holocene Period

Steven A. Rosen

1 Introduction

Chipped stone tools constitute the longest-lived human technology identifiable archaeologically, spanning the periods from the earliest evidence for human culture, on the order of 2,000,000 years ago, through recent times. In the Near East, chipped stone materials comprised the first cultural evidence for movements of early humans out of Africa and continued to play a major role in material culture systems through the rise of cities, states, and early empires. Lithic industries are thus the only archaeologically visible material technology which spans the entire sequence of the human career, from band level hunter-gathering through village subsistence farming and on to the economically and politically complex systems of early states and empires. Analysis of lithic industries thus provides a unique, long-term perspective on the evolution of material culture and the organization of production, especially in post-Paleolithic times.

The remains of lithic production and utilization are ubiquitous in the Near East through early historic times for four reasons: (1) some types of lithic materials can be shaped into a variety of tools, especially those requiring hard and sharp edges, making their use advantageous; (2) these materials are abundant throughout most areas of the Near East; (3) they are inorganic and preserve almost totally; and (4) the manufacturing process leaves large quantities of waste, diagnostic of different stages of production and different technologies of manufacture, allowing ready characterization of the organization of production.

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

Homogeneous hard stone materials without pronounced crystalline structure (either amorphous or microcrystalline) are amenable to controlled, conchoidal fracture (e.g., Cotterrell and Kamminga 1987; Odell 2004) requiring little site furniture or deep investment other than acquisition of the requisite skills, often considerable. Amenable raw materials include especially flint (the term "chert" is preferred in North America), but also obsidian, hard limestone, some basalts, and some other materials (e.g., Luedtke 1992; Andrefsky 1998: 40–58). Notably, flint has a hardness of 7 on the Mohs scale, and obsidian 6, each as hard, or harder, than early metals. The absence of internal structure (or presence on only a microscopic scale) means that with the right techniques of flaking and chipping, sharp and durable tools in a range of sizes and shapes can be fashioned, utilizable for a wide variety of tasks.

These materials are available, albeit in different quantities and morphologies, throughout the Near East and some kinds of variability are attributable to differential access and distribution of the raw materials. Regardless, the generally ready availability of raw material is a prime factor in the abundance of stone tools throughout the prehistoric and early historic periods.

The fact that stone preserves, even in the context of site disturbance or destruction, means lithic materials preserve a more complete record of presence and activities than other materials, even in the absence of other parts of the material record. Aside from the obvious importance of this aspect of lithic materials for Paleolithic archaeology, where they often constitute the only direct evidence of human behavior, the preservation aspect of lithic materials allows reconstruction of manufacturing sequences, distribution patterns, and the structure of production (e.g., Inizan et al. 1999) even when materials are recovered from discard or secondary contexts (e.g., Rosen 1997).

Finally, and obviously related to the above factors, the reductive nature of lithic manufacture results in large quantities of diagnostic waste. It is not unusual for a well-collected assemblage to comprise 95 percent waste products and only 5 percent or less actual tools. Thus, lithic manufacture at a site is readily evident from the presence of waste by-products, even in the case of the destruction of the primary contexts of manufacture. Furthermore, different waste products may reflect both different stages of manufacture and different tool types, which may have demanded different technologies of manufacture (e.g., Rosen 1997; Andrefsky 1998; Inizan et al. 1999; Kooyman 2000; Odell 2004).

2 Lithic Production: Definitions and Characteristics

Lithic production is based on controlled flaking or knapping to produce either a tool derived from the original block of raw material (a core tool), or one made on the products of knapping, (a flake tool, also including morphologically special flakes such as blades and bladelets, called microblades in North America). Flaking,

based on the principles of conchoidal fracture, produces characteristic features on its products. Most important is the bulb of percussion, a rounded protuberance on the ventral face of the flake, abutting the point at which the flake was struck from the core (the striking platform), which represents the Herzian cone of conchoidal fracture in a kind of cross section. Other characteristic features are a dorsal surface consisting either of the original exterior of the raw material (usually cortex) or flake scars from previous removals; a smooth ventral surface, through which the shock of the blow passed, separating the flake from the core; and a striking platform, the point at which the blow was struck on the core and at which the flake begins to separate from it. Control of flaking is based on the precise location, direction, and strength of the blow. Of course, the different techniques outlined below affect each of these as well (basic references for this section are Andrefsky 1998; Whittaker 1998; Inizan et al. 1999; Kooyman 2000; Odell 2004).

The *basic* methods of knapping or chipping can be divided according to the method of reduction, the tools used in reduction and the morphology of the primary product. Methods of reduction comprise:

- direct percussion, striking a block (core) to remove a flake, or on an edge to modify it (retouch);
- indirect percussion, striking a punch held against a core, to produce a flake;
- levered pressure reduction, the application of pressure on a striking platform using a lever in order to remove a flake;
- pressure flaking or retouch, application of pressure on the edge of a flake for edge modification;
- block-on-block and anvil techniques, using an anvil in association with other methods;
- auxiliary methods include scraping edges, grinding surfaces and edges, and snapping pieces using a variety of methods.

The tools used in reduction comprise:

- hard hammer, usually stones;
- soft hammer, usually antler, hard bone, or even hard wood;
- punch, used in indirect percussion, may be of antler, bone, stone, or metal;
- anvil, a basal stone on which percussion and pressure retouch may be carried out.

Each of these tools may come in a variety of shapes, materials, sizes, and mass, depending on the specific technology and the stage of the production process.

Technologies are also often defined by the primary products of reduction. Thus, tools can be classified as core tools, based on the reduction of the initial block to the desired shape; flake tools, based on simple flakes; blade tools, based on flakes whose length is minimally twice its width; and bladelets, small blades

whose width does not exceed 14 millimeters. Specialized technologies, based on specific modes of manufacture or production of specific types of products, such as Pre-Pottery Neolithic (PPN) naviform blade core technology, or Early Bronze Age Canaanean blade technologies, can also be defined.

Given these technologies and tools, the products of stone knapping (Figure 13.1) are characterized by specific features which allow preliminary classification into the basic stages of manufacture and discard, summarized below (cf. Inizan et al. 1999):

1 Extraction and preparation of raw material, either by breaking open a nodule, using an anvil or block on block technique, or chipping primary flakes from an appropriate edge to create a preliminary striking platform; waste associated with this stage can consist of chunks of partially worked raw material, and cortical flakes (primary flakes) whose dorsal surface is virtually all cortex.
2 Cortex removal and preparation of either cores, or in the case of core tools, rough-outs or pre-forms; waste characteristic of this stage includes cortical flakes with varying proportions of cortex on the dorsal surface, thinning flakes, some types of core trimming elements, flakes and blades produced before target removals, and broken or damaged cores and rough-outs, discarded by the knapper before full exploitation or completion.
3 Production of blanks (flakes, blades, bladelets), to be worked into tools at a later stage; for core tools, an equivalent stage would be reduction to a state of near completion. This stage is characterized by large numbers of flake products appropriate for modification into tools, and for core tools in a near state of completion; a secondary stage within the production of blanks might include snapping of blades or flakes to achieve a specific size or morphology without retouch or final modifications. Such activities are represented by special types of waste, for example, microburins, side-blow flakes, etc.
4 Finishing usually consists of edge modification by various kinds of retouch, both for flake tools as well as core tools; surface polishing/grinding, for example of axes, also occurs at this stage. Besides the finished products themselves, microflakes from retouch can be recovered if sediments are fine-sieved.
5 Retooling and reworking usually consist of either types of retouch, for resharpening edges, or specialized flake removals, as in transverse blows for ax edge renewal.

3 Approaches to Lithic Analysis

There is no single correct approach or method for the analysis of stone tool assemblages (see especially Andrefsky 1998; Whittaker 1998; Odell 2004). Different methods answer different questions and these methods and approaches

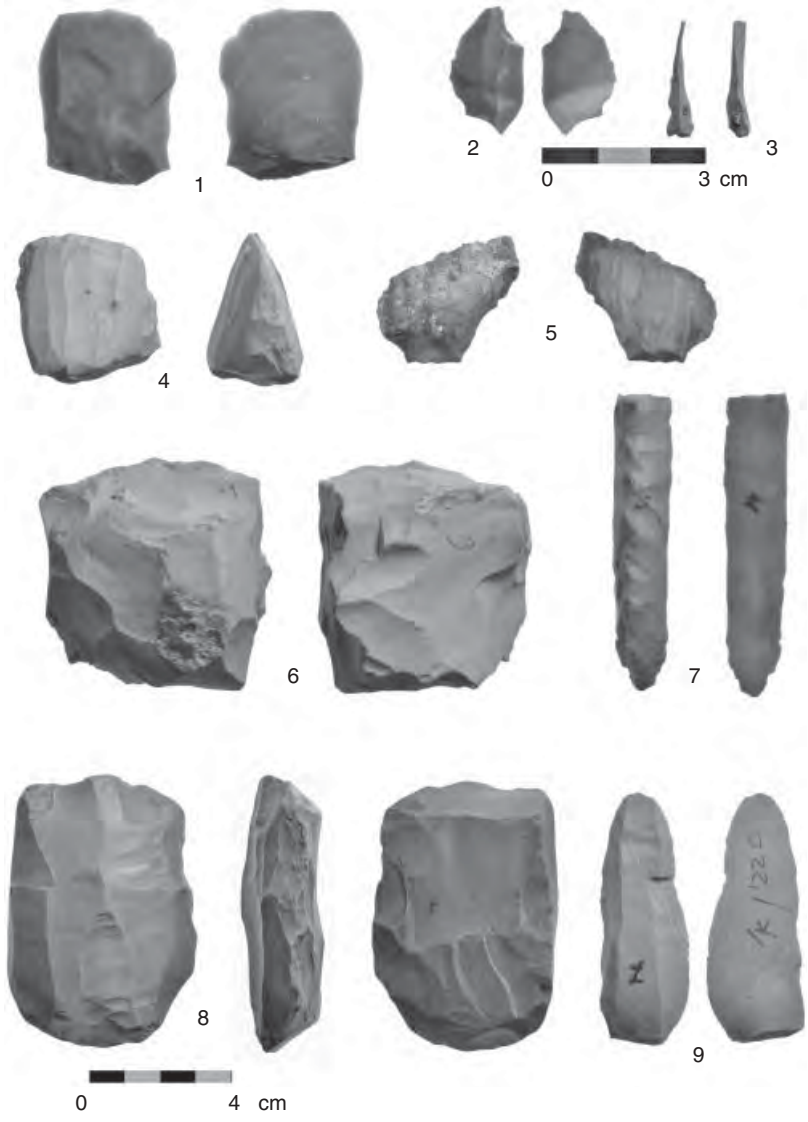

Figure 13.1 General lithic waste products: 1. flake; 2. microburin; 3. burin spall; 4. bladelet core; 5. primary flake; 6. flake core; 7. core trimming elements (ridge blade); 8. blade core (navifom PPNB); 9. blade. Note different scales. All pieces from the Ben-Gurion University study collection.

have developed over the course of the history and evolution of archaeology as a scholarly discipline. New trends in lithic analysis tend to reflect the incorporation of new ideas and paradigms, greater sophistication in understanding what we can learn from stone tools, ever better and more detailed understanding of the complexity in their manufacture and use, and new analytic technologies, such as the use of microscopes, computers, etc. To a great extent, methods complement rather than replace one another with time.

Focusing only on Holocene industries, the earliest studies in the Near East tended to emphasize the identification of fossil indices (*les fossiles directeurs*) to characterize cultures with simple assumptions concerning utilitarian function based on gross morphology (e.g., Spurrell 1898; Macalister 1912; Petrie 1917). Arrowhead types were (correctly) tied to chronology (e.g., Mortensen 1970), as were sickle and axe types (e.g., Crowfoot 1935, 1937; for recent studies see Gopher 1994; Balkan-Atli et al. 2001; Barkai 2005). Needless to say, these approaches accorded with the general culture historical aims of archaeology in the early and middle 20th century. Field collection methods, emphasizing diagnostic tool forms and discarding most, if not all waste, also fit the culture historical framework (Rosen 1997: 37–8).

More recent methods address a much wider range of issues, including detailed functional analyses, reconstruction of technologies and technological structures, analysis of economic structures such as specialization and trade, issues of geographic variation and its interpretation, ideological and ritual issues, and even issues of group identity. The methods used vary in scale of analysis, sampling, and even in the tools used.

At the smallest scale, microwear analyses examine the working edges of artifacts at different magnifications in order to classify damage and polish patterns (Hayden 1979; Keeley 1980; Odell 2004: 136–55). Experimental work, such as hide-scraping or reaping, is conducted to provide controls on the causes of different patterns and the ancient patterns are then interpreted in light of the controls. For Near Eastern Holocene assemblages (Caneva et al. 2001), analyses have especially focused on sickles and the causes of sickle gloss (e.g., Curwen 1935), axes (Barkai 2005) and the nature of damage or wear on working edges (Yamada 2000) and different kinds of scrapers (e.g., Rowan and Levy 1991; cf. McConaughy 1980). There is currently debate on the formation of edge luster and the identification in the archaeological record of glossy blades as sickle segments as opposed to threshing teeth (Anderson et al. 2004).

Replication research attempts to reconstruct the precise technologies of manufacture of different artifacts by actually making them. While mere replication only proves that an artifact might have been produced in a particular way, when combined with detailed attribute analyses, including the comparison of alternate means of arriving at the same final product, it may be possible to establish with greater certainty the specifics of a technological system. In particular, replication studies have focused on Holocene blade technologies, most notably PPNB

naviform blade technology (Quintero and Wilke 1995), and the Early Bronze Age Canaanean blade technology (Otte et al. 1990).

Replication studies are often conducted in conjunction with refitting (conjoinable piece) analysis, wherein lithic materials (especially the waste materials) from primary in situ contexts are refitted as a three-dimensional puzzle. This allows the precise delineation of the reduction sequence, and, given enough cores, reliable characterization of the general *chaîne opératoire*, the actual production process (e.g., Otte et al. 1990; Pelegrin and Otte 1991; Davidzon and Goring-Morris 2007; Davidzon and Gilead 2009).

Compositional analyses, based on identification of chemical, elemental, or mineralogical constituents, especially of homogeneous materials such as obsidian or basalt, provide information on sources of raw material and hence exchange and trade systems (Blackman 1984; Cauvin et al. 1998). Attempts to define flint sources and types have been less successful due to the great, inherent variability within them. Raw material classifications have demonstrated decision-making among ancient people, since, even without defining sources, different types of flints may be more or less appropriate for specific tools and technologies (Hammond 1979; Kozłowoski 1987; Rosen 1997: 32–4).

At a higher end of the analytic scale artifacts are measured and classified according to different types of variables deemed significant for the questions at hand. Typical attributes are simple metric variables (mass, length, width, thickness) and various morphological variables (type of flake termination, penetration, angle, location, or type of retouch, type of striking platform, dorsal scar patterns, etc.). Beyond their use in replication studies, such variables are used to track patterns and trends over time and space, often interpreted to reflect different groups of knappers, functional contrasts, degrees of mobility, value, and other factors (for general methodological reviews, see Andrefsky 1998; Inizan et al. 1999; Odell 2004).

Analysis of complete assemblages usually entails the use of typologies for classifying tools and debitage (products of knapping not exploited for making tools). Frequency analyses provide insights on general assemblage function, including on-site/off-site manufacture of different types, and relative importance of different kinds of activities. Detailed morphological typologies may reflect stylistic factors, interpretable as indicators of various levels of group or individual identity (e.g., Rosen 1997).

4 History of Research on Holocene Lithic Industries in the Near East

Chipped stone industries were recognized as integral to the material culture of post-Paleolithic societies in the Near East from as early as the end of the 19th century (e.g., Spurrell 1898; Macalister 1912). However, with increasing meth-

odological and theoretical distinction between prehistoric and historic archaeology in the region, little systematic or synthetic research was conducted on post-Neolithic industries until the late 1970s. With the discovery of a pre-ceramic Neolithic in the 1930s, lithic assemblages, of course, played the crucial role in defining the material culture attributes of these cultures (e.g., Crowfoot 1935, 1937), as they did to a lesser degree for the Chalcolithic period (e.g., Neuville 1934). In this early stage of research, lithic analysis of later material was usually relegated to appendices written by prehistorians with little understanding of the particular problems and issues of the time period or by historic-period archaeologists or amateurs with little understanding of lithic production.

These early studies were dominated by culture historical typologies and the construction of chronologies (e.g., Neuville 1934; Braidwood 1960; Payne 1960), in accord with general archaeological approaches of the period. Debates concerning the interpretation of sickles and gloss in the 1930s were the primary exceptions (Curwen 1935; Neuville 1934–5).

General paradigm shifts and methodological advances in the 1960s, especially in prehistoric archaeology, resulted in the development of new approaches and methods to lithic analyses (outlined above). These were adopted quickly into the repertoire of tools used for analyzing Near Eastern Neolithic assemblages – not surprising given the numerical dominance of chipped stone assemblages in the material culture of the period, even in the Late Neolithic when ceramics were introduced. Thus, by the late 1960s and 1970s, in addition to traditional archaeological culture systematics, lithic analyses addressed issues such as functional variability between sites and regions, technological change, diffusion of types, stylistic variability, and patterns of exchange (e.g., Renfrew et al. 1966; Cauvin 1968).

The systematic integration of lithic analyses into later period studies occurred about a decade later, beginning in the late 1970s and 1980s. It coincided with the expansion of theoretical paradigms in Near Eastern archaeology, from traditionally derived foci on monumental art and text-based history to the incorporation of the same basic anthropological and geographical paradigms serving prehistory. Thus, since the 1990s those same issues indicated above have been incorporated in lithic studies from the Bronze and Iron Ages, with especial focus on the development of craft specialization and the metal-flint replacement process (e.g., Coqueugniot 1991; Edens 1999; Chabot 2002; Hartenberger 2003). Notably, much of the initial impetus of this shift occurred in the southern Levant, due to the greater density of research conducted there (e.g., Rosen 1997, with refs).

5 The Sequence of Holocene Near Eastern Lithic Industries: A Chronological Description

Before beginning a descriptive typological and technological overview of lithic industries of the Near East according to period, the classic issues of chronology

and space must be addressed. First, in terms of chronology, although the Natufian and related cultures are clearly Terminal Pleistocene in date, they constitute an important baseline for understanding lithic industries in the Early Neolithic period. Indeed, if the Pleistocene ended c.10,000 BP, then much of the PPNA was also Pleistocene, but should clearly be included in a review of Holocene industries. Thus, the sequence of lithic industries described below extends from the Terminal Epipaleolithic, exemplified by the Final Natufian in the Levant, c.10,500–10,000 BC, through the end of the Iron Age, after which it is apparent that, with the exception of threshing teeth and tinder flints, there was little systematic use of chipped stone technology. A secondary chronological issue concerns terminology. Such terms as, for example, Early Bronze Age or Chalcolithic, are not standardized chronologically across the Near East. The issue will be noted when relevant.

In terms of space, regionalization of lithic industries in the Near East attributable to cultural variability can be seen as early as the Upper Paleolithic, and if raw material variation is taken into account, perhaps even earlier. It is even more pronounced by Holocene times (e.g., Gopher 1994). As a result, summary is complicated. In the context of regionalization, Egypt reflects a social and cultural trajectory separate and distinct from that of areas farther east and as a result a lithic system different in almost all particulars (e.g., Rizkana and Seeher 1985; Schmidt 1992). It will only be dealt with in passing. It should also be noted that research has been conducted at different levels of intensity in different regions; sometimes what appears to be greater or lesser variability is a function of how much research has been conducted.

Terminal Pleistocene lithic industries, as exemplified by the Natufian in the Levant (e.g., Valla 1984; Calley 1986; Goring-Morris 1987; Henry 1989; Pedersen 1995), are characterized by bladelet production and microlithic tools, with a significant component of flake tools, and some blade production. Cores show high rates of exhaustion and multiple platforms, contrasting with the predominance of single platform cores in earlier phases of the Epipaleolithic and suggesting lesser mobility than in those earlier times. The microburin technique, a special method for snapping bladelets to a desired size leaving characteristic debitage (microburins and *piquants trièdres*), was also used habitually (Henry 1974).

In terms of tool assemblages, the microlithic lunate stands out as a diagnostic element, and in the later stages of the Natufian it shows primarily abrupt backing, although bifacial Helwan retouch is still used. Microlithic lunates were used as insertions in composite tools, as transverse arrowheads (e.g., Bocquentin and Bar-Yosef 2004). Other microliths, usually simple backed bladelets and (truncated) rectangles, were probably also used as barbs and for sharp edges in composite tools (e.g., Belfer-Cohen and Goring Morris 2002; Yaroshevich et al. 2010). Small backed blades were inserted into hafts and used for reaping, as evident from the gloss found on their edges. Other common tool types include

scrapers, burins, and awls. Proto-axes, bifacial core tools lacking the polished edge present in later periods, appear in this period. Harifian assemblages, a terminal desert Natufian culture (e.g., Goring-Morris 1987), show the first tanged small arrowheads.

Production in this period was not specialized. Although there is evidence for off-site manufacture, and the movement of artifacts off-site (especially in varying indices of microburin use), production is clearly at some basic domestic level. Obsidian also appears at some Natufian sites, sometimes hundreds of kilometers from the source. Functional differences are also evident between sites, attributable to differences in season of occupation and/or degree of mobility associated with the site (e.g., Henry 1995: 319–36).

Continuities between the terminal Epipaleolithic industries, as exemplified by the Natufian, and those of the earliest Neolithic are evident, especially in the continued use of microliths, both as small composite elements and in modified forms as proper arrowheads – e.g., the Khiam point (Figure 13.2[3]). Other tool types, such as various kinds of truncations and small notched pieces (Figure 13.2[4]), also clearly derive from the microlithic tradition. Technologically the shift away from microliths is clearly evident quantitatively and, in addition to microliths, blade and flake technologies were commonly utilized and core tools also appear to increase in numbers. There is still some question over the precise nature of this transition (e.g., Gopher and Barkai 1997; Kuijt 1996b, 2001a). None of these technologies shows the sophistication of the succeeding periods and there is little evidence for production specialization.

A wide range of tool types is present (e.g., Cauvin 1979; Nadel 1997; Cauvin and Abbés 2008), reflecting a similarly wide range of functions, some of which are still not understood. Typical types include scrapers, arrowheads (most notably bilaterally notched Khiam points), burins (dihedral and on truncations are typical), a range of small and standardized notched/truncated pieces (e.g., Bar-Yosef et al. 1987), awls and borers of various kinds (e.g., Cauvin and Abbés 2008) and axes/adzes, with tranchet blow edges (J.C. Payne 1983; Barkai 2005). Although sometimes associated with tree felling, the small size of most of these suggests woodworking (e.g., Yerkes et al. 2003) as opposed to forest clearance, and they are often found in places where large trees would have been rare. Sickle blades of two types are found in the Levantine assemblages, one on backed blades inserted lengthwise into hafts (to judge both by the backing and by the occasional preservation of bitumen along the back edge) and large reaping knives (e.g., Cauvin 1983; Nadel 1997), hafted at the proximal end. The lustrous edges on these pieces are indicative of reaping, although not necessarily exclusively of cereals, and cutting of cane and reeds may also have been common.

In this period it is possible to begin to trace patterns of innovation and diffusion. The Khiam point is an example, apparently appearing first in the northern Levant and then diffusing southwards. Similar patterns are evident in other types in later periods (Gopher 1994).

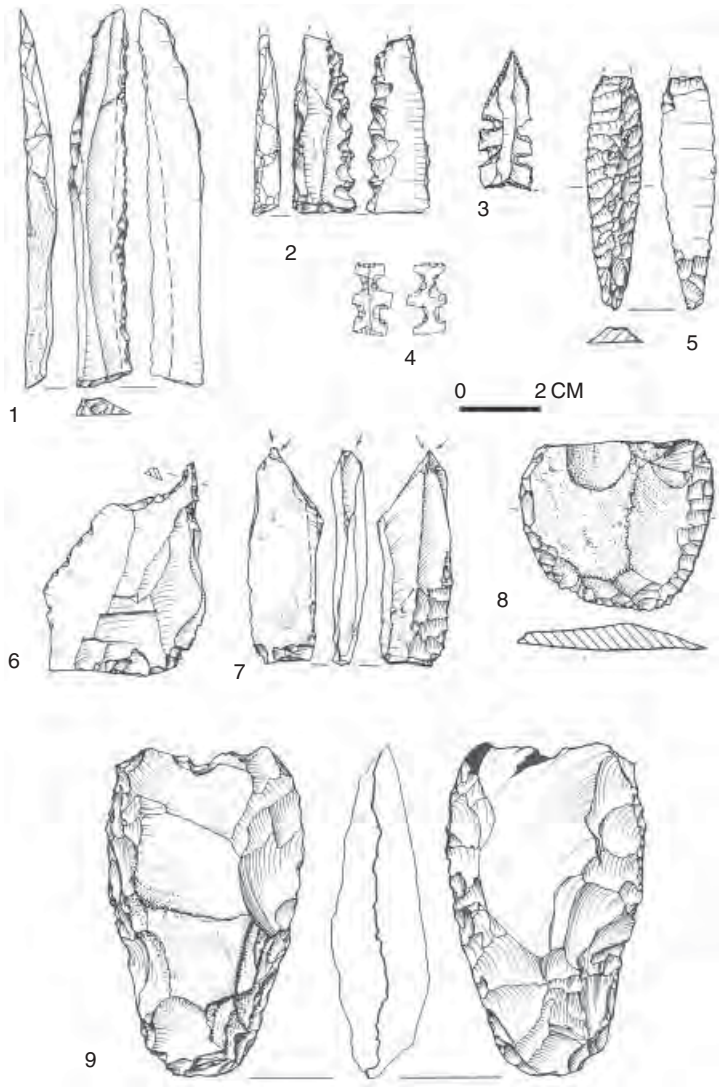

Figure 13.2 General Neolithic types: 1. PPNB sickle blade; 2. denticulated Pottery Neolithic sickle segment; 3. PPNA Khiam point; 4. PPNA truncated notched piece; 5. PPNB Byblos point; 6. awl (non-diagnostic); 7. dihedral burin (non-diagnostic); 8. scraper (non-diagnostic); 9. PPNB axe. Scale approximate. Numbers 1 and 2 from Gilgal (Noy 1987). All other artifacts from Tel Teo (Gopher and Rosen 2001).

The final decline of microlithic technologies is evident in the transition from the PPNA to the PPPNB. In particular, the rise of a large blade industry in the PPNB, based on naviform bipolar blade cores (Figure 13.1[8] above), provided the blanks for new sickle and arrowhead types (e.g., Quintero and Wilke 1995; McCartney 1999; Nishiaki 2000; Abbès 2003, 2008). This pan-Near Eastern technology demanded considerable investment in terms of skill for the production of long and regular blades from specially prepared cores. Replication experiments suggest that indirect percussion was used for the removal of the target blades. Core trimming elements are diagnostic, consisting of crested blades (Figure 13.1[7] above) and core tablets (e.g., J.C. Payne 1983). High-quality raw materials are necessary for naviform blade production, and in some cases heat treatment may have been used to enhance flaking properties (e.g., Nadel 1989). Distribution patterns of cores and debitage suggest a degree of production specialization, perhaps best classified as expertise (e.g., Davidzon and Goring-Morris 2007; Barzilai 2009; Khalaily 2009).

Bifacial technologies are also typical of the period, based on the reduction of cores or large flakes for production of axes and chisels (Figure 13.2). Working edge grinding is common, but few axes are fully polished. Transverse blows (tranchet) were used to renew edges (e.g., Barkai 2005). Sizes vary and, unlike large European axes used at least in part for forest clearance, most seem to have been woodworking tools (e.g., Yamada 2000; Sánchez Priego 2008).

The range of technologies is well reflected in the variety of tool types produced. Arrowheads were produced on long blades (Figure 13.2[5]) and vary in importance apparently in proportion to the significance of hunting in the assemblage (e.g., Bar-Yosef 1981; Coskunsu and Lemorini 2001). Stylistic changes in arrowhead morphology are chronologically sensitive and also reflect regional variation (e.g., Cauvin 1968; Mortensen 1970; Gopher 1994; Kozłowoski 1999; Balkan-Atli et al. 2001). Sickle segments, identifiable on the basis of edge gloss (Figure 13.2[1]) and specific striation types, as on obsidian (Ibáñez, González Urquijo, & Rodréguez 2008) and occasionally found in hafts, were produced on the same blanks and often show little modification, with the insertion of blanks directly into the sickle haft. Lateral retouch seems to have been a means of edge sharpening. Retouched blades of various types, for example basally bi-notched blades, probably functioned as types of knives.

Scrapers are on flakes (Figure 13.2[8]) and burins (Figure 13.2[7]) are primarily on truncations. Some later PPNB desert sites show a proliferation of burins, undoubtedly reflecting some as yet not well understood function (e.g., Betts 1998; Eichmann et al. 2001). The chamfer technique seems to combine scraper function with burin technology (e.g., J.C. Payne 1983). Burin spalls (Figure 13.1[3]) were worked to form microlithic drill bits, probably used in bow drills (e.g., Wright and Garrard 2003). Other types of piercing tools, variations of awls and borers (Figure 13.2[6]), are also common.

Obsidian played a larger role in PPNB industries, constituting a significant raw material source for sites near source areas in central and eastern Anatolia, and seemingly a high prestige material further south (Abbès 2003; Perlman and Yellin 1980; Binder and Balkan-Atli 2001). The down-the-line trade system first suggested by Renfrew et al. (1966) for this period and the ability to source obsidian chemically also suggested the existence of different interaction spheres within the PPNB (e.g., Bar-Yosef and Belfer-Cohen 1989).

The collapse of the PPNB system throughout the Near East is reflected in major changes in the lithic industries. Technologically this is most clearly seen in the decline of naviform blade technology as early as the transitional PPNC, replaced by bipolar blade cores and, somewhat later, even simpler blade production techniques (e.g., Gopher 1994; Nishiaki 2000; Abbès 2003; Khalaily 2009; Borrell 2011). In conjunction with this shift in blade production techniques, flakes dominate the debitage assemblages. A distinctive large flake technology, focusing on specific tool types, also developed in this period (e.g., Goring-Morris et al. 1994). Continuing a trend evident in the late PPNB, the use of pressure retouch for edge modification became prevalent on some tools (e.g., Payne 1960; Cauvin 1968; Copeland 1996; Arimura 1999). In the second half of the period, standardized prismatic blade technologies for the production of relatively short blades were introduced and used especially for sickle production.

These technological changes are also reflected in changes in tool morphologies, most clearly in the two dominant categories, arrowheads and sickle segments. Although in the early phases of the period the long leaf and stem points typical of the PPNB were still present, they were supplemented and ultimately replaced by small points, based on short blades and shaped by pressure retouch. Interestingly, these types often retain the general morphologies of the long types, leaf-shaped, stemmed, or winged. By the mid-6th millennium BC, the small points were supplemented and in some places supplanted by transverse points, reflecting both changes in lithic technology (the use of broad bladelets or very small flakes), as well as innovations in arrowhead technologies (Gopher 1994), perhaps including the use of poison (cf. Clark 1975–7).

Sickle segments contrast even more significantly. The long blade sickle segments of the PPNB were replaced in the beginning of the period by short blades with the toothy denticulation formed by deep notched pressure retouch (Figure 13.2[2]). Unlike retouch in both earlier and later periods, which functioned as a means of edge sharpening, the deep denticulation in this period was part of the design of the sickle, and many are denticulated along both lateral edges (e.g., Stekelis 1972; Gopher 1989; Rosen 1997: 133–50). As with the arrowheads, the deeply denticulated segments were ultimately replaced, in this case by backed, truncated blade segments showing varying degrees of serration retouch, most likely the result of sharpening. This type continued into the Chalcolithic period.

Large, bifacial knives and spear points appeared in this period, demonstrating both a large flake technology and pressure retouch finishing (e.g., Payne 1960;

Copeland 1996). In the southern Levant, the knives seemed to evolve into tabular scrapers in the latter half of the period (Rosen 1997: 81–2). Other tool types comprise a range similar to that of the preceding period. Bifacial axes, adzes, and chisels continued in common use, usually showing working edge polish (e.g., Barkai 2005). Awls, drills, scrapers, burins, knives, and other elements were also present in varying numbers (e.g., J.C. Payne 1983). Expertise in manufacture seems evident from the fine workmanship present on many pieces and one can trace incipient specialized production and distribution in restricted distributions of some types, especially blade tools and axe/adzes.

The long distance obsidian trade also declined with the PPNB collapse, and utilitarian obsidian use was seemingly restricted to those regions near the sources. Linked to this, especially in the latter half of the period, obsidian seems to have taken on a series of ideological meanings (e.g., Cauvin et al. 1998; Coquegniot 1998). This pattern continued through the rest of the Holocene.

On a smaller scale, these typological changes also reflect regional differentiation. Thus, the Mesopotamian Pottery Neolithic shows a Halaf-Ubaid sequence, with characteristic subtypes, while in the Levant the sequence is Yarmukian, Lodian, and Wadi Rabah. Although defined on the basis of ceramics, the regional sequences are also reflected in the lithics.

During the Pottery Neolithic the desert regions began an independent, lithic-technological trajectory, the Arabian Bifacial Tradition in Arabia (e.g., Edens 1988; Di Mario 1989; Charpentier 2003) and the Timnian in the southern Levant (Henry 1995: 362–6; Rosen 2010). In particular, the desert industries functionally contrast with the settled zones and show less distinction between technological modes and greater continuity between earlier and later periods. Trends toward specialized production evident in the settled zone are not present in the desert.

Ubaid, Ghassulian, and to a degree early Uruk industries show technological and typological continuities with preceding Late Pottery Neolithic industries (e.g., Gilead 1990; Nishiaki 2003; Hermon 2008; Healey 2010). Technologically, increasing specialization in lithic production is reflected in an increased distinction between technological modes. Blade production, generally based on reduction of local flint types, is technologically to be distinguished from other tool types, reflected in a specific *chaîne opératoire* usually including either off-site or workshop production (Kozłowoski 1987: 281; Akkermans 1993: 271–3; Rosen 1997: 103–6; Gilead et al. 2004). Other distinct technologies include continued manufacture of bifacial axes (Figure 13.3[9]), adzes and chisels, a numerically dominant set of informal (ad hoc) small flake tools (retouched flakes, notches, denticulates, and a range of non-standardized scrapers). In some regions, bladelet production was renewed as a distinct technological mode after an earlier hiatus (e.g., Gilead 1984). Large flake tools are also evident in tabular scrapers in the southern Levant (Figure 13.3[11]; e.g., Rosen 1997: 71–9) and large flake hoes in Mesopotamia (e.g., Jasim 1985: 78–9; Healey 2010). Obsidian was used

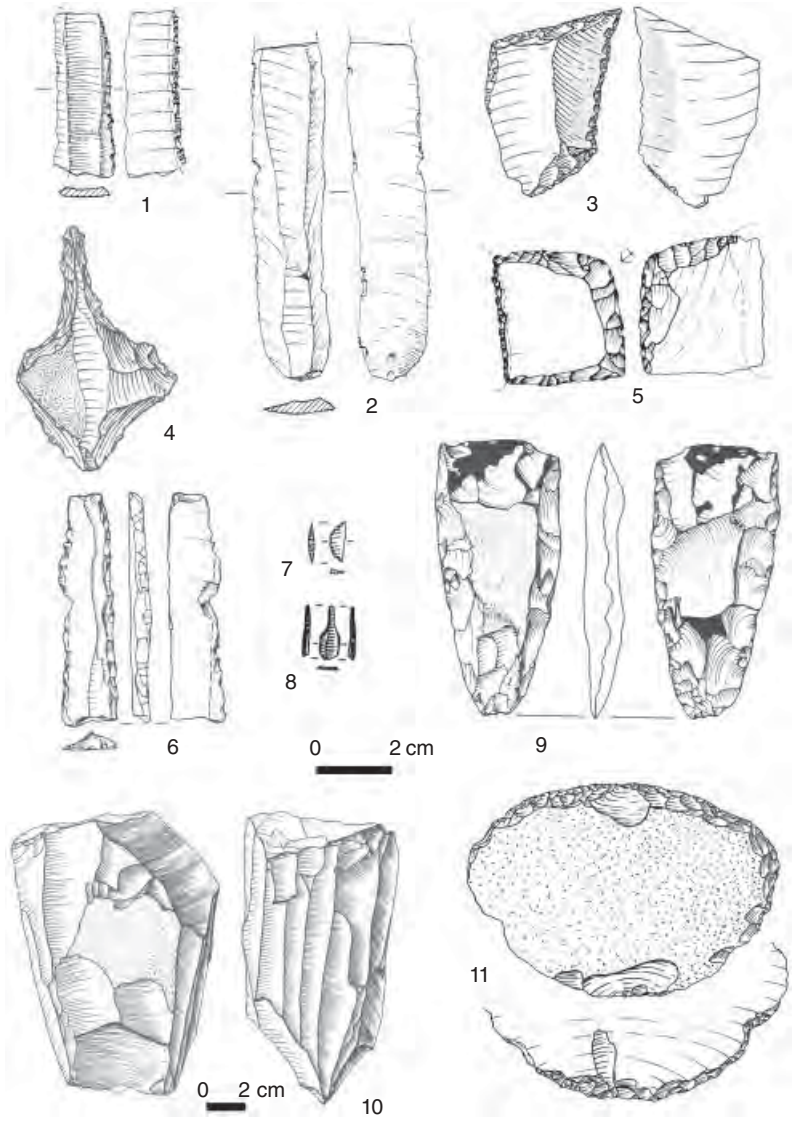

Figure 13.3 General post-Neolithic types. 1. Early Bronze Age Canaanean sickle segment; 2. Early Bronze Age Canaanean blade; 3, 5. Second millennium BC large geometric sickle segments; 4. awl (non-diagnostic); 6. Chalcolithic backed blade sickle segment; 7. microlithic lunate (desert Early Bronze Age); 8. microlithic drill (non-diagnostic); 9. Chalcolithic axe; 10. Early Bronze Age Canaanean blade core; 11. tabular scraper (Late Neolithic through Early Bronze Age). Note different scales. Upper scale is approximate (1, 2, 7, 8, and 10: Rosen 1997; 4: Levy and Rosen 1987; 6 and 9: Gopher and Rosen 2001; 3 and 11: Rosen 2004).

variably in Mesopotamia, partially a function of distance from the sources but also apparently related to trade connections and differential value/demand (e.g., Healey 2006; Hammade and Yamazake 2006).

Typologically, this period reflects a great range of types and function, similar to preceding Neolithic industries in this sense, and before the impact of the introduction of metal. Blade tools were used primarily as sickle inserts (Figure 13.3[6]), reflected in the glossy edges and sometimes recovered in situ in hafts. Axes and adzes continued from earlier periods as woodworking tools (Barkai 2005), though their use as tilling and digging tools has also been suggested (e.g., Gazit 1986). Scrapers, awls, and borers (Figure 13.3[4]) were common and microlithic drills (Figure 13.3[8]) are found in bead production loci, probably reflecting the use of the bow drill (Roshwalb 1981). As noted above, large flake tools include Mesopotamian hoes and tabular scrapers, the most standardized sub-type of which is the fan-scraper. If the hoes were used as tilling implements, as implied by the name, the tabular scrapers seem to have been used both in ritual contexts and perhaps for more utilitarian functions. Arrowheads declined significantly in this period, appearing sporadically in Mesopotamia (e.g., Moorey 1994: 61; Healey 2010) but already absent totally on Mediterranean zone sites (Rosen 1997: 43–4). Bifacial and perforated disks and large, star-shaped pieces were also manufactured on large flakes (e.g., Epstein and Noy 1988). Desert sites show both transverse and small points. Burins declined as well, and in Levantine assemblages it is not clear that items identified as such are not accidents.

This period also shows the clear rise of exchange as a major mode of lithic distribution. It is clear that sickle segments and probably axes were produced by experts or specialists and exchanged on a local scale (e.g., Rosen 1987; Gilead et al. 1995; Nishiaki 2003). In the southern Levant tabular scrapers seem to have been manufactured in the desert zones and imported within a desert-sown regional exchange system. Both systems differed from earlier obsidian exchange in their focus on specific types, rather than on a raw material.

A wide range of lithic technologies and tool types were present in Early Bronze Age assemblages in the Near East (for our purposes, the early 4th through 3rd millennium BC). As in earlier periods, variability occurred both between regions and over time. Technologically, the period was characterized by the rise of Canaanean blade technology in the early 4th millennium BC (Figure 13.3[2]; e.g., Rosen 1997: 59–60; Edens 1999). The technological characterization of these blades has been debated, apparently because it seems to have varied, in some cases employing pressure levers, in other cases indirect percussion, for the removal of long, regular blades, consistently trapezoidal in cross-section. The specialized nature of the production of these blades is clear from the presence of workshops and the scarcity of waste products outside them (Figure 13.3[10]; e.g., Cauvin 1968; Pelegrin and Otte 1991; Rosen 1997: 107–9; Hartenberger 2003). At least some of this variability relates to raw material, but it is possible that earlier

lithic traditions also influenced flaking modes and core preparation (e.g., Shimelmitz 2009). These blades were then modified, usually through truncation, to serve as segments in sickles (Figure 13.3[1]) or, some claim, threshing teeth (Anderson et al. 2004). In the east, this technology is associated with the early/mid-4th millennium BC Middle Uruk period (e.g., Edens 1999; Nishiaki 2003). In the Levant it was present in the earliest stages of the Early Bronze Age I or perhaps Terminal Chalcolithic (Milevski et al. 2011), dated to roughly the same time. Origins are unclear. The technology disappeared with the beginning of the 2nd millennium BC, and did not continue into the Middle Bronze Age. The geographic distribution of the technology was wide, but it did not extend to Egypt or the desert zones.

Other technologies show clear continuities with earlier periods. Quantitatively speaking, simple ad hoc flake technology dominated, comprising the bulk of waste (including cores) recovered at all domestic sites. It is somewhat less abundant in areas where flint was not readily accessible. Tabular scraper technology, described for the Late Neolithic and Chalcolithic periods in the southern Levant, continued through the end of the 3rd millennium BC. Bladelet technologies were present in different forms, in the southern Levant continuing from the Chalcolithic period into the Early Bronze I (in some cases indicating Egyptian presence), and in Mesopotamia, through the Uruk phases. Small blade technologies were present in Mesopotamia (e.g., Pope and Pollock 1995; Edens 1999) and in the Levant during the period of Egyptian incursion, c.3100 BC (Rosen 1988). Pressure flaking was also used in Mesopotamia and in the desert regions for small arrowheads. These different technologies seem to reflect distinct modes of manufacture, reflecting different producers, distribution patterns, raw materials, and functions. Of particular note in this period is the clear evidence of specialized production and for different kinds of exchange of lithic implements. In particular, Canaanean blades were the subject of intra-regional exchange; tabular scrapers seem to reflect longer distance interactions between the desert and settled zones (Rosen 1997).

Typologically, these different technologies were used to produce different tools. Sickle segments were by and large made on Canaanean blades. Ad hoc tools (retouched flakes, notches, denticulates, and most scrapers and awls) were produced on simple flakes and used for a wide range of domestic tasks (McConaughy 1980). Small arrowheads and transverse points were made on small flakes, in some cases bladelets. They are found only in Mesopotamia (Miller 1985) and are absent in Mediterranean assemblages. Transverse arrowheads, especially in the form of microlithic lunates, are present in the southern desert zones (Rosen 1997: 42–4). Tabular scrapers are primarily a Levantine phenomenon. In the Early Bronze Age they often show cortical incisions, forming abstract patterns whose meaning is not clear (Rosen 1997: 71–80). The bifacial axes and adzes characteristic of the Ubaid and Ghassulian cultures disappeared by the early 4th millennium BC.

Lithic industries of the 2nd millennium BC (Middle Bronze, Late Bronze and Early Iron Ages) are treated together. This thousand-year period is similar in length to the periods dealt with earlier, and lithic industries within this period show relative internal stability. Technologically, there was little or no continuity in blade production from the 3rd to the 2nd millennium BC. There is no evidence for production of Canaanean blades in the Middle Bronze Age or later, and sickles were manufactured using a fundamentally new technology utilizing blade-flakes for the production of so-called Large Geometric sickle segments (Figure 13.3[3][5]; e.g., J.C. Payne 1983; Coquegniot 1991; Rosen 1997: 55–6). These seem to reflect a change in hafting technology and a shift to more crescent-shaped sickles, shown especially in the angled truncations found on most sickle segments. As no cores or primary workshops for the production of these new sickle types have been documented, technological reconstruction is limited. Caches of blanks have been found at several sites (e.g., Rosen 1986), and it is clear that these sickles were a product of specialized manufacture. These reflect a fair degree of size and morphological standardization and show pronounced bulbs of percussion, indicating direct, hard hammer percussion. These bulbs often show thinning, reducing thickness presumably to facilitate hafting. In addition to Large Geometric sickle technology, ad hoc tools, based on simple cores and non-standardized flake production, continued and indeed dominated in terms of the debitage categories.

The only diagnostic tools of this period are the Large Geometric sickles. These seem to increase in their share of tool assemblages so that, by the Iron Age, tool assemblages with up to 80 percent are known. Other ad hoc tools include especially retouched flakes, notches and denticulates, and awls, sometimes on the corners of reused sickle segments. These may have been used as percussors in retouching the sickle segments. In addition to these, flint drill bits for bead manufacturing have been recovered in some workshop contexts.

By the early 1st millennium BC there was a significant drop both in the quantities of lithic waste and in tools recovered from excavations. It is likely that this signals the final decline in systematic lithic production, excepting only the use of flint for threshing teeth, as yet controversial in terms of identification; tinderflints, virtually impossible to identify; and the use of flint in special circumstances, such as drill bits (e.g., Bawden et al. 1980).

6 Trends in Lithic Evolution

Beyond the descriptive sequence outlined above, lithic analyses demonstrate important trends and events in the history of the Near East. For some of these, like the rise of specialized production or the metal-flint replacement process, lithics provide insights not available from other realms of material culture even though the general process is visible. For others, as in technological or functional trends, lithics reflect processes and change not evident in other realms of material

culture. In general, these trends and events in the lithic record well illustrate social and cultural evolution in the Near East.

The Epipaleolithic complexes of the Near East are marked by a transition from the blade-dominated industries of the Upper Paleolithic to the dominance of microliths, bladelet industries based on composite or hafted tools with multiple lithic components (notably, simple hafting is known as early as the Middle Paleolithic; Shea et al. 2001). Standardization in microlithic production is evident, with specific shapes, techniques, and sizes associated with particular archaeological cultures (for general review, see Elston and Kuhn 2002). Notably, the overwhelming dominance of microliths, sometimes comprising 80 percent of a tool assemblage, is a function of the use of multiple elements in a haft. Arrowheads appeared in the Natufian, in the form of microlithic lunates serving as transverse points, and the earliest stemmed points appeared in the terminal phases of the culture, as in the Harifian of the Negev (Scott 1977).

The transition to the Neolithic was marked by a decline in the predominance of microlithic elements, replaced not by a specific technology, but by a diversity of technologies. Thus, if the PPNA functioned as a transition, then, from the Natufian to the PPNB, microlithic armatures virtually dropped out of the lithic repertoire, but groundstone axes, microdrills for bead manufacture, and large arrowheads appeared. Each of these requires a set of new auxiliary or accompanying technologies – for example, the use of the bow drill or the deliberate grinding of axe heads. For lithic analysts, the rise of bipolar, naviform blade technology, used for both arrowheads and sickle segments and found throughout the Near East in the PPNB, is perhaps the hallmark of the period, a sign of sophistication and lithic expertise in the period. The full range of other types and functions (scrapers, retouched blades, sickle segments, awls and piercing tools, retouched flakes, knives, burins, etc.) continued and was enriched in sub-types and variability.

The explanation of this transition is clearly tied to the evolution of village society in the Neolithic. Increasing sedentism, demographic increase, rising intensity of production, increased long-distance trade, increasing social differentiation, and specific needs associated with these secular trends can be tied in one way or another to changes in the lithic system. Thus, incipient economic specialization integrated with sedentism, the need for trade, and specialized lithic procurement patterns. The rise of architecture as well as intensive agriculture probably demanded specialized woodworking tools, and intensified agricultural production was based on new reaping and sowing technologies. All of these are reflected in the lithic industries, as, for example, the ground stone celts used for woodworking and the long blades inserted in sickle hafts produced using naviform technology, being more efficient both in terms of manufacture than smaller blades, and in the fact that they can be resharpened in the hafted sickle.

Within PPN lithic traditions, one of the notable trends is the evolution in arrowhead morphology (Figure 13.4; especially Gopher 1994). If the transition

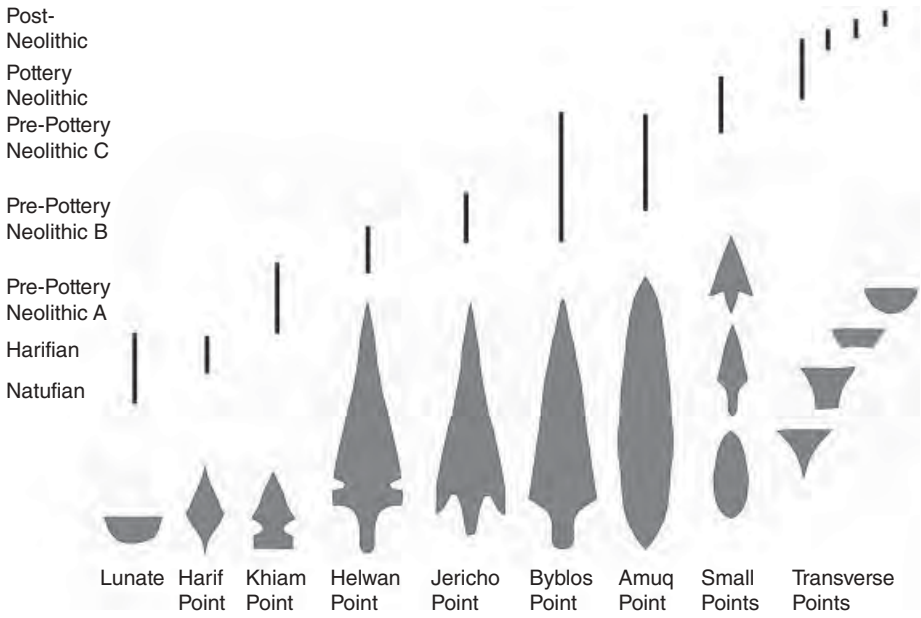

Figure 13.4 The evolution of arrowhead morphology in the Southern Levant as an example of general arrowhead evolution in the Near East.

from the small Khiam point and related types is to be explained as part of the shift to long blade technology, the stylistic trajectories within the long blade arrowhead types, paradigmatic battleship curves, are harder to account for. The sequence of side-notching (Helwan points) to wings (Jericho) and tangs (Byblos), to leaf-shaped points (Amuq) may (or may not) reflect changes in hafting techniques, but it is hard to assign these changes a functional or economic meaning. If, on the one hand, we can use these changes as chronological indicators, on the other hand, the diffusion patterns and lag times in the adoption of different types are certainly reflective of social factors beyond the utilitarian. In short, these changes seem stylistic, with all the theoretical accouterments implied by the term (Wiessner 1983).

After the PPN, arrowheads continued to evolve, but the transition to small points and transverse points seems to have been of a different order from the evolution within the large point tradition, a fundamental technological shift (increased use of pressure flaking, different blank types) and not only a stylistic change. The abandonment of naviform technology, in the PPNC, may reflect the general social and economic decline associated with the end of the PPNB, especially if naviform technologies reflect some degree of economic specialization (Khalaily 2009). Other factors are most likely directly related to changes in hunting technologies (e.g., the use of poisons) and perhaps changes in what was

hunted as domesticated herd animals became ever more important in village economies (e.g., Nishiaki 2000; Abbès 2003). One can also trace evolutionary changes within the morphology of transverse points (triangular to rectangular to crescent [lunate] shaped) in the desert, which seem stylistic and are thus reminiscent of the changes in the PPN arrowhead system.

The morphological changes in projectile points over the course of the Neolithic were paralleled by changes in sickle segment types, these however extending as late in time as the Iron Age. Unlike the arrowheads, typological change in sickle segments seems closely tied to changes in the technologies of blank production. While such technological variability may indeed be a form of stylistic choice, these technological changes for the most part correlate with larger scale episodes of social change. Thus, the changes in sickle types were associated with the introduction and disappearance of PPNB naviform blade technologies, replacing simpler PPNA types; in turn replaced by deeply denticulated segments in the Early Pottery Neolithic; replaced by simple backed and truncated blades in the later Pottery Neolithic and Chalcolithic; in turn replaced by Canaanean blades following the Ghassulian; and these by Large Geometrics in the 2nd millennium BC. Thus, unlike the subtle changes in arrowhead morphology during the PPNB, all this variability seems to reflect larger social trends and transitions, such as the rise and collapse of the integrated PPNB system or the evolution and collapse of early urbanism.

Complementing chronological trends, increased regionalization can also be seen in lithic evolution over the course of the Holocene. Some of this variation was probably the result of differences in availability of different kinds of raw materials, as in varying quantities of obsidian used in different regions. On the other hand, typological differences probably reflected social structures of different kinds. Thus, there is regionalization in arrowhead types within the PPNB (Gopher 1994). Throughout the Neolithic and continuing through the 3rd millennium BC, Egyptian lithic industries operated independently of those in the rest of the Near East, showing major technological and typological contrasts, even with respect to the neighboring southern Levant, and in this context the Neolithic contrasted with the preceding Epipaleolithic. Thus, the blade industries of Pre- and Early Dynastic Egypt contrast with the ubiquitous Canaanean blades of the rest of the Near East. Other major contrasts include the common presence of large ripple flake knives, well-formed scrapers on blades, and the continued use of bladelets in Egypt (e.g., Kelterborn 1984; Rizkana and Seeher 1985; Holmes 1989; Schmidt 1992).

Desert traditions also seem to diverge from those of the settled zone, especially following the PPNB collapse (Edens 1988). While some of this divergence reflects functional differences, as in the presence of sickle segments in the settled zone, basic contrasts in the structure of production reflect differences in degree of specialization, modes of knowledge transmission, and probably differences in social identities.

Finally, even within the settled zones of the Near East, regional contrasts in the presence of arrowheads, the distribution of tabular scrapers, the use of bladelets, and in the specifics of Canaanean technology are evident. The factors behind this variability include raw material variation, ease of raw material access, functional contrasts, differing degrees of expertise and specialization, and changing modes of knowledge transmission; together, as a package, they suggest that basic cultural differences within the Near East were reflected in lithic traditions.

The metal-lithic replacement process constitutes another trend requiring explication. Although Bronze and Iron Age chipped stone tools were recognized early in the history of archaeological research in the Near East, there was little synthetic work conducted on them and they were generally dismissed as an insignificant aspect of the archaeology of these periods, supplanted early on by developing metallurgy (Rosen 1997). In fact, the metal-chipped stone replacement process extends over the course of more than three millennia, from the first appearance of smelted copper objects in the Chalcolithic (mid-5th millennium BC) through the final disappearance of Large Geometric sickle segments, in the early 1st millennium BC. Patterns of replacement are complex, related as much to economic factors such as access to raw materials, ease of manufacture, and degree of specialization as to greater or lesser functional efficiency. For example, while flint bifacials dropped out of the material culture repertoire with the Early Bronze Age, in the early 4th millennium BC (at least in the Levant), flint sickles continued in use through the mid-Iron Age (c. 9th–10th centuries BC). Experimental work suggests that copper axes are only marginally more efficient than flint, explaining the roughly 500-year overlap between the two types (Mathieu and Meyer 1997). Flint sickles, on the other hand, are clearly superior to copper, no less efficient than bronze (Steensberg 1943) and much cheaper to both obtain and manufacture. Only with the establishment of an iron-mongering infrastructure, in the Iron Age II, were flint sickles replaced by more effective iron sickles. The continued use of chipped stone for threshing teeth through the modern era is a function of readily accessible raw materials and little need for expert manufacture.

The metal-chipped stone replacement process touches on another major trend in lithic evolution, the rise of specialized production and the concomitant development of ad hoc tools (Rosen 1997; Wattenmaker 1998). Although high skill levels in lithic manufacture can be traced far back into the Paleolithic, workshops for blade and perhaps axe production, to be distinguished from quarry sites, appeared in the PPNB (Barkai 2005). By Late Neolithic and Chalcolithic times, specialized production of one kind or another seems to have been responsible for most of the standardized toolkit, including sickle segments, axes and adzes, bladelet tools, and tabular scrapers (Gilead et al. 1995; Rosen 1987). By the Early Bronze Age, Canaanean sickle segments were produced exclusively in workshops and traded out, probably in the tens of thousands (e.g., Pope and Pollock 1995; Edens 1999; Hartenberger 2003). Production may have been seasonal and has been compared to that of the specialists who, until recently, produced threshing

teeth in Turkey and Cyprus (Bordaz 1965; Whittaker 1996). Similarly, the production of Large Geometric sickle segments in the 2nd millennium BC was specialized as well. Although no workshops have yet been discovered, the total absence of debitage appropriate to the manufacture of these tools and the discovery of large caches of blanks suggest off-site, specialist manufacture and exchange.

In contrast to craft specialization based on elite goods and restricted access to rare materials, such as metals, specialized lithic production never seems to show evidence of centralized controls. Furthermore, the large quantities of necessarily standardized sickle segments, avowedly utilitarian goods, were manufactured for bulk export and seem to derive from fundamentally domestic contexts. Thus, briefly stated, lithic systems seem to reflect a path to specialized production differing in important particulars from elite-driven models based on metallurgy and other luxury goods.

Concomitant with the rise of specialized lithic production, expedient production of a range of ad hoc tools (retouched flakes, notches, denticulates, crude scrapers, choppers, etc.) dominated lithic industries in the Chalcolithic and Bronze Ages. Produced on-site, probably by the users, of little value, and discarded after use, these tools reflect the continued, common use of chipped stone in a range of domestic tasks even during the period of increasing use of metal. Like their specialized counterparts, with increasing availability of metal, especially in the 2nd and 1st millennia BC, these too declined.

The final decline of lithic technologies in the Near East, excepting relict threshing teeth and tinder flint production, and, much later, gun flints, occurred during the Iron Age (Rosen 1997: 151–66). Experimental work (Steensberg 1943) has demonstrated the inherently greater efficiency of iron (in fact, primitive steel) sickles over their flint counterparts; however, the actual replacement occurred well into the Iron Age, in the Levant no earlier than the 10th century BC. Given the fact that iron was actually introduced prior to the Iron Age and, within the Iron Age, it took some time for production infrastructures (workshops, distributions systems, mines, etc.) to be established, this time lag suggests that the economics of production, including such issues as ease of production, access to and value of raw materials, and nature/rise of such a production infrastructure, all played as much of a role in the final adoption of iron and the replacement of flint as did the actual properties of the raw material. Thus, in spite of its actual inferiority for reaping, for a long period flint sickle segments remained cheaper and more accessible, and hence a viable alternative to iron equivalents.

7 Future Issues

Research on Holocene lithic industries in the Near East has been uneven over the region. Each new excavation and assemblage reveals increasing complexity and new techniques provide ever increasing analytic detail at ever smaller scales.

Together, these pose new challenges for synthesis. However, extrapolating these trends to a larger picture, two opposing tendencies are apparent. On the one hand, as research progresses, regional and even sub-regional variability seem to be more evident in the lithic record. This, of course, accords with other elements of material culture. With respect to the lithic industries, clearly this variability is a reflection of a number of factors. With increasing social complexity, regional economic differentiation increases. Whereas the societies of the Terminal Pleistocene all shared a basic hunting-gathering economic baseline, albeit with differences in the intensity of exploitation (and concomitant features such as demography, etc.), by the Mid-Holocene the rise of economic differentiation, at least partially geographically determined, is well reflected in the lithic contrasts between farming, hunting, and herding societies, as seen in variability between numbers of arrowheads, sickle blades, and axes (adzes) in different areas and periods (e.g., Bar-Yosef 1981). In parallel, the rise of production specialization results in variability between sites in terms of production, export/import, and consumption of chipped stone tools. Furthermore, increasing social differentiation, both in terms of the rise of stratified societies and ethnic distinctions evident in the material record, is also reflected in stylistic aspects of the lithic industries. This increased variability also results in differential rates of lithic change both between regions (the desert industries appear to be more "conservative" than the settled), and different production systems (e.g., sickle production evolved in a trajectory evolving toward specialization and thus differing from many other production systems).

In contrast to these trends toward differentiation, integrating trends were also present. Although, for example, hand axe or Levallois flake production show distributions over large geographic expanses, it has remained difficult to model the rise of these technologies and types over these expanses. Given the broader material culture record and the greater archaeological resolution of Holocene societies, defining the innovation and diffusion of pan-Near Eastern technologies and types such as Helwan points, naviform blade technology, Canaanean technology etc. are goals which can be addressed archaeologically. Since the lithics are ubiquitous, we may be able to trace and reconstruct processes less evident in other realms of material culture.

GUIDE TO FURTHER READING

There are several very good introductions to the general study of stone tools. Inizan et al. (1999) is the best primer for terms and technology. Whittaker (1998) provides a how-to manual for actually making stone tools, and of course studying them. Odell (2004) and Andrefsky (1998) are good summaries of the basics of lithic analysis. For the Near East the journal *Neo-Lithics* is an outlet for many pilot studies and debates

concerning lithic industries in the Holocene. *Paléorient* provides numerous individual reports and synthetic essays on lithic assemblages from all over the Near East, and the *Journal of the Israel Prehistoric Society* provides numerous descriptive reports on lithic industries from all periods from Israel.

Synthetic works on Neolithic industries include especially Nishiaki (2000) and the edited volume by Astruc et al. (2007). Recent doctorates on the subject include Barzilai (2009) and Khalaily (summarized in 2009). Larger-scale works on lithic industries devoted to single sites include especially Cauvin/Byblos (1968), S.J. Payne/Jericho (1983), Copeland/Sabi Abyad (1996), and papers in Ibáñez, González Urquijo, & Rodríguez/Mureybet (2008). Specialized works on specific aspects of lithic industries include Gopher (1994) on Neolithic and later arrowheads in the Levant (also see Miller 1985), Abbès (2003) on Syrian Neolithic blade industries, Barkai (2005) on Levantine axe industries from the Neolithic and Chalcolithic periods, and Yamada (2000) on microwear studies in the Levantine Neolithic. For the post-Neolithic, Rosen (1997) provides an overview of lithic industries from the mid-5th through the 1st millennium BC in the southern Levant; Hermon (2008) reviews Chalcolithic lithic industries; and Chabot (2002) summarizes the Early Bronze industries of Tel Atij in Syria.

CHAPTER FOURTEEN

Irrigation

Ariel M. Bagg

1 Introduction

The Ancient Near East is often referred to as the Fertile Crescent, a region of rich soils ranging from Palestine to Syria and Mesopotamia; in the south, at the crescent's concavity, it borders on the Syro-Arabian desert, in the north, at the crescent's convexity, it borders on the Anatolian and Iranian highlands. This image of a fertile, homogeneous region is a very simplified one, taking into account the great variety of ecological zones in this part of the world. In fact, landscape discontinuity is one of the structural features of the Middle East. Furthermore the term "fertile" has to be explained when applied to a region characterized by its aridity. It is generally accepted that a minimum of 200 millimeters of rain is necessary for rain-fed agriculture. Even if this is another simplification (see below), a look at mean annual rainfall in the Middle East shows that some two-thirds of the Fertile Crescent lie in the zone between 100 and 200 millimeters, where only irrigation makes agriculture possible (Alex 1984). As a great part of the Ancient Near East was made fertile by man, namely by means of irrigation techniques, irrigation represents one of the most distinctive features of this cultural area.

Most recent evidence on climatic development confirms the common assumption that during the last 6,000 years the climate of the Middle East widely corresponded to today's conditions. Nevertheless, fluctuations of temperature and precipitation, differing in duration and amplitude, are attested, and their influence

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at a local or more general level must not be forgotten. In historical times at least three first-order anomalies with a wide range of influence have been identified, the so-called "dry shifts" at around 3000, 2200, and 1300 BC. Other anomalies were weaker or affected smaller areas for shorter periods of time (Butzer 1995: 134–8). Nowadays, the Fertile Crescent comprises mainly three climatic zones (Kottek et al. 2006): warm temperate climate with dry summer (the northern narrow fringe); steppe climate (the middle narrow fringe); and desert climate (the southern fringe). Characteristic of warm temperate and arid climates is the existence of only two pronounced seasons, a dry and hot summer and a humid and cold winter. Rainfall is not the only, but one of the most critical factors that affect the growth of crops. The abovementioned minimum of 200 millimeters of rain may indicate whether or not dry-farming is possible, but only if used correctly, taking into account additional aspects.

The main problem lies in taking the mean annual value of 200 millimeters and the corresponding isohyet as the limit between the two regions. It is not the annual average but the reliable annual aggregate that is to be considered for practical purposes. When the reliable rainfall amount, defined as the annual value which was reached or exceeded in 80 percent of the observation years, is considered, the position of the critical 100–300 millimeter isohyets changes dramatically, much reducing the dry-farming areas (Alex 1985). Thus, riskless dry-farming cannot be guaranteed in Iraq in areas receiving a below-average annual rainfall of 400 millimeters (Wirth 1962: 23). Furthermore, because of considerable, annual fluctuations in rainfall, it is not correct to conceive of the border between dry-farming and irrigation agriculture as a line or even a strip – the 200 millimeter isohyets of a wet and a dry year may be up to 200 kilometers apart (Wirth 1962: 20–1). Therefore, between a riskless rainfall zone and a zone depending on irrigation, there exists no borderline, but rather an extensive belt, where dry-farming is possible but not assured (Oates and Oates 1976a: 111–13). In these areas of low to high risk, irrigation is necessary to ensure crop growth.

Irrigation in the ancient Near East is frequently associated with water shortage, which is not always the problem. In some cases, the problem is having the right amount of water at the required time. Poor rainfall is compensated for in some areas, like southern Mesopotamia (Sumer and Babylonia), by plentiful surface water, which not only makes irrigation possible but also requires measures to prevent the injurious effects of a water surplus. In other areas, like northern Mesopotamia (Assyria), seemingly sufficient water resources cannot be exploited because of the great differences in elevation between the river and the fields, a situation that was only overcome by tapping and directing water sources from far away. Therefore, the two main rivers in the Middle East, the Tigris and the Euphrates, while closely related to irrigation agriculture, are part of both the problem and the solution. Both rivers follow a similar pattern: water levels increase over the winter months and reach a maximum in April or May at the time of the spring rains and the melting of snow in the highlands. Nevertheless,

the regime of the two rivers shows important differences. Both rivers rise on the Turkish plateau, but while the Euphrates, after its confluence with the Khabur river, runs for some 1,200 kilometers without being joined by any perennial tributaries, four main tributaries join the Tigris from the Zagros mountains to the east. These have steep slopes and carry erosion products. Heavy rains produce flash floods, which are common in the lower reaches of the Tigris but unknown on the Euphrates. The floods of the Tigris are unpredictable and potentially disastrous, whereas those of the Euphrates are not as violent and occur mostly in April or May.

Cereals grow in the Middle East in winter. Sowing time is October to November, while ripening takes place in April and May. The regime of the twin rivers does not at all fit the needs of agriculture (Ionides 1937: 4). For example, when irrigation water is most needed, river levels are at their lowest (September–October) and the spring flood coincides with the last phase of the growing period (April–May). A late spring flood shortly before the harvest can produce irremediable damage and even the loss of the crop. The problem is in this case not water shortage but, rather, the irregularity and unpredictability of the water supply.

In Southern Mesopotamia, where both rivers flow with a gentle slope and tend to meander over the alluvial plain, another problem has to be considered. On the flood plains the rivers follow a meandering course with large marshes between them. Under these conditions both rivers, especially in the spring months, tend to change their courses, as attested by fossil meanders (Ionides 1937: 213–31). In the delta plains, where the slope is reduced to only 3 centimeters per kilometer, the rivers tend to split into a number of branches. Their course in the 2nd and 1st millennia BC is still unclear in many points, but some reliable reconstructions have been proposed (Cole and Gasche 1998; Gasche et al. 2002). Furthermore, both rivers carry great quantities of sediments which are deposited during the flooding. The deposited silt creates natural levees and raises the riverbed, causing the river to flow above the plain level. Some sediment is deposited in the canals and in the riverbeds, so that these need regular cleaning to enable water to continue to flow in the desired amount and direction. Nevertheless, much of the sediment ends up in the fields, with a negative effect on the soil. Fine sediments settle on the soil surface or may move into deeper soil layers, hindering water infiltration and the emergence of seedlings.

Irrigation is essential to make agriculture possible beyond the dry-farming regions, to enhance productivity, and to enable more than one crop per year. Nevertheless, some side-effects of irrigation have a negative impact and must be taken into account when planning irrigation systems. The combined and related effects of excessive salt-accumulation in the root-zone and the development of a high water table are the basic causes of crop failure under irrigation. Salt comes from irrigation or floodwater, and most of the soils in southern Iraq are saline to some degree. In arid climates, where evaporation exceeds precipitation and the water table rises because of the surplus irrigation water, salts cannot be

leached out of the topsoil into the subsoil. When the ground water reaches depths of 1–2 meters below the surface and comes within reach of the evaporative force, water is lost to the atmosphere leaving the salts in the upper soil layers. Not all salts are harmful to crops, but some (chlorides and carbonates) are toxic. Salinization can affect crops in different ways. Plants may struggle to obtain certain key nutrients, but the main problem is the increase in concentration of the soil solution, increasing the pressure that plants need to apply in order to extract water from the soil. In conditions of highly saline situations, plants may suffer physical or physiological damage. Concentrations of salt from 0.1–0.2 percent begin to be injurious to crops and concentrations of 0.5–1.0 percent become intolerable (Oates and Oates 1976a: 124). The application of surplus irrigation water is a relatively simple method of washing salts out of the rooting zone. Fallow rotation, attested also in historical times, is another practice intended to alleviate the effects of salinization.

In order to overcome the difference in elevation between the level of the water and that of the surface where the water is needed, water-lifting devices are necessary. Of the different methods for lifting water from rivers, canals, pools, or wells used in preindustrial societies (Molenaar 1956), only the pulley, the *shaduf* (see below) and a kind of chain of pots are clearly attested in ancient Near Eastern written and iconographic sources (Bagg 2001: 41–4). The existence of other devices, like animal-powered Persian wheels (*sakiya*), rope-and-bucket lifts (*čerd*), man-powered paddle-wheels, water-wheels, and Archimedean screws, has been suggested, but such proposals are based on obsolete readings or controversial interpretations of the cuneiform sources (Bagg 2001: 44–6; Volk 2009). Up to now, solid written or archaeological evidence for these water-lifting devices is lacking.

The counterpoise lift, known as *shaduf* (one of its many Arabic names), is an easy-to-construct but highly efficient device for raising water. The working principle is very simple. A long, wooden pole is pivoted as a lever from a crossbar supported by one or two pillars. A large stone or a clump of dried mud is fixed to the shorter end of the lever, serving as a counterpoise to a bucket-type dipper suspended from a rope or rod attached to the longer arm of the lever. A man needs only to pull down on the rope or rod until the container enters the water and fills up. Then, he allows the lever to lift the full bucket to the required height at which point he empties it by tipping it sideways. The *shaduf* has a working range of 1–3 meters. In case of lifts exceeding 3 meters, two or more devices can be used in series. The performance of one man, considered as the average rate of raising water during a full working day, is 3 square meters of water per hour (Molenaar 1956: 8).

The earliest depiction of a *shaduf* in ancient Mesopotamian art appears on a cylinder seal from the late Akkadian period (c.2200 BC) (Figure 14.1). Older written attestations (c.2450–2350 BC) are found in pre-Sargonic texts from Girsu (Bagg 2001: 40–1). The use of *shadufs* in Assyria (northern Iraq) in the 1st mil-

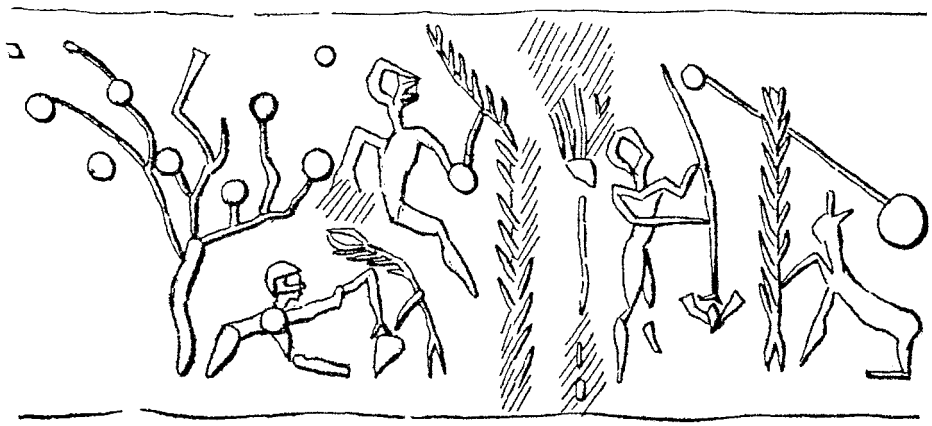

Figure 14.1 Cylinder seal showing the use of the *shaduf* c.2200 BC (after Ward 1910: Fig. 397, Louvre A. 156).

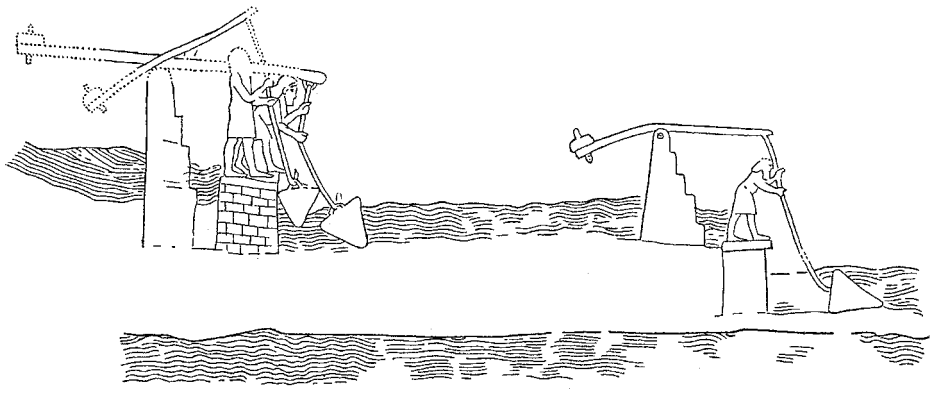

Figure 14.2 Two-stage *shaduf* installation (7th century BC). Detail from a relief in Sennacherib's Southwest Palace at Nineveh (BM 124820) (after Davies 1933: Fig. 10).

lennium BC is documented on a relief from Sennacherib's (704–681 BC) palace at Nineveh (Figure 14.2), belonging to a cycle in which the transport of one or more bull colossi is shown. In the lower part of the scene a two-stage water-lifting installation is depicted, consisting of three levers of two (one of them double) or three (simple) *shadufs*, which are operated in each case by one man standing on a platform. The pillars are made of masonry and their height corresponds to that of a man. The levers are approximately 3 meters long and probably rest on a wooden beam (not shown). At their ends are counterweights. The conical buckets used were likely made of leather. The platform on which the men stand may be understood as a canal parapet or a basin wall (Bagg 2000: 204–7).

The second water-lifting device attested is the pulley used for lifting water from wells, used in the ancient Near East to irrigate gardens. A bucket is attached to the end of a rope, which passes over a pulley set in a framework over the well. The earliest depiction dates to the 9th century BC and is found on a wall relief (now in the British Museum: BM 118906) from Assurnasirpal II's (883–859 BC) palace at Kalhu (modern Nimrud). Over the city wall of a besieged city a pulley can be seen, and outside the city a soldier is shown cutting a rope from which a bucket is hanging. Pulleys dating from the 8th–7th centuries BC were found at Dur-Sharrukin (modern Khorsabad) and Nineveh (Bagg 2000: 105–6, with Pls. 18, 21a). Also related to wells and probably used for the irrigation of palace gardens is a third device attested in one of Sennacherib's inscriptions. The king speaks proudly of a technical innovation for raising water that replaced the common *shaduf*. We know only that the device consisted of pulleys, bronze chains, and bronze wires, and that it was positioned over a well by means of a metal support. Maybe it was a kind of chain of buckets or pots (Bagg 2000: 199–203). Subterranean galleries to tap groundwater for irrigation purposes (Persian *qanat*), as attested in Iran from the Hellenistic period onward, are, contrary to common opinion, not attested in the ancient Near East (Bagg 2000: 12746; Salvini 2001).

Before discussing some paradigmatic cases of ancient Near Eastern irrigation practices in regions where they are archaeologically well documented, some terminological comments may be useful. Irrigation is defined as the artificial application of water to the soil. When agriculture can be practiced relying only on rainfall this is called "dry-farming." When the minimum amount of rainfall is unreliable or does not reach the quantity required for dry-farming, the soil needs to be artificially moistened, referred to as "irrigation agriculture." There exist different types of irrigation techniques that vary in the way in which the water is distributed within a field. Characteristic of the ancient Near East is surface irrigation, by which the water is distributed along the field using gravity flow (Booher 1974). In the ancient Near East the distribution always happened by means of open distribution systems (as opposed to piped distribution systems) – namely, open canals located at the high edge of the field from which the water could be directed into basins or furrows. Two main types of surface irrigation techniques were in use in the ancient Near East: basin irrigation and furrow irrigation.

Basin irrigation was the simplest way to irrigate fields and was therefore widely used. In this system, fields are divided into units with a nearly level surface. Levees (earth banks) are constructed around the fields, forming basins. The water is directed into the basins up to the desired depth and retained until it infiltrates the soil. Eventually, any excess water can be drained off. Variations of this method relate to the size and shape of the basins, the techniques for directing the water, and continuous or rather intermittent ponding.

Furrow irrigation consists in letting water run in small channels (furrows) that carry the water as it moves down the predominant slope of the field. The water, applied to the top end of the furrows, sweeps into the bottom and sides of them,

providing the required moisture. In contrast to basin irrigation, the entire soil surface is not moistened. This method is suitable for the irrigation of orchards and vineyards, as well as crops which could be harmed if the water were to reach the top or the stems of the plants.

An irrigation system is a network of channels and control structures in a cultivable area used to transport water from its source (a river, a main reservoir) to the fields. A canal is a manmade channel or canalized, natural watercourse which forms part of an irrigation system. Within an irrigation system there are different categories of canals according to their dimensions or, in other words, to the amount of water they transport, which follow a hierarchical pattern. Main canals transport water from the source to a secondary or branch canal and have, therefore, a major cross-section. As the channels approach the crops, their cross-section diminishes, and there are then secondary, tertiary, quaternary, etc. channels. The structures needed to distribute and control water are diversion works located at the head of the system which allow water to be diverted from the source to the system. Regulators are structures across the channels to maintain water levels and to control the water supply.

2 Southern Mesopotamia (Sumer and Babylonia)

Agriculture in southern Mesopotamia was impossible without irrigation. The region not only lies beyond the limit of dry-farming, but the Tigris and Euphrates are at their lowest when water for the crops is most needed and flood at harvest time. Both rivers derive their waters from winter snows in eastern Turkey. The Euphrates has a slower flow and its bed lies over the surrounding plain, allowing floodwater to fill the adjacent basins and to stay there. Therefore, the Euphrates is more suitable for irrigation purposes than the Tigris, which has a lower bed and a more violent and unpredictable flood. In order to cultivate the land, it was necessary in ancient times to control and direct the floodwaters through a network of canals, which started at the levees and conveyed the water to the field by means of smaller canals following a dendritic pattern. Work invested in canal maintenance and in protective works must have been at least as important as the work demanded for digging the network. Sumerian and Babylonian texts contain much information on these activities (e.g., Stol 1988; van Driel 1988; Renger 1990; Waetzoldt 1990).

In the late 4th and 3rd millennia BC there was a concentration of settlements in the delta region, where cities like Ur, Uruk, Umma, and Larsa were located. There the floods were generally not as violent as in the northern river plain. With the technology available, it would have been more difficult to construct and maintain a network of irrigation canals in the north than in the delta region, which may in part explain this settlement pattern (Butzer 1995: 142–5). The importance of irrigation in southern Mesopotamia, as well as the fact that some

degree of social organization was needed to create and maintain canal systems, is undoubted. In the past, this view led to the so-called "hydraulic hypothesis," which explained the increasing complexity of societies – e.g., in Mesopotamia – and therefore the rise of urban culture, as the result of the need to construct and administer irrigation works (Wittfogel 1957). This view is no longer compatible with our knowledge of the facts, mainly because the existence of complex irrigation systems in the early periods (7th to early 4th millennium) can be ruled out, as we know from (Late) Babylonian sources (Nissen 1988: 58–60).

We do not know when irrigation was first practiced in southern Mesopotamia, but the earliest archaeological evidence dates from the early 6th millennium and comes from Choga Mami, near Mandali, a site in the foothills of the Zagros mountains. In modern times the palm gardens of Mandali were irrigated by means of a fan of channels fed from the river Gangir, a method that also seems to have been applied in ancient times. On the northern slope of the mound, seven small, manmade water channels (each c.2 meters wide), dating to shortly after 6000 BC, were discovered. On the southern slope of the site a major canal (c.10 meters wide), filled with pottery of the Samarra period (late 6th millennium), was excavated. Furthermore, superficial traces of this and another canal were discovered in the vicinity of the site, suggesting continuous use through the Ubaid and possibly the Uruk periods (Oates and Oates 1976a: 128–33).

Even if irrigation cannot be considered the prime motor of complex societies, it demands, in fact, more physical and intellectual energy than dry-farming. Irrigated fields can be farmed more intensively and greater yields can be achieved. As a consequence, more people can be fed from the yield of a given area; in other words, a smaller irrigated territory around a settlement will feed the same population as a larger, unirrigated area, so that the settlements could lie closer to each other than in dry-farming regions. Indeed, an increase in settlement size and density is attested in the Mesopotamian floodplain soon after the beginning of the 4th millennium BC, as is the systematic use of irrigation from the Late Uruk period (late 4th millennium BC) onward. Since then, the lower Mesopotamian plains have been intensively farmed and irrigated by a canal network right up to the present day. Dating canals is an extremely difficult task, because unless they are clearly associated with settlements which flourished in a certain period, only a probable chronological assignment can be postulated. Earlier canals were often reused and objects found in a canal bed give only a *terminus post quem* for their use. Nevertheless, in recent years a great deal of work has been done combining data from archaeological surveys, aerial and satellite imagery, and written sources. Maps showing settlements, canal remains, and reconstructed canal courses are available for the Diyala region in the 4th and 3rd millennia BC (Adams 1965: Fig. 2) and for the southern Mesopotamian plain in the 3rd millennium (Adams and Nissen 1972: 36, Fig. 17; Adams 1981: Figs. 29–31; Steinkeller 2001: 40, map 1). More accurate results using modern mapping technologies are available for the region between Ramadi and Babylon in the 2nd and 1st millennium BC (Cole and Gasche 1998: 49, maps 8, 9, and 51).

The principal purpose of the irrigation network was to supply the grain fields with sufficient water at the right time, a purpose connected with the solution of certain problems (Postgate 1992: 176–83) including (1) supply: water had to be directed onto the fields (canals, regulators); (2) storage: water had to irrigate the fields at the right time and as long as necessary (reservoirs); (3) drainage: fields had to be drained if water was no longer necessary in order to avoid damage (e.g., salinization); and (4) protection: fields had to be protected against water surplus (levees). The cuneiform texts show that the Sumerians were well aware of these technical problems. The rulers of the 1st Dynasty of Lagash (c.2600–2450 BC) mention in their building and votive inscriptions irrigation works, in particular the construction or repair of canals (Laurito and Pers 2002). A great deal of manpower was expended for the construction of permanent works made of bricks and bitumen, which served to convey water from a main canal. The regulation of the flow occurred most probably by means of removable wooden beams (Sum. **geš-keš-du**), built for instance by Enmetena and Uruinimgina. An impressive structure excavated at Telloh (ancient Girsu) may represent one such regulator (Parrot 1948: 211–19; Dight 2002), and inscriptions of king Pirigme (c.2200–2150 BC) found in situ mention that he built one (Edzard 1997: 12–13). From this period we have also the first report of conflicts surrounding the use of irrigation water, in particular the long-standing conflict between the cities of Lagash and Umma concerning the water supply for the Gu'edena, a fertile area of cultivation located between them (Cooper 1983a).

The construction and ongoing maintenance of hydraulic works required formidable labor organization. As shown by numerous economic and administrative documents of Ur III date (2100–2000 BC) – e.g., from Umma (Tell Jokha) – this task was undertaken by the state. Canals, levees, reservoirs, and water outlets were examined and measured to identify damage or blockages. Information about the number of workers, the duration and the kind of the maintenance work is also documented in the texts (Sauren 1966; Waetzoldt 1990). A Sumerian literary work dating from the 18th or 17th century BC contains instructions from a farmer to his son and describes the tasks to be performed throughout the agricultural year (Civil 1994). Before the first irrigation by flooding, which took place at the time of the spring high water (April–May), the dykes and irrigation channels were to be thoroughly checked. Thereafter, the cultivated plants were watered four times during their growth cycle.

According to a widespread view, increasing soil salinization should have led to a decrease of productivity and the decline of the Sumerian culture by the late 3rd or early 2nd millennium BC (Jacobsen and Adams 1958; Jacobsen 1982). Even if this theory has been shown to be incorrect (Powell 1985), salinization was a real problem at that time. The measures undertaken against it cannot be clearly identified in the texts, but fallow was apparently carried out as well as the leaching of the soil (Powell 1985: 36–8).

The tradition of irrigation agriculture initiated by the Sumerians was continued from the 2nd millennium onwards in Babylonia. Cuneiform texts from the Old,

Middle, and Late Babylonian periods deal with the construction and maintenance of the canal network as well as with the accumulation of silt in canal beds and the use and regulation of irrigation water. Economic and administrative documents, as well as letters from Larsa (Tell Senkereh) dating to the early 19th century BC, contain valuable information about irrigation there (Walters 1970). They refer not only to the excavation of canals, but also to surveys, silting, and the organization of manpower. It is not always possible to decide whether the information concerns the excavation of a new canal or the dredging of a silted-up canal, because the terminology is undifferentiated. Royal inscriptions mention canalization work on the Tigris undertaken by Sin-iddinam (Frayne 1990: 160, ll.39–70) and the excavation of the Mami-sharrat canal by Rim-Sin (Frayne 1990: 291–3). The rulers of the 1st Dynasty of Babylon, of whom Hammurabi is the most famous, also dealt intensively with irrigation works (Renger 1990). Legal and administrative documents, and especially letters, give detailed information about the problems to be solved. In some cases, Hammurabi or one of his officials gave instructions about the measures to be taken when either too little or too much water was available for irrigation (Kraus 1968: Nos. 13, 18, 19, 39, 74, 80, 85, 109, 114, 131). A rich technical terminology was used in these texts for different types of canals, weirs, maintenance work (Stol 1976–80), and different fields (Stol 1988).

From the Late Babylonian and Persian periods come thousands of texts with information about the organization of agriculture. Relevant legal and administrative documents have survived from archives of the Ebabbar (Shamash temple) at Sippar (modern Tell Abu Habbah; Jursa 1995) and the Eanna (Ishtar temple) at Uruk (modern Warka; Cocquerillat 1968). In addition, there are private archives of entrepreneurial families, such as the Egibi of Babylon (Wunsch 2000) and the Murashu of Nippur (Stolper 1985). These texts from temple and private archives deal primarily with lease contracts and agriculture personnel and deliveries, and less so with irrigation itself. Nevertheless, a rich technical vocabulary and numerous canal names are attested (Zadok 1985; van Driel 1988). The royal administration was responsible for the supervision of the canal system and the main irrigation projects, even if the work was carried out by local institutions. Tenants were responsible for the excavation and maintenance of the smaller canals that irrigated their own fields. This included oversight of canals, reservoirs, and dams in order to avoid flood damage.

3 The Middle Euphrates

The Middle Euphrates valley between the Syrian cities of Abu Kemal and Deir ez-Zor is an arid region with less than 150 millimeters of annual, highly irregular rainfall and fewer than 40 days of rain per year. The dry season is long, temperatures are high, the groundwater has a high concentration of chlorides and sulfates,

and arid winds (*khamsin*) blow in spring and summer. Under such conditions, dry-farming is impossible and agriculture requires irrigation. The spring flood (March–May) is violent and irregular, and the flash floods of the affluent *wadis* occur earlier (February–March) and are even more destructive. The river meanders at the bottom of the valley, about 30–40 meters below the level of the plateau. Nowadays, the Euphrates flows on a terrace formed in Roman and Islamic times (an "historical terrace"), some 2 meters below the level of the Holocene terrace where most archaeological sites are located. The width of the valley varies from 6 to 14 kilometers on the right bank but is much narrower on the left bank. The widenings and narrowings of the valley form three main basins, known in the literature as *alveoli*; the northern one extends from Deir ez-Zor to Bouqras, the middle one from Bouqras to Dura Europos, and the southern one from Dura Europos to Abu Kemal (Geyer 1990b: 63–6). In the last mentioned region lies Mari (modern Tell Hariri), which played an important role from the 3rd millennium to its destruction by Hammurabi in the middle of the 18th century BC.

The Middle Euphrates valley has been extensively surveyed by archaeologists and geographers, and many studies have been devoted to the relationship between Mari and its environment (Geyer and Monchambert 1987). One of the results of these surveys was the discovery of ancient canal remains. In addition, agriculture and irrigation are well represented in the letters found in the palace archive of Zimri-Lim, the last king of Mari. The official correspondence deals with the irrigation of the administrative units of Mari, Terqa, and Saggaratum. As well as the repeated complaints about a shortage of workers, the letters inform us about different aspects of canal maintenance, the protective system of weirs and dams, as well as the extent of water damage, using specific technical terms (Durand 1990, 1998: 573–653; Lafont 2000). Three main canals are mentioned in the sources: the Ishim-Yahdun-Lim canal (on the right bank of the Euphrates), the Mari canal (also on the right bank), and the Khabur canal (on the left bank). Fields up to 1 kilometer away from the river could be watered directly by drawing water from the Euphrates with simple water-lifting devices. In order to irrigate larger areas further from the river, however, an irrigation system was necessary, involving canals fed by the Euphrates or the Khabur. In fact, the different parts of the valley were referred to by specific terms, and a distinction was made between "fields irrigated by means of water lifting" (*daluwatum*) and "fields irrigated by means of canal water" (*mašqitum*).

With respect to the amount and quality of the available archaeological and written sources, the Middle Euphrates valley seems to be an ideal case for the reconstruction of ancient irrigation. Nevertheless, correlating data from archaeological sources and texts is both difficult and contentious. On the one hand, it is not easy to date canals, as they may have been reused over time (Monchambert 1987). On the other, the information in the sources, however rich, is restricted to a short period of time, lasting only a few decades, within the many centuries

during which the kingdom of Mari existed. On the right bank of the Euphrates the remains of a main canal were discovered, the course of which could be followed for more than 17 kilometers. The longest stretch, more than 1 kilometer, was discovered some 6 kilometers north of Mari. The canal bed is c.20 meters wide and has impressive dykes extending over almost 100 meters. The canal was certainly used for irrigation, and traces of some minor off-take canals were also found. This is the most probable candidate for the Mari canal mentioned in the texts. As agriculture at Mari was impossible without irrigation, the canal has been dated by the excavator to the 3rd millennium BC, contemporary with Mari's foundation (Margueron 2000: 75–9).

A second irrigation canal, on the right bank of the Euphrates south of Deir ez-Zor, could be followed over a distance of 30 kilometers. The remains of three secondary canals branching off from the left bank of the canal were also discovered. Known in the Islamic period as Nahr Sa'id, this canal was probably in use in the Bronze Age, and is a good candidate for the Ishim-Yahdun-Lim canal mentioned in the Mari texts as flowing from the city of Dur-Yahdun-Lim (Deir ez-Zor?) to Terqa (Tell Ashara). Another main canal, the Nahr Daurin, is located on the left bank of the river and was at least 110 kilometers long. It has been suggested that it was already being used for navigation in the Bronze Age. However, both its function and dating are controversial. Finally, another, shorter canal ran directly to Mari from the Euphrates and seems to have supplied the city with water.

The Lower Khabur valley, to the northeast of the kingdom of Mari, was also intensively surveyed from an archaeological and geomorphological point of view in the late 1970s, by a German team. The Khabur is the main tributary of the Middle Euphrates. The region around the Assyrian provincial center Dur-Katlimmu (modern Tell Sheikh Hammad) lies between the 100 and 200 millimeter isohyets – i.e., in a risk zone where crops can only be guaranteed by means of irrigation. In fact, a late Middle Assyrian text (10th century BC) mentions the repair of a canal in the Khabur region. Further information about irrigation is scarce, but Middle Assyrian letters from Tell Sheikh Hammad and a Neo-Assyrian inscription of Tukulti-Ninurta II (890–884 BC) mention irrigated fields and a canal related to the Khabur (Bagg 2000: 56–9). Ancient canals have been discovered and carefully mapped on both banks of the Khabur (Botsch 1986; Ergenzinger and Kühne 1991; Stellmacher 1991). They are 7 meters wide at the base, 8.5 meters wide at the water level, 1–1.5 meters deep and could be followed over a distance of 250 kilometers. The average slope is 0.03 percent. The western canal (called Nahr Ham'a) was fed by the Khabur, whereas the eastern canal (Nahr Daurin) was fed by the Wadi Jagjag.

Most probably these canals were multifunctional, serving for irrigation, navigation, the regulation of the Khabur in the flood season, and water supply (Morandi Bonacossi 1996: 97–9). As in the case of the Middle Euphrates canal system, the dating of the Khabur canals is problematic. The excavator dates the eastern canal,

which terminated at Dur-Katlimmu, to the Middle Assyrian period (13th century BC) and the western canal to the Neo-Assyrian period (9th–7th century BC; Ergenzinger and Kühne 1991). Thereafter, both were in use from the Hellenistic to the Islamic period. However, considering the settlement pattern of the Middle Assyrian period, a regional canal system at this time seems improbable (Morandi Bonacossi 1996: 100–1). On the contrary, considering that Dur-Katlimmu grew from 15 to 100/120 hectares in the Neo-Assyrian period, the exigencies of feeding a larger population makes the construction of both canals in the 8th or 7th century BC more probable. With the addition of a regional irrigation system, the agricultural potential of the Lower Khabur valley must have been very high, and a population of 30–45,000 is reasonable to suggest (Morandi Bonacossi 1996: 194–204). The navigability of the canals has been studied and proven (Botsch 1986: 74–86; Ergenzinger and Kühne 1991: 175). Navigation in the Lower Khabur valley is not attested in the written sources, but reference to a navigable "canal of Suhu" on the Middle Euphrates in an 8th century BC inscription (Bagg 2000: 58–9) makes the idea of navigable canals in the Lower Khabur valley plausible.

4 Northern Mesopotamia (Assyria)

Because of an over-simplified opposition – "irrigation agriculture in Babylonia/dry-farming in Assyria" – the achievements of Assyrian hydraulic engineers in the field of irrigation were long overshadowed by those of their southern neighbors and even misunderstood as luxury works for watering royal gardens. However, as noted above, the border between the dry-farming zone and areas in which irrigation is necessary is not a clear line, but rather a transitional zone about 400 kilometers wide between the 100 and the 400 millimeter isohyets. Rainfall varies from year to year. Rain falls from December to March, often heavily, but with strong variations in both geographical distribution and amount. All these variables have a dramatic effect on the success or failure of the harvest. Considering that climatic conditions have not changed much during the past 6,000 years, it is clear that dry-farming was not possible in Assyria – particularly in the south – without high risk. Irrigation was necessary to guarantee crops and to raise yields. This is why the Assyrian kings carried out irrigation projects near their capitals, where a large population had to be nourished. As the diversion of water from the Tigris was difficult because of the difference in elevation between the river and the fields (up to 7 meters), water was instead conveyed over relatively long distances to the capital cities by means of main canals, mainly from the Greater Zab, the Khosr, the Atrush, and the Wadi Bastura. The Assyrians investigated the water resources of the neighboring mountain regions, diverting water from mountain streams and springs into canals. *Wadis* were even canalized and integrated into the canal system. The water was conveyed not only by artificial canals

to the cities. Low-volume rivers, like the Atrush and the Khosr, were also used as canals, fed with additional water.

In the 14th century BC Assyria was a small kingdom in northern Iraq. After several phases of expansion, by the 7th century BC the Assyrian empire encompassed the entire Middle East from Iran to Egypt. The cities which functioned as capitals all lay near the Tigris in Assyria's heartland, the borders of which were the Zagros mountains to the north and northeast, the Lesser Zab river to the southeast, Jabal Makhul in the southwest, and the Wadi Tharthar in the northwest. Assyrian irrigation projects are attested in written sources from the twelfth to the 7th century BC. With the help of cuneiform sources, iconographic material, and archaeological remains, it is possible to reconstruct the history of irrigation in Assyria and to understand the relevant technical terminology (Bagg 2000).

The foundation of a new capital or the enlargement of an existing city to turn it into a capital is well documented in Assyrian history. The old commercial and cultic center of Assur (Qalat Sherqat) on the west bank of the Tigris was the capital in the Middle Assyrian period (14th–11th century BC) and the most important cultic center during the whole of Assyrian history. However, with an area of 70 hectares, it remained the smallest of all Assyrian capitals. The first of a series of new foundations was undertaken by king Tukulti-Ninurta I (1243–1207 BC), who established a royal residence on the east bank of the Tigirs, only 3 kilometers upstream from Assur, and called it Kar-Tukulti-Ninurta – i.e., "Tukulti-Ninurta's Harbor" (modern Tulul Al 'Aqar). According to cuneiform sources, the king looked for additional water resources in the mountains and directed spring water to the town to convert an uninhabited area into irrigated fields. The new city was also inhabited in the Neo-Assyrian period (10th–7th century BC) and was at least three times larger than Assur. It is clear that the Kar-Tukulti-Ninurta was planned for a large population and that irrigation was an important factor which had to be considered from the outset. The remains of a canal which flowed through the city were already discovered during the first excavations, as well as another canal, which came off the Tigris to the north of the city. Further canals were found in the Makhmur plain to the west of Kar-Tukulti-Ninurta. The dates of these canals are unknown and they may have been in use in later periods.

The first of three cities which successively became imperial capitals in the Neo-Assyrian period was Kalhu (Nimrud) on the east bank of the Tigris, about 8 kilometers upstream from its junction with the Greater Zab. Assurnasirpal II (884–859 BC) built there for 15 years and turned the city into a new royal residence extending over 360 hectares. In his inscriptions the king wrote that he dug a canal from the Greater Zab called "Canal of Abundance." His purpose was to irrigate the fields and gardens in the flood plain of the Tigris. Assurnasirpal II also described in detail a watered "pleasure garden" planted with exotic trees (Grayson 1991a: 290, ll.36–52). It is not known how much land was irrigated, but estimates range as high as 2500 hectares. Assurnasirpal II's "Canal of

Abundance" was already identified in the 19th century and can be traced as a rock-cut channel along the right bank of the Greater Zab for some 8 kilometers from the village of Quwair to a point about 5 kilometers before the river joins the Tigris, where it flows in a northwest–southwest direction, to the southeastern corner of Kalhu. During part of its existence, the canal was fed by a rock-cut tunnel, the so-called Nagub tunnel, which passes through a conglomerate bluff on the right bank of the Greater Zab. An inscription found in situ mentions restoration works carried out 200 years later by the Assyrian king Esarhaddon (680–669 BC). Although badly damaged, the inscription refers to the repair of Assurnasirpal II's canal, which no longer functioned because of an accumulation of sediments.

Kalhu remained the Assyrian capital until Sargon II (721–705 BC) decided to found a new royal residence covering 300 hectares, about 50 kilometers away, called Dur-Sharrukin "Sargon's Fortress" (Khorsabad). The city was built over the course of 12 years and was probably never finished, as the king died unexpectedly on the battlefield. Sargon presented himself as someone interested in land reclamation, the planting of orchards, the search for additional water sources in the mountains, and land irrigation. One of the reasons given for the construction of the new city was to provide Assyria with abundant food. The texts mention the construction of a canal, but there is no evidence that it was ever built. In the tradition of importing exotic botanical specimens for their acclimatization in Assyria (for which purpose irrigation was needed in more than one case), initiated by Tiglath-pileser I (1114–1076 BC), Sargon planted a new type of royal garden characterized not only by its exotic flora, but by a newly created landscape of ponds and artificial hills with pavilions on top. This park is depicted in reliefs from Sargon's palace (Bagg 2000: 156–9, Pls. 32–36). We do not know if the park was watered, but similar gardens created by Sargon's successors were certainly irrigated, as shown below.

Sargon's son Sennacherib also decided to change his residence and enlarged the old city of Nineveh, located where the Khosr joins the Tigris. He surrounded it with a 12 kilometer-long city wall and made it into the most splendid of all the Assyrian capitals, covering an area of 750 hectares. To supply the new capital and the surrounding fields with water, Sennacherib undertook the most ambitious hydraulic project in Assyrian history: four canal systems, altogether more than 150 kilometers long, with canals and canalized watercourses, tunnels, aqueducts, and weirs. Sennacherib's inscriptions enable us to follow the realization of this project between about 702 and 688 BC. In addition, the archaeological remains detected through surveys and satellite imagery have been essential in reconstructing this system (Ur 2005). To supply Nineveh with water, new resources were tapped between the city and the eastern mountains and directed by four canal systems which reached the town from different directions following a radial pattern. The principal purpose of this enterprise was to increase the size of the cultivated area around Nineveh (Bagg 2000: 169–224).

The construction of a canal which ran from the river Khosr near the city of Kisiri, some 16 kilometers away from Nineveh, was the first step in Sennacherib's irrigation program. Together with a royal park, this canal is mentioned for the first time in 702 BC. Grape vines, fruit and olive trees, spice plants, and cypresses grew in this park. Also connected with this phase of the project was the granting of land to the inhabitants of Nineveh for the establishment of orchards north of the city. These were watered by secondary canals and ditches. The main function of the large canal was therefore the irrigation of the orchards above the town. Remains of a canal which approached the town from a northeasterly direction were discovered in the 19th century.

The next step in the development of Nineveh's irrigation network was the construction of the Mount Musri canal system, from c.694 BC. During the seven years which separate these projects the city-scape changed considerably. In 699 BC an artificial swamp was created which served for the regulation of high water in the canal during the spring. Reeds from this marsh were used as building material in the palaces. Moreover, two further gardens were established to the north of the city, in the same area where an aqueduct was built. Spring water from Mount Musri (Jabal Bashiqa, about 20 kilometers away from Nineveh) was led into reservoirs and by means of canals and/or canalized *wadis* to the Khosr. How the water was then brought to Nineveh is unknown, because no remains of this canal system have yet been discovered. The Mount Musri canal system was constructed to irrigate orchards and grain-fields to the south of the city in the summer months.

The northern canal system was a combination of natural and artificial water-courses, by which the fields that lay to the north of the town, between the cities of Tarbisu (modern Sharif-Khan) and Nineveh, were watered, allowing cereals and sesame to grow there. This canal system probably represents the third step in Sennacherib's hydraulic program and was undertaken between 694 and 691 BC. Three stretches of the northern canal system have been identified in the field and the existence of a fourth has been postulated (Oates 1968: 50–51; Reade 1978: 158–65; Ur 2005: 325–35). The system collected the water of several *wadis*, namely the Rubar Dahuk, the Wadi Bahandawaya, and the Wadi al-Milah. In connection with the canal works, rock reliefs were carved at Maltai, Faida, and Shiru Malikta. The last stretch of this canal system, from the juncture of the Wadi al-Milah with the Tigris to the city, ran parallel to the river and reached Nineveh from the northwest.

The Khinis canal system, built c.690 BC, was the last stage in Sennacherib's irrigation program. The Gomal river, which rises in the Kurdish mountains, was dammed near the village of Khinis (about 50 kilometers northeast of Nineveh) and brought to a tributary of the Khosr by means of a main 35 kilometer-long canal known as "Sennacherib's canal." The canal head, a masterpiece of Assyrian hydraulic engineering, comprised a dam, intake works, and a 300 meter-long canal, with stone parapets and a tunnel. From this tunnel the water was conducted

via a rock-cut channel. The canal head was located in a gorge to the north of Khinis, where the remains of these works were found together with gigantic rock reliefs and inscriptions. Halfway down to Nineveh, near the village of Jerwan, it was necessary to build an aqueduct for the canal to cross a valley. The aqueduct was 280 meters long, 16 meters wide and 7 meters high (9 meters, including the parapets). It was supported by five corbeled arches (Jacobsen and Lloyd 1935). Some stone blocks were carved with inscriptions, in which the king appears as the builder of the aqueduct and the canal. This was the only hydraulic engineering project which could have supplied the area north of Nineveh as well as the southern area with irrigation water.

In connection with the first step in Sennacherib's irrigation works a park related to the palace was mentioned above. On a wall relief from Assurbanipal's North Palace at Nineveh a hilly park appears (Figure 14.3). On top of a hill planted with broad-leafed trees and conifers stands a pavilion and a stele on which the king is depicted. A canal, fed by an aqueduct, flows from right to left. Its corbeled arches closely resemble those of the Jerwan aqueduct. Many secondary canals or ditches branch off from the feeder canal. This scene probably shows one of Sennacherib's parks, which was fed with irrigation water by means of an aqueduct built in or near Nineveh (Bagg 2000: 196–8).

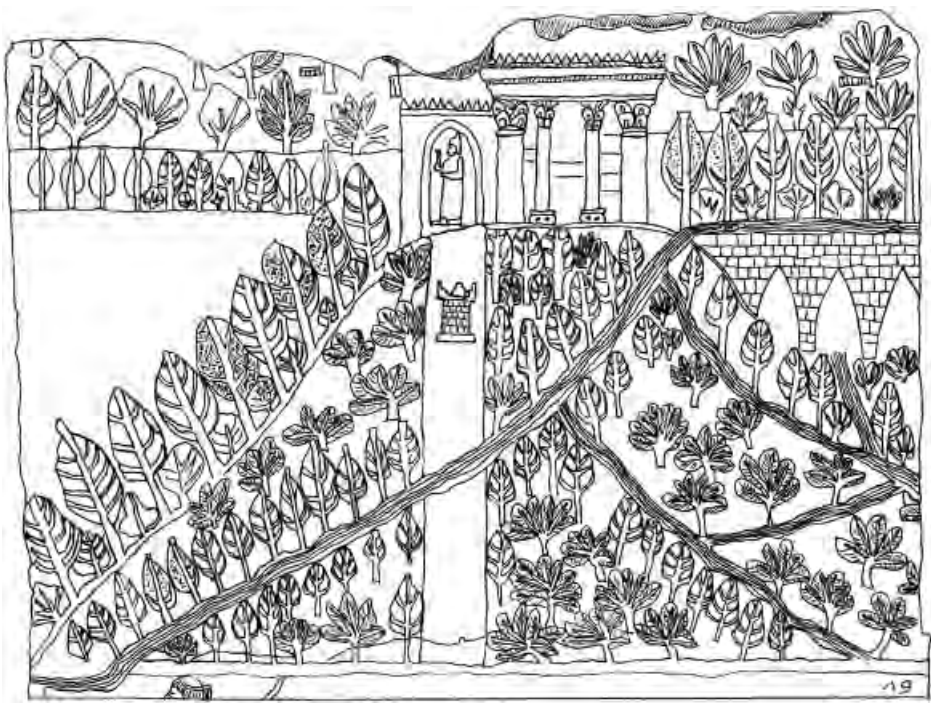

Figure 14.3 Irrigated park with aqueduct (7th century BC) at Nineveh, North Palace (BM 124039) (drawing by the author).

GUIDE TO FURTHER READING

For the environmental conditions in the Ancient Near East see Butzer (2000); for the regime of the Tigris and the Euphrates see Ionides (1937). The standard work about agriculture in Iraq is Wirth (1962). Booher (1974) offers a very clear explanation of surface irrigation techniques. Interesting studies concerning irrigation agriculture in Syria are collected in Geyer (1990a). A concise history of ancient Near Eastern irrigation according to the written sources can be found in (Bagg 2003). Excellent studies on the written sources for Mesopotamian irrigation can be found in *BSA* 4 (1988) and 5 (1990). A study of the available sources on water lifting devices in the ancient Near East is offered in Bagg (2001).

For the earliest irrigation in Mesopotamia, see Oates (1969) and Helbaek (1972). An accurate summary of irrigation in southern Mesopotamia can be found in Postgate (1992: 173–90). A brief English discussion of irrigation agriculture at Mari is offered in Lafont (2000); for the excavator's description of the canal remains at Mari, see Margueron (2000: 68–82). For a short and precise summary of the Khabur canals and agriculture in the region, see Morandi Bonacossi 1996: 95–101, 194–204), and Ergenzinger and Kühne (1991). For a comprehensive study of Assyrian irrigation works, see Bagg (2000). For hydraulic works probably related to irrigation in Urartu (Lake Van area), see Garbrecht (2004). For the cuneiform sources concerning water rights, see Bagg (2000: 63–72).

CHAPTER FIFTEEN

Ceramic Production

Cameron A. Petrie

1 Introduction

Since their invention, fired ceramic vessels have played a critical role in day-to-day activities, particularly in fundamental acts like collecting, transporting and storing water, and storing and preparing food. Ceramic vessels have several physical attributes that make them ideal for carrying out these functions, in that they are, to varying degrees, robust, waterproof, and resistant to impact and thermal shock. During the early history of production and use of ceramic vessels in the ancient Near East, there was a range of technological developments that resulted in improvements in one or more of these attributes and several associated developments that saw increases in the rate at which vessels could be produced and the range of physical forms that could be achieved.

It is often noted that ceramic vessels, or at least their fragments, are the most ubiquitous artifacts recovered at archaeological sites dating from the Pottery Neolithic onwards in the ancient Near East. This is a result of several factors, including the prevalence of the basic raw materials from which vessels are made, the relative ease and speed of their manufacture, their extensive use by ancient populations, and their excellent preservation in a range of environmental conditions. Combined, these factors mean that pottery survives well in the archaeological record. Ceramic vessels are also arguably the one category of artifact that has been most widely used by archaeologists in their analysis and interpretation of archaeological sites in the ancient Near East. Since the late

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19th century, various characteristics of ceramic vessels, including forms, fabrics, manufacturing techniques, and surface decoration techniques, have been used for demarcating cultural groups and as markers of diffusion, ethnicity, and chronological change. There has, however, been an increasing acknowledgement that the range of stylistic and technological information that pottery vessels exhibit provides insight into the social, economic, political, and/or technological contexts in which those vessels were produced and a recognition that pottery vessels provide important insight into the lives of the people who made and used them. It is thus worth investigating the history of ceramic production in the ancient Near East for what it can tell us about social, technological, and economic change over time.

The firing of clay to make robust and resilient items was an important technological development that came into widespread use across the entirety of the ancient Near East during the Neolithic period. It is, however, important to situate this process in the wider context of human development. The recognition of the properties of clay and mud, and the uses to which they could be put, such as making objects and plastering, was undoubtedly an important conceptual development and marks a significant cognitive step in human engagement and increasing entanglement with matter (Renfrew 2001, 2004; Hodder 2005). Clay is different from many raw materials as it is ideally suited for use in additive technologies. Its plastic properties mean that lumps of raw material can be added to and shaped in ways that are limited by the potter's skill, cultural milieu, and imagination. This process is notably different from reductive technologies like lithic flaking and bone working that both involve producing finished artifacts from raw materials that must be shaped through the permanent removal of extraneous material, and the distinction is exemplified by Prudence Rice's observation (1987: 3) that pottery was the first synthetic material created by humans – an artificial stone.

Unlike craft products that are made from rare or exotic raw materials (e.g., copper, tin, gold, semi-precious stones, etc.), ceramic vessels are made from clay which is available in a range of environmental contexts throughout the Near East. Given the ubiquity of the basic raw material and the range of diachronic and synchronic variation in approaches to fabric preparation and the forming, decorating, and firing of vessels, it is not feasible to present a comprehensive discussion of ceramic production in the ancient Near East region by region. What follows will therefore be an outline of the evolution of ceramic production in the ancient Near East from the earliest evidence for the creation of ceramic vessels up to the Achaemenid period. This will incorporate an overview of the types of raw materials and manufacturing techniques that were employed. A discussion of how the organization of ceramic production changed over time with some examples from different regions will then be given, followed by some suggestions about the ways in which technological innovations and ideas dispersed over time and across space.

2 The Evolution of Ceramic Production in the Ancient Near East

There is evidence from the early Pre-Pottery Neolithic (PPN) period for the use of clay to produce objects like figurines, tokens, storage bins, and basket linings (e.g., at Ain Ghazal, Jericho, Jerf el-Ahmar, Tell Ramad, Dja'de al-Mughara, Mureybet, Tell Sabi Abyad, Çatal Höyük, and Çayönü). It is, however, only in the Pottery Neolithic, after c.6500 BC, that we find widespread evidence for the regular use of fire to harden clay vessels. This appears to have occurred after several incipient stages of ceramic production, for prior to the first appearance of fired ceramic vessels, there are several notable instances in various regions of the use of additive technologies in the production of objects using clay and lime plaster.

The artifacts that are most similar to fired clay vessels in terms of both function and production technology are the so-called *vaisselles blanches* or "white ware" vessels, which have been found at settlements across much of the Fertile Crescent in deposits dating to the PPNB period (Kafafi 1986: 54; Moorey 1994: 149). The production of white ware vessels is believed to have originated in Syria before spreading across the whole of the Levant and as far away as southwestern Iran (cf. Abu Hureyra, Umm Dabaghiyah, Yarim Tepe, and Chogha Sefid: Kafafi 1986: 54; Moorey 1994: 149; Moore et al. 2000: 201–2). These vessels were produced from a variety of raw materials obtained from natural rocks, chalky limestone, or plaster and were formed by hand, molded using natural objects, or even carved (Mellaart 1975: 62–3; Kafafi 1986). X-ray diffraction analysis has shown that examples from sites in Syria were fired at temperatures of around 1000°C (Périnet and Courtois 1983).

Another notable instance of an early additive technology is the tradition of plastering skulls, which is evidenced at several sites in the central and southern Levant, and also as far afield as central Turkey during the PPNB period (cf. Jericho, Beisamoun, Nahal Hemar, Ain Ghazal, Tell Ramad: Goren et al. 2001; Köşk Höyük: Özbek 2009). In technological terms, all these skulls were coated with a burnt lime plaster that was then modeled. There was, however, a high degree of intra-site variability in modeling methods and materials, and a pronounced degree of inter-site typological variability (Goren et al. 2001). Compositional and petrographic analyses have been undertaken on several skulls and Goren et al. (2001: 688) have observed a mixture of crushed calcite and high iron minerals in the plastering paste, which they believe was added for decorative purposes. They have suggested that the deliberate use of particular minerals for decorative purposes may have been an unintended technological precursor to the later addition of similar minerals to clay to produce impact and thermal-shock-resistant products.

Vandiver (1987: 27–8; cf. Moorey 1994: 149) has argued that, although figurines and other objects made of clay might be considered technological precursors

of pottery, the composition of the raw materials and the forming techniques used were not the same as those used for early pottery. She has therefore emphasized the importance of two other pre-ceramic technologies that are well attested archaeologically: the use of clay and mud for building and the use of lime and clay for plastering. Building methods making use of lumps, layers, and slips made from clay and/or mud mixed with straw (*chineh*) and plastering practices in which clay and lime were mixed together are both evident in the PPN. There is also evidence that baskets were used to form the bases of molded plaster bowls – e.g., at Abu Hureyra (Syria), Ali Kosh and Hajji Firuz (Iran), and Mehrgarh (Pakistani Baluchistan) (Vandiver 1987: 27–8; 1995; Moore et al. 2000: 201–2). There is little doubt that a number of the technological processes in use during the late PPN were very similar to those required to manufacture pottery vessels.

The earliest evidence of fired ceramic vessels in the ancient Near East comes from level D (the "burned village") at the small village site of Ganj Dareh, in the central Zagros region of western Iran. There, lightly fired vessels made from a chaff-tempered (temper being a mineral or vegetal additive to the clay, in this case chaff, finely chopped hay, or other plant matter) coarse ware and ranging from 5 to 80 centimeters in height were found in small storage rooms (Smith 1970: 179; 1972; 1975; 1990; Mellaart 1975: 78). These are the earliest known attempts to produce software ceramic vessels (Smith and Crépeau 1983; Smith 1990: 324; Le Mière and Picon 1998). However, the Ganj Dareh D vessels appear to have been fired and hardened at least partially as a result of an intense fire that affected this entire level (Yelon et al. 1993: 592). Thus, it is not certain that the level D vessels are the earliest, deliberately fire-hardened examples of pottery in the Near East. However, vessel fragments from the following Ganj Dareh levels C–A show signs of having been baked under highly variable conditions, most probably over open fires (Yelon et al. 1993). It is also notable that evidence of kilns for the preparation of lime was found in levels D and A (Smith 1972: 167; 1975: 179; 1990), indicating an awareness of the transformative power of fire and suggesting that lime-making technology was more advanced than ceramic technology at this date (Yelon et al. 1993: 606; cf. Frierman, 1971; Gourdin and Kingery 1975).

Later, there is evidence of either the independent development of ceramic production technology in several areas and/or an extremely long-range transmission of the idea of fired-clay vessels and the techniques required for their production. Le Mière and Picon (1998; cf. Le Mière and Nishiaki 2005) have identified several regions where sites present what they have defined as the first or primitive stage in the development of ceramic production techniques, akin to those seen at Ganj Dareh. These include Tepe Guran (level S) in the central Zagros south of Ganj Dareh (undecorated greyish brown ware; Meldgaaard et al. 1963: 113); Ras Shamra and Ain el-Kerkh in western Syria (Le Mière and Picon 1998); and Çatal Höyük (Levels XII–IX) in central Turkey (cream burnished ware; Mellaart 1964: 82–4; 1966: 170; Last 2005: 127). Le Mière and

Picon's (1998) second phase of development is characterized by simple shapes made of clay that predominantly had vegetal but occasionally grit temper, a burnished surface, and occasional painting. These forms are widely distributed in western Syria (e.g., Ras Shamra, Tell el-Kerkh), the Khabur, Balikh, and Euphrates valleys of northern Syria (e.g., Tell Seker al-Aheimar, Tell Sabi Abyad, and Tell Halula), southeastern Turkey (e.g., Akarçay Tepe, Mezraa Teleilat, and Salat Camii Yani), and northern Iraq (e.g., Ginnig) (Le Mière and Picon 1998: 12–14; Nieuwenhuyse et al. 2010). The earliest ceramics from Tell Seker al-Aheimar have basalt mineral temper and a burnished surface. These have been described as "Pre-Proto-Hassuna" (Le Mière and Nishiaki 2005) and are similar to the early material from Tell Sabi Abyad, Akarçay Tepe, Mezraa Teleilat, and Salat Camii Yani (Nieuwenhuyse et al. 2010). Tell el-Kerkh is marked by the co-occurrence of Kerkh ware, dark-faced burnished ware, and coarse ware, the first two made with grit and the last with vegetal temper (Tsuneki and Miyake 1996; Le Mière and Picon 1998: 12–14). This suggests that various approaches to production were in use simultaneously and that there was considerable variation and experimentation in fabric preparation in the early phases of production, as well as exchange or trade in those vessels. Le Mière and Picon's (1998: 15; Le Mière and Nishiaki 2005) third phase saw the widespread promulgation of ceramic technology throughout the Fertile Crescent and was marked by regional diversity in the use of fabrics, surface finishes, forms and decorative styles.

The use of fired ceramics is traditionally considered a defining characteristic of the Neolithic, so much so that this technological innovation has been used as a key chronological marker to differentiate the earliest "Pre-Pottery" from the later "Pottery" Neolithic phase. This descriptive terminology was initially established by Kathleen Kenyon for the deposits at Jericho (e.g., Kenyon 1960) and it is now commonly used in discussions of the early village phases in the Levant and the eastern Fertile Crescent.

The production and use of ceramic vessels became common during the mid–late 7th millennium BC, such that by c.6100 BC they were being used throughout most of the Near East (northern, central, southwestern, and western Iran; northern Iraq; Syria; central Turkey; the northern Levant). Fired pottery was still rare, however, in eastern Iran (Tepe Yahya VIID and Tepe Gaz Tavila) and the southern Levant (Yarmukian) until the mid-6th millennium BC (Petrie 2011; Garfinkel 1993: 131). This indicates that either pottery was not invented in these areas, or there were constraints to the dispersal of potting technology into certain areas. The fact that the earliest evidence of pottery production in Pakistan only dates to the mid-6th millennium BC (Mehrgarh period IIA; Jarrige 2000; Petrie et al. 2010) appears to support this suggestion.

The earliest true ceramic vessels that saw widespread use consisted of a limited range of simple, vegetal-tempered forms with a burnished or polished surface (Le Mière 1989; Moorey 1994). Following the initial phase, when vegetal and/or mineral temper was used in different areas, a "software" tradition that utilized

vegetal-tempered clay to manufacture vessels became widespread (Vandiver 1987; cf. Dyson 1965: 217). These vessels were hand-made using chaff-tempered, montmorillonite clay. They had thick walls, were lightly fired and very crumbly; Vandiver (1987: 25; cf. Moorey 1994: 149) has suggested that the friable nature of the fabric used to make these early softwares resulted from the potters not allowing the clay/fiber mix to stand in a wetted condition (i.e., to "age") before use, thus preventing the fine clay particles from getting thoroughly wet. The use of fibrous temper also made it impossible to make true coils (a common technique used all over the world to make pottery is to build up a series of coils of clay from the base to the rim, in order to create a vessel), so that small lumps and slabs had to be used. Vandiver (1987) has called this technique "sequential slab construction". Vessels made in this way have been found at sites throughout Iran, in Mesopotamia (Hassuna and Samarra traditions), and at sites as far west as Egypt (Badarian/Tasian and Delta cultures) and as far east as Pakistan (Mehrgarh IIA/Kili Gul Mohammad periods) (Vandiver 1987). The density of the fabric, the size and density of the chaff temper and the degree of surface finishing vary from region to region, but, in essence, sequential slab construction appears to represent one, supra-regional potting tradition, implying that socioeconomic and cultural mechanisms facilitated the transfer of this technology (Petrie 2011).

In northern Mesopotamia the first widespread ceramic tradition was the primarily vegetal-tempered "Proto-Hassuna" ware, a software attested at Tell Sotto, Telul eth-Thalathat, Umm Dabaghiyah, and Tell Seker al-Aheimar (Le Mière and Nishiaki 2005). Analyses by Le Mière and Picon (1987) have shown that exchange and/or trade in pottery occurred during the 6th millennium BC. Moorey (1994: 151) suggested that, even at this date, there was a move toward specialized production for trade and exchange (i.e. production beyond the needs of individual settlements or populations).

Sequential slab construction was a long-lived tradition, continuing for up to 3,500 years in some areas (Vandiver 1987: 27–8). Changes in production can be documented as early as the 5th millennium BC, however, when there was a shift away from vegetal to grit temper and the selection of naturally coarse clay in many regions (Vandiver 1987: 25). Vandiver has noted that for this clay to be workable, potters had to mix the grit-tempered clay with water and allow it to age so that it had an appropriately plastic body, suggesting that the use of grit marked a technological change in the way that clay bodies were prepared. Once potters were able to produce suitably workable clay, they were technically capable of utilizing any of the forming methods that are more rapid than sequential slab construction, including molding in sections, coiling, and throwing on a wheel. However, these technologies were not invented immediately and many did not appear until the 4th millennium BC.

Initially, rotation during vessel forming appears to have been used for the shaping of vessel walls and rims and for adding plastic decoration to vessels that were built by sequential slab construction (Vandiver 1987: 25–6). Molds such

as baskets would have been ideal for this purpose, and familiarity with the benefits of rotation appears ultimately to have led to the development of the turntable, or tournette, around 5500 BC (Vandiver 1987: 27; Nissen 1988: 46–7; Moorey 1994: 146, 153). Bipartite stone turntables, made up of upper and lower discs, were used in Syro-Palestine and they also appear in Mesopotamia, but Moorey (1994: 147) and Roux and de Miroschedji (2009) have argued that many pivots and turntables have gone unrecognized. Moorey (1994: 146) suggested that the non-organic parts of many tournettes were of baked clay. The earliest examples appeared from the Chalcolithic period onwards in the Levant (Moorey 1994: 146; Roux and de Miroschedji 2009: 161–4). A clay slow wheel that pivoted on an animal bone has been found in Transitional Chalcolithic levels (c.5200–4700 BC) at Tepe Pardis on the Iranian plateau (Fazeli et al. 2007b). Two Late Early Bronze Age (EB III; c.2600–2350 BC) examples made of basalt have been discovered at Tell Yarmuth in the southern Levant (Roux and de Miroschedji 2009). Woolley (1955a: 28) found fragments of a baked clay potter's wheel in the "prehistoric pit" at Ur, and examples are also known from Abu Salabikh and Uruk. The central pivot hole on many of these examples appears to have been smoothed with bitumen. It is also possible that bitumen was used to hold the peg/pivot in the pivot hole (Moorey 1994: 146).

Experimental analysis suggests that tournettes can rotate on a wooden peg stuck into the ground when clay is spread between the two discs to act as a lubricant (Roux and de Miroschedji 2009: 165). It is notable that, because of the friction generated, these turntables were not suitable for fast wheel throwing, and their rotation would have necessitated the expenditure of a great deal of energy by either the potter or an assistant (Edwards and Jacobs 1987; Moorey 1994: 147). Such wheels are, however, ideal for producing so-called wheel-coil-made vessels, where a vessel was shaped using a coiling technique and then thinned, smoothed, and finished on the wheel (Roux and de Miroschedji 2009). Vessels produced using this method have been found in the southern Levant, northern Syria, eastern Iran, and as far east as western India (Courty and Roux 1995; Roux and Courty 1998; Roux 2003). Nissen (1988) argued that the use of the slow wheel decreased the time needed for the production of pottery vessels which in turn freed up more time for vessel decoration, leading to an explosion of painted pottery, at least in Mesopotamia (Moorey 1994: 153).

By the Late Ubaid period in Mesopotamia (c.4200–4000 BC), a true potter's wheel rotating on an axle had developed, an innovation that was fully exploited in the following Uruk period (c.4000–2900 BC) (Nissen 1988: 46–7). Moorey (1994: 148, 156) has suggested that these early wheels were not kick-wheels, but were more likely "simple" fast wheels, where a potter's assistant rotated the wheel with continuous pressure and the potter used a simple throwing technique. The use of the fast wheel would have required specific approaches to clay preparation to ensure a suitably plastic matrix containing inclusions of a size that would not damage the potter's hands. Wheel-thrown vessels usually show evidence of

rilling (parallel channels in the surface of the pottery) on the exterior and interior surfaces as well as spiral torsion twists on the walls (Moorey 1994: 148). Courty and Roux (1995; cf. Roux and Courty 1998) have shown that some vessels previously thought to have been wheel-thrown were in fact coil-made and turned on a slow wheel, so it is possible that the extent of early wheel use has been overestimated. In Mesopotamia, the widespread use of turning devices that permitted rapid production of pottery was accompanied by a dramatic reduction in the incidence of painted decoration during the 3rd and 2nd millennia BC (Moorey 1994: 158). The use of faster wheels was also accompanied by a reduction in the range of fabric inclusions and an increase in the proportion of sandy wares. These changes have been interpreted as indications of increasingly industrialized ceramic production during the 3rd millennium BC (Moorey 1994: 157). Not until the 1st millennium BC is there evidence of the true, fast, or kick-wheel driven by the potter's feet. The kick-wheel uses centrifugal force and has a rotating wheel for forming pots on top of a shaft that is in turn mounted on a rotating wheel turned by the potter's feet (Moorey 1994: 148). This appears to have been introduced by the Assyrians (Amiran 1970a; Franken 1974; Moorey 1994: 147–8).

Although the production of faience dates to the 5th millennium BC, fired glazed pottery only appeared in northern Mesopotamia in the 2nd millennium BC (Moorey 1994: 171–2). Glaze requires the use of a flux, which determines the melting and maturing temperatures and is usually either alkaline (lime, soda, or potash) or metallic (lead, tin, zinc). The technological developments that led to the appearance of glazed pottery were also linked to the early manufacture of core-formed glass vessels (Moorey 1994: 159). Hedges (1982) argued that the production of true glaze required the mastery of techniques and knowledge of the varying mechanical properties of clay and glass to ensure success in the firing process. Hauptman et al. (2001) have argued that the presence of glaze on Chalcolithic crucible fragments from the southern Levant indicates that copper production played an important part in the development of glaze technology, particularly faience production. Early glazes were monochrome, but polychromy was achieved by the mid-2nd millennium and reached a high standard in the 1st millennium BC. White, yellow, and various shades of blue glaze appear on Neo-Assyrian, Neo-Babylonian, Neo-Elamite, and Achaemenid vessels in Mesopotamia and Iran (Moorey 1994: 160–2). There were no major technological innovations in ceramic production in the ancient Near East following the development of the kick-wheel and reliable glaze techniques.

3 The Organization of Production

The investigation of how crafts were organized, and in particular the role of the craftsperson, provides a means of understanding developments in technology,

economy, and society (Dobres and Hoffman 1999; Tite 1999: 191; Costin 2001: 273ff). The choices of the ancient potter were dependent on both functional criteria and contextual factors such as the social, economic, ideological, and environmental setting that influence the agency and ideology of the individuals producing the material (Ingold 1990; Lemonnier 1993; Dobres and Hoffman 1999; Dobres and Robb 2000b). The steps involved in the production process are often referred to as the *chaîne opératoire* (Leroi-Gourhan 1964, 1965; Cresswell 1972; Tite 1999; Sillar and Tite 2000; Roux 2003).

Costin (1991; cf. Tite 1999: 191) has delineated a number of parameters that can be used to characterize the modes of production of an assemblage, including context (whether the potter worked independently or was attached to an elite group), concentration (whether production facilities were dispersed or concentrated), scale (whether the production units were small or large, i.e. family or factory), and intensity (whether the potters worked part or full time). Rice (1991) has outlined four main manifestations of specialization which are overlapping, non-exclusive, and may be simultaneous. These include site specialization (Costin's parameter 2), resource specialization, functional or product specialization, and producer specialization (Costin's parameter 4) (also Tite 1999: 191). Rice (1991: 257) also noted that changes in the relative degrees of standardization and diversity in the technological, formal and decorative variables of pottery through time reflect changing patterns in the organization of production. The evidence that can be used to reconstruct the organization of ceramic production may be direct or indirect (Costin 1991; Tite 1999: 191). Direct evidence of manufacture includes workshops, kilns, and wasters, while indirect evidence includes finished objects, the degree of standardization evinced, and the efficiency and skill evident in the process of manufacture (Costin 1991: 18, 32–40; Tite 1999: 191).

No matter how ceramic production was organized, the creation of a finished pottery vessel is the end point of an extended sequence of actions that begin with the collection of raw materials, their preparation and the forming of a vessel using those raw materials, followed by the preparation and application of surface finishes and decoration, and ultimately the drying, firing, and use of the vessel (Rye 1981). Each of these elements has different requirements in terms of time, the types of additional tools and facilities required, and the space that those activities necessitate. Perhaps the key point is that pottery production in all periods and at all scales would have required a range of equipment, some of which was reusable, and suitable space within which to work. Some actions must be repeated for every production event, while others require tools and facilities that can be reused. Thus, within one *chaîne opératoire* there are both short-term and long-term planning and management requirements. For instance, the raw materials that are collected, prepared, and used to make up the clay fabric and the wood or dung that is burned to harden that fabric are in general "consumed" during the process and cannot be used again for ceramic production. Most of the steps that explicitly involve the raw materials that are consumed must be repeated for every

production event. The extraction of raw materials, however, requires tools and/or facilities that can be reused, as do the processes involved in the preparation of raw materials, vessel forming, surface preparation, the application of surface decoration, and the firing of vessels. Such tools and facilities are typically durable and can be reused time and again. However, these tools and facilities are often archaeologically invisible or go unrecognized, and much of the *chaîne opératoire* must be reconstructed by inference.

Drawing on ethnographic studies from around the world, Arnold (1985: 38–50) showed that in 33 percent of the cases examined, the clay sources exploited by potters were within 1 kilometer of the locus of manufacture, while in 84 percent of cases, potters collected their clay within a 7 kilometer radius. Arnold also noted that in 52 percent of cases, temper was collected from within a 1 kilometer radius, while 97 percent of it came from within 9 kilometers (Arnold 1985: 51–2; Tite 1999: 215). It is likely that ancient potters typically reused tools to extract clay and these may have been simple sticks that could have been either unworked or deliberately shaped. The clay must somehow have been transported to the production locale, presumably in some sort of woven receptacle, whether a fabric or textile container or a basket of some type. The amount of effort and time invested would have depended upon the scale of any single production event and the number of individuals involved, as well as the distance to the source of the material. In the first instance, it might be expected that experienced potters were involved in the identification and selection of raw clay sources. However, once these became "known" sources that were regularly exploited, it is conceivable that assistants, perhaps adolescents and/or children, would have been delegated to collect clay (Rye 1981: 17). Once the clay reached the production area, it would have been stored and/or turned into the desired fabric by crushing, soaking, and blending with other ingredients as necessary. Either option would have required investment in permanent or semi–permanent facilities and tools of various kinds.

At the stage of vessel forming, a range of additional elements would have been required. As outlined above, baskets, turntables, and wheels were used to produce vessels. Depending upon the scale and intensity of production, it is possible that these tools could have been dismantled and packed when not in use. Once formed, vessels were often given some type of surface treatment and/or decoration. Treatments such as burnishing and the application of a coarse slurry would have required the vessel to be suitably dry to ensure that it could take the burnish and/or hold the slurry. Drying would have taken place in a shaded area to ensure that vessels dried evenly and not too quickly. Both burnishing and the application of a slurry would have required planning; burnishing requires a tool suitable for the task, while slurry would have been specifically prepared so that it was the required consistency and composition. With these treatments complete, surface slips and decorative motifs could have been added once the vessel was dry. The pigments required for the slips and paint might be distinct from the color

of the base clay and these would have needed to be mixed in an independent process. Pigments will have been procured in advance and could have been mixed and prepared while vessels were drying. They would have been applied with brushes of some type, which must have been made in advance and are likely to have been reusable. Once the vessels were decorated, another phase of drying would have been required to ensure that the decoration fixed appropriately (Petrie et al. 2010).

To be usable, ceramic vessels must have a level of hardness and durability which is achieved by firing at a minimum of 550°C (Cardew 1969: 11; Rice 1987: 156). Firings in the range of 650–900°C produce terracotta ware, while those in the range of 900–1200°C result in earthenware (Rice 1987: 82). Firing can be carried out in a kiln or in the open. Both methods require significant amounts of fuel to ensure success. Moreover, fuel must be controlled to minimize wastage through over- or misfiring. Open firings are susceptible to loss as a result of temperature variation, the impact of wind, the proximity of the vessels to the fuel, etc., and although kilns provide protection from drafts and allow for better temperature control, wastage is still a problem (Rice 1987: 153–63). The amount and type of fuel required to achieve the required temperatures varies depending upon the type of kiln or open firing used. A typical firing is likely to have required wood, charcoal, and/or dung-cake fuel in ratios that equate to two or more times the weight of fuel compared to the weight of the clay being fired (Rye and Evans 1976: 165; Rice 1987: 174).

The earliest pottery vessels in the ancient Near East appear to have been fired to temperatures in the range of 500–800°C (Vandiver 1987; Moorey 1994: 149). Not until the Ubaid period in Mesopotamia are there clear signs that pottery was consistently fired in the range of 1050–1150°C (Tite and Maniatis 1975; Moorey 1994: 153), apparently as a result of using kilns. Moorey (1994: 144) observed that most analyses of kilns in the ancient Near East have suffered from the assumption that technology must evolve over time, whereas in actual fact, at an early date, kilns were very sophisticated. In fact, a comparative study by Streily (2000) has shown that the shape, size, and design of kilns could be highly variable within one period, even at a single site, like Tell Abada in eastern Iraq (Jasim 1985: 53–4; Streily 2000: 77–8). Moorey (1994) argued that pottery kilns reflect the situation, resources, and purpose of each individual structure and Streily (2000: 80) also noted that economic context played a critical role. Open firing and kiln firing, in single and double-chambered structures, may have been practiced side by side in the same workshop or settlement, for the production of different vessel or fabric types (Moorey 1994: 144, 156).

Tepe Pardis on the Iranian plateau has produced abundant evidence of ceramic kilns dating to the Transitional Chalcolithic period (c.5200–4700 BC), including the remains of at least six large kilns (up to 12 square meters) capable of firing very large vessels (Fazeli et al. 2007b). These appear to have been single-chamber, updraft kilns with fireboxes in front and domed rooves (Fazeli et al. 2007b: 285).

Kilns of this size are traditionally connected with a palace or temple economy, at least in Mesopotamia (Fazeli et al. 2007b: 285; after Streily 2000: 80). At Tepe Pardis they have been interpreted as evidence for site specialization (Fazeli et al. 2007b: 285), but the scale of some of the vessels from the site suggests that they may have been used to fire large vessels rather than large numbers of small or medium-sized ones.

Solitary kilns dating to the 3rd millennium BC are known from Uruk, Abu Salabikh, Tell Yelkhi, Tell Asmar, and Tell Kesaran, while evidence of large-scale production in the form of residual fireboxes and chimneys, wasters, and ceramic slag has been found at large settlements and villages located close to such sites (e.g., at the city sites of Uruk, Ur, Abu Salabikh, al-Hiba, and Mashkan-Shapir, and the village sites of Umm al-Hafriyat near Nippur and Diqdiqah near Ur; Moorey 1994: 144; Potts 1997a: 161–2). Umm al-Hafriyat is particularly interesting as it had the remains of at least 500 kilns of the Akkadian to Old Babylonian periods (Adams 1981; Moorey 1994: 144; Potts 1997a: 161–2). Bowl kilns were found at Abu Salabikh (Postgate and Moon 1982), suggesting that open firings were taking place during the Uruk and Early Dynastic I periods (Moorey 1994: 144). It is therefore clear that, although kiln-firing on a large scale was being practiced as early as the 3rd millennium BC, this does not preclude the existence of other, more straightforward approaches to firing at the same time.

It is fairly certain that early potting in the ancient Near East was a small–scale operation, and it is likely that one or, at most, a small number of individuals were responsible for producing all the ceramic vessels used in an individual or extended household. It is possible that more than one such producer would have lived in every village, though the number is always likely to have been small. We know that sites increased in size through time, and there are clear signs that ceramic production became the preserve of specific individuals or small groups within individual communities. It might therefore be assumed that many early vessels were the products of small-scale and presumably part-time household producers (following Costin 1991, 2001; cf. Rice 1991). However, many of the earliest vessels are not "simple," and the careful use of a thin, untempered layer of clay to produce fine surface finishes, the very high quality of slipped and polished finishes, and the wide range of often highly elaborate geometric motifs that were produced suggests that potters possessed a high degree of skill in carrying out a relatively sophisticated *chaîne opératoire*. It is also likely that the production of each vessel was both labor- and time-intensive. So, although these potters might have been working on a small and possibly part-time scale, they should probably be considered specialists if only for the skill evident in the production and decorations of the vessels made (Petrie 2011).

Standardization has been defined as the relative degree of homogeneity or reduction in variability in the characteristics of an artifact, or the process of achieving that homogeneity (Rice 1991: 268; Blackman et al. 1993). It is a relative concept that can only be defined through the comparison of two or more artifact

assemblages or types with differing degrees of homogeneity (Costin 1991: 35; Rice 1991: 268; Blackman et al. 1993: 61). There is an underlying assumption that a high degree of standardization or homogeneity in raw material composition, manufacturing techniques, and vessel shape and dimensions reflects specialized mass-production, while systematic variation and heterogeneity are taken to indicate household production (Blackman et al. 1993: 61; Tite 1999: 192). This has been referred to as the "standardization hypothesis." A number of studies have dealt with standardization in ceramic production (e.g., Johnson 1973; Longacre et al. 1988; Sinopoli 1988; 1999; Costin 1991; Rice 1991; Blackman et al. 1993; Longacre 1999; Eerkens and Bettinger 2001). In asking why the products of non-specialists lack uniformity, Rice suggested various factors, including generally imperfect processes of replication, random events in manufacturing, lack of skill, a conscious decision to vary, infrequency of activity, the number of producers involved, and an absence of strong controls over resources, shapes, sizes, and decorative patterns (Rice 1991: 273). Rice pointed out that the connection between standardization and mass-production is characterized by factors of labor and cost-effectiveness, quality control, risk aversion tactics of relying on known resources and procedures, and skills developed through repetition and routinization (Rice 1991: 268).

Archaeological evidence suggests that mass-production preceded standardized production. Evidence of early ceramic mass-production is provided by the widespread Coba bowls which date to the late 5th through early 4th millennium BC and were first observed in period IVA levels at Coba Höyük in southern Turkey (du Plat Taylor et al. 1950: 94–5). These vessels have a rounded rim and a base that appear to have been scraped with a flint. Their distribution extends from Tell Brak in the northeastern Syria (Oates 1987b: 194–5; Oates and Oates 1994: 170) to Cilicia in southwestern Turkey. Coba bowls prefigure what Joan Oates has referred to as the "wide flower pot" at Tell Brak and Tepe Gawra in northern Iraq. These are mold-made bowls with a round, turned rim (Oates and Oates 1993: 181; Wright 2001: 125). The technology used to produce the "wide flower pot" is in turn very similar to that used to produce the so-called "bevel rim bowl," a vessel form that first appeared in southern Mesopotamia in the mid-4th millennium BC (Wright 2001: 125).

The bevel rim bowl is one of the best-known vessel forms in the ancient Near East and appears at sites stretching from Pakistani Baluchistan in the east to Syria and southern Turkey in the west (Potts 2009). Bevel rim bowls are typically made from a coarse fabric that usually has vegetal temper, but might include grit. The bevel rim bowl was formed by being pressed into a mold, possibly dug into the ground, after which the rim was roughly smoothed to form a beveled edge (Moorey 1994: 156). There has been some debate about whether bevel rim bowls were a product of "domestic"/household production (Beale 1978) or of specialists (Nissen 1970; Millard 1988; Potts 1997a: 153; 2009: 10). In the Middle and Late Uruk period deposits at Uruk (Nissen 1970: 101–91) and

Chogha Mish in Susiana (Delougaz and Kantor 1996: 49–50), there is abundant evidence for the mass-production of both bevel rim bowls and conical cups, and these vessels appear in varying quantities at other sites across a wide area. Potts has argued (1997a: 153) that the quantities and general standardization of vessel form means that they were not the result of household production (cf. Balfet 1980). It is important to point out that the interpretation of the mode of production of bevel rim bowls cuts to the heart of the interpretation of their purpose. Nissen (1970) initially proposed that they were ration containers and a number of other economic/administrative functions have since been posited (Potts 2009). Such interpretations imply a degree of centralized organization and administration and presuppose that the production of such vessels supports that model. Potts (2009) has pointed out that the bevel rim bowl may only be a receptacle for rations that were being measured in some sort of scoop or ladle of fixed size, making their specific volume less relevant, but nonetheless indicating that, at least in some contexts, production may have been centralized. In seeking to provide alternative interpretations for the presence of bevel rim bowls at sites outside southern Mesopotamia and Khuzestan, Potts (2009) has followed the suggestion made by Schmidt (1982), Millard (1988), and others that at least in the Iranian context, these vessels may have been bread molds (cf. Goulder 2010). As such, their widespread distribution may be indicative of a degree of culinary influence (Potts 2009), an idea worthy of further exploration with scientific techniques like gas chromatography.

Blackman et al. (1993: 61) noted that standardization and thus craft specialization are most commonly identified through detailed metrical analysis of vessel form and decoration, and/or mineral and chemical techniques aimed at assessing the degree of standardization of the raw materials used (see also Bishop et al. 1982). The analysis of fine wares from Tell Leilan in northern Syria demonstrated that multiple production events, even when carried out by specialists, increase variability in chemical composition and vessel dimensions (Blackman et al. 1993: 74). Nevertheless, the analysis of ceramic production at Leilan demonstrated that standardization could be an effective index of craft specialization and the organization of production (Blackman et al. 1993: 77; Tite 1999: 192).

In the preface to his book *Mesopotamian Civilization*, Potts (1997a: vii) pointed out that such studies fail to take into account that the professional title for potter (Sum. **bahar**) appeared as early as late 4th millennium BC in the Archaic version of the standard professions and titles list (Nissen et al. 1993; Potts 1997: 150). There is also abundant evidence for the organization of ceramic production in subsequent periods. For example, texts from the Ur III period at Umma outline the working of two large pottery workshops over the course of a year, showing that labor, materials, and output were all closely monitored (Sallaberger 1996). Although they sometimes worked alone, potters typically appear to have worked in teams (2–10 men) under a supervisor, and were connected to establishments that needed ceramics such as state kitchens, breweries, mills, temples,

and houses or palaces of officials (Moorey 1994: 141; Potts 1997: 156). These details provide clear evidence of specialized, standardized, mass-production during the Ur III period, and Potts (1997: 159–61) has suggested that this pattern began in the 4th and continued into the 1st millennium BC. Regrettably, there is a lack of excavated archaeological evidence to complement the data from the cuneiform sources.

The Mesopotamian sources provide a rich lexicon of names for ceramic vessels. In addition to general categories like storage jar, libation vessel, etc. there are repeated references to vessels for water, beer, milk, oil, sesame oil, ghee, lard, fine oil, wine and honey (Potts 1997: 140). Delougaz (1952) noted the similarity between a large number of spouted vessels found in late 4th/early 3rd millennium BC levels in the Diyala and the Archaic signs for milk, beer and oil. Clearly there is considerable scope for further research.

4 Technological Innovation and the Dispersal of Ideas

The archaeological evidence suggests that pottery production technology in the ancient Near East was inherently conservative, and this was undoubtedly related to the way knowledge of pottery production was passed between practitioners, across space and through time. Vandiver argued (1987: 25) that potting traditions limited the possibility of change, since any change had to fit into acceptable patterns of motor movement, thought processes, and cultural and material constraints. Making even the most basic forms required a specific set of physical skills, technical knowledge, and awareness of how these factors combined. Nevertheless, it does seem that the history of ceramic production in the ancient Near East was marked by clear technological innovations that appeared at particular points in time and dispersed quickly.

Several instances of technological development and the dispersal of related ideas and practices have been mentioned throughout this chapter, from the earliest production of fired ceramics to the use of fast kick-wheels, kilns, and glaze. Where possible, attempts have been made to address the difficulty of describing the dynamics involved, given our incomplete knowledge of the archaeological record. There is, nevertheless, a range of specific instances where there is clear evidence for the movement, adoption, imposition, and/or emulation of technological concepts, vessel forms, and practices, and the trade and importation of vessels and their contents. For example, there are several instances of the direct importation of a more sophisticated ceramic production technology into areas that either did not previously have such a tradition or where the pre-existing tradition was not as sophisticated. One case is the importation of pottery technology from southeastern Iran into the Oman peninsula during the 3rd millennium BC (Potts 2005). Although pottery dating to the 5th millennium BC has been found throughout the Persian Gulf, clear evidence of local ceramic production

in the Oman peninsula did not appear until the 3rd millennium BC. When this happened, the first vessels were well made, wheel-turned, and both technologically and stylistically similar to contemporary vessels in southeastern Iran. Potts (2005: 71) has suggested that this is indicative of both trade and potters moving from Iran to southeastern Arabia at this time.

During the early 1st millennium BC, so-called "palace" ware was primarily used by the Assyrian court (Rawson 1954; J. Oates 1959; Moorey 1994: 158). These distinctive, eggshell-thin vessels were a product of very controlled clay selection, throwing, and firing processes (Moorey 1994: 158–9). In areas under Neo-Assyrian domination, the production of these vessels appears to have become widespread, with the concomitant spread of the use of the fast kick-wheel. The Assyrians appear to have used the imposition and dispersal of specific ceramic production technology as part of their imperial strategy (Akkermans and Schwarz 2003: 383–4), which saw local production of palace ware in various regions (e.g., the southern Levant; Engstrom 2004), and the adoption of such elite vessels by local populations in the regions that they dominated (e.g., Jezira, Syria, the Levant).

In conclusion, ceramic fragments comprise one of the most mundane categories of cultural remains, but they survive in most environmental conditions and, as such, are virtually ubiquitous at archaeological sites in the ancient Near East. Pottery has traditionally been used by archaeologists as a marker of diffusion, ethnicity, and chronological change, but it is also possible to discuss its socioeconomic and technological dimensions. Pottery therefore provides an opportunity to understand the lives of the people who made and used it, and the social, economic, and even political contexts within which they lived.

GUIDE TO FURTHER READING

There is an abundance of publications that deal with ancient pottery technology. For a good introduction to the subject, see Rice (1987). An excellent overview of ceramic production in ancient Mesopotamia can be found in Moorey (1994: 140–66). Early kilns have been reviewed in Moorey (1994), but are discussed in more detail by Streily (2000). Excellent reviews of specific production technologies are given in Vandiver (1987) and Courty and Roux (1995). An important analysis of ceramic standardization and mass-production can be found in Blackman et al. (1993). For discussions and models dealing with the organization of production, see Rice (1991) and Costin (1991), and for a comprehensive review of research on craft production systems, see Costin (2001).

CHAPTER SIXTEEN

Metallurgy

Lloyd Weeks

1 Introduction

Of the dozens of metals that are known to modern science, only six – copper, gold, silver, lead, tin, and iron – were utilized with any frequency in their unalloyed form in the ancient Near East. Other metals, such as zinc, antimony, arsenic, and nickel, were rarely or never known in their pure form at this time, but nevertheless played a critical role as components of the broad array of alloys that were discovered and developed by Near Eastern metallurgists. These metallurgical innovations – one of the major indigenous technological advances of the ancient Near East – led not only to the production of a huge range of novel utilitarian and decorative items, but also to the development and spread of materials, techniques, and concepts that changed ancient society and continue to shape even the modern world.

Metallurgy in the ancient Near East has left a substantial corpus of material evidence that has been studied using a wide variety of approaches. In addition to finished metallic artifacts themselves, known in prodigious quantities from settlements and burials, there is also a great variety of residues of metal mining and extraction processes that are amenable to archaeological and scientific study (Craddock 1995: 12ff). Such approaches can be supplemented by information from ancient written sources, experimental archaeology, and ethnographic observations of metal production amongst societies using traditional, non-Western technologies. Together, these strands of evidence offer the prospect of

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reconstructing not only the origins and development of metal technologies in the ancient Near East, but something of the significance of metal extraction, exchange, and use for the development of early society. Metallurgical developments are discussed in detail below, beginning with the earliest use of native metals and moving to the mining and smelting of copper, lead, silver, tin, and iron, the development of alloying, and the fabrication of artifacts. Because of space limitations, this chapter tends to focus on the earliest examples of specific metal extraction and fabrication technologies.

2 The Earliest Use of Ores and Native Metals

Metal ores and minerals were utilized by humans for many thousands of years before the first exploitation of metals themselves. In particular, red-colored iron oxides, known as ocher, have a history of human use stretching deep into the Paleolithic period (e.g., Schmandt-Besserat 1980; Hovers et al. 2003). By the end of the Upper Paleolithic period, the first clear evidence for the use of blue- and green-colored stones and metallic ores appears (Bar-Yosef Mayer and Porat 2008), including a pendant made of the green-colored copper carbonate malachite ($Cu_2CO_3(OH)_2$) from the Proto-Neolithic site of Shanidar Cave in northern Iraq (Solecki 1969). By the Pre-Pottery Neolithic (PPN) period, the use of blue-green metallic ores was more widespread, for example at Hallan Çemi and Çayönü in Anatolia where malachite fragments and beads are found (Yalçin 2000a: 17–18; 2003: 530), and in PPN Levantine sites such as Jericho and Ain Ghazal (Hauptmann 2007: 255–61). Other kinds and colors of metallic ores also appear on Neolithic sites, the best examples being the grey, metallic-looking beads from the 7th millennium BC Çatal Höyük that were initially thought to have been made from metallic lead but which have now been shown to be galena (PbS) and cerussite ($PbCO_3$) (Craddock 1995: 125; Yalçin 2000a: 20–1, Tab. 2).

The first true use of metals is represented by the exploitation of native copper at several sites of the 8th millennium BC in Anatolia including Çayönü (Maddin et al. 1999; Özdoğan and Özdoğan 1999), Aşikli Hoyuk (Esin 1999; Yalçin and Pernicka 1999) and, slightly later, Çan Hasan (Yalçin 1998). By the 7th millennium BC native copper artifacts were widespread, occurring from Anatolia to Tell Maghzaliyah in northern Iraq, Ali Kosh in lowland Iran, and at the early ceramic Neolithic sites of Tol-e Nurabad, Tall-i Mushki, Tall-i Jari, and Tepe Sialk in the Iranian Zagros and plateau, dated to the late 7th/early 6th millennia BC (Smith 1969; Fukai et al. 1973; Schoop 1999). Traditions of native copper exploitation characterized the earliest metal using industries even further to the east – e.g., at Tepe Yahya in southeastern Iran (c.5000 BC) (Thornton et al. 2002; Thornton and Lamberg-Karlovsky 2004) and at Neolithic Mehrgarh in Pakistani Baluchistan (Moulherat et al. 2002). These early metalworking sites exploited substantial native copper deposits in Anatolia (e.g., at Ergani Maden and

elsewhere; Esin 1999; Maddin et al. 1999; Wagner and Öztunali 2000: 55–6) and on the Iranian plateau at Anarak/Talmessi (Pigott 1999a, 1999b), although smaller local occurrences were no doubt also used.

In all these different industries, the malleability of native copper was exploited to create small, functional artifacts such as awls and items of jewelry, such as beads and rings, by hammering. Of great interest for the later development of metallurgy is the fact that, at sites such as Aşikli Höyük and Çayönü, native copper was also annealed at high temperatures (c.600°C) to make it more malleable and easier to forge (Esin 1999; Maddin et al. 1999; Yalçin and Pernicka 1999). In the ancient Near East, however, there is currently no evidence that native copper (melting point c.1083°C) was ever melted prior to the invention of smelting.

Almost all gold exploited in the ancient Near East would have been native metal, either mined from its host rock ("reef gold") or, more likely in earlier periods, obtained by exploiting alluvial deposits ("placer gold") that had been concentrated by gravity in river sediments downstream from eroding primary deposits. As native alluvial gold contains anywhere from around 5 percent to over 50 percent silver as a natural inclusion (Moorey 1994: 217; Craddock et al. 2005), most of the early "gold" from the ancient Near East was in reality electrum. Although rare in the Near Eastern heartland, gold deposits are recorded widely in its peripheries, particularly in Egypt and Nubia, Anatolia, Iran, and Bactria (Moorey 1994: 219–21).

The earliest evidence for gold/electrum use in the Near East comes from late Ubaid Mesopotamia, at Ur and Tepe Gawra, where a handful of small artifacts (wire and beads) has been recovered. Tepe Gawra shows continued use of gold/electrum up to the Early Dynastic period (early/mid-3rd millennium BC), and the later prehistoric levels from Uruk have also produced rare gold artifacts (Moorey 1994: 221–2). Elsewhere, the early 4th millennium BC cave site of Nahal Qaneh in Israel has produced an important assemblage of artifacts comprising two pure gold and six electrum (c.30 percent Ag) rings or circlets with a total weight of about 1 kilogram. These may have been imported from Egypt (Gopher et al. 1990; Gopher and Tsuk 1996; Genz and Hauptmann 2002: 151). Sporadic examples of gold from the late 4th millennium BC have also been recorded in Iran, most notably at Susa (Tallon 1987; Benoit 2004). Even in later periods, the relatively limited amount of gold in circulation and its continual recycling mean that it is rare in the archaeological record of the ancient Near East. For example, Moorey (1994: 221) noted that "the surviving material evidence for the uses of gold and electrum in ancient Mesopotamia . . . is to all intents and purposes concentrated into a few Early Dynastic III royal graves at Ur and Neo-Assyrian royal graves at Nimrud." Technological aspects of these important assemblages (Zettler and Horne 1998; Hussein and Suleiman 2000) are discussed in more detail below.

The last metal to be considered here that may have been exploited in its naturally occurring form is iron. Although terrestrial native iron ("telluric iron") is

very rare, metallic iron also occurs on Earth in the form of meteorites ("meteoritic iron"). Late Bronze Age texts from various parts of the ancient Near East imply the exploitation of meteoritic iron through their references to "iron from/of heaven" or "thunderbolt" iron, although it is not certain that such references pre-date the first widespread smelting of iron from its ores in the mid/late 2nd millennium BC (Muhly et al. 1985: 74–5; Photos 1989: 403; Moorey 1994: 278–9; Waldbaum 1999: 30; Siegelová 2005). It was previously thought that meteoritic iron could be distinguished from smelted or telluric iron by its nickel content (c.2–20 percent Ni; Piaskowski 1982: Fig. 1). However, it is now recognized that it is also possible to smelt iron with high Ni concentrations (Piaskowski 1982; Photos 1989; Waldbaum 1999). Moreover, Craddock (1995: 104) has highlighted the potential for nickel to leach out of corroded iron, so that initially high-Ni meteoritic iron might appear to be low-Ni smelted iron. As a result, the accurate differentiation of early meteoritic from smelted iron requires a suite of analyses of composition and microstructure (Photos 1989), a requirement that has not been met for many of the key early iron artifacts from the ancient Near East which, although very rare, are known from as early as the 6th millennium BC in Mesopotamia (Schoop 1999: 32). Such very early samples seem likely to have been made of meteoritic iron, but Moorey (1994: 279) has suggested that Near Eastern iron artifacts from as early as the 3rd millennium BC were made from smelted iron and the early 2nd millennium BC texts from Kanesh/Kültepe in Anatolia seem to indicate the production and exchange of smelted iron (Maxwell-Hyslop 1972; Dercksen 2005).

3 Mining

The number of ancient metal mines investigated in the Near East is extremely limited, with the best evidence coming from the surveys undertaken by Wagner and colleagues in Anatolia (Wagner and Öztunali 2000); Kestel, also in Anatolia (Yener and Vandiver 1993a, 1993b); Veshnoveh and Deh Hosein in Iran (Stöllner 2004, 2005; Nezafati et al. 2009b); and, above all, Feinan (Jordan) and Timna (Israel) in the southern Levant (Weisgerber 2006; Hauptmann 2007). The technical aspects of ancient mining operations are briefly discussed below, and additional details of particular sites can be found in the following section on metal smelting.

The small-scale mines that characterized the earliest periods of metallurgy can be difficult to discover and hard to date. Moreover, given that the main ores of interest were generally removed from the mine, it can sometimes be difficult to reconstruct what kinds of ores were being mined or, in extreme cases, even what metals were being sought (Craddock 1995: 8–11). The purported Bronze Age tin mine at Kestel is a good example of such difficulties (Willies 1993; and below). More problematically, a vast amount of the evidence from ancient mines has been

destroyed by more recent exploitation. For example, evidence of prehistoric mining at potentially important ore-bodies such as Talmessi/Meskani in Iran (Nezafati et al. 2009b) and Ergani Maden in Anatolia (Wagner and Öztunali 2000: 55) has been largely or completely destroyed by modern industrial-scale mining, and much of the evidence of Bronze Age copper exploitation in Oman was destroyed by large-scale smelting in the early Islamic period (Hauptmann 1985).

Mining was extremely hard work and required great skill and knowledge. Not only did miners need to prospect for useable ores, they had to develop techniques for extracting them from often very hard rock. Miners' equipment was typically quite minimal; the mummified remains of the copper miner from the pre-Columbian mine of Chuquicamata, Chile, were associated with simple tools typical of prehistoric mining the world over – hafted stone hammers, baskets for carrying ore and spoil, and a short wooden shovel (Craddock 1995: 43). Like the Chuquicamata miner, Chalcolithic and Bronze Age miners in the Near East tended to rely on percussion, using heavy stone tools. These have been found in large numbers at ancient Near Eastern mines, including Kestel (Yener and Vandiver 1993b: 261–2), Veshnoveh and Deh Hosein (Stöllner 2005; Nezafati et al. 2009b), Karnab and Mushiston (Weisgerber and Cierny 2002), and Feinan and Timna (Rothenberg 1972: 26, Pl. 5; Weisgerber 2006: 6–7; Hauptmann 2007: 137, Fig. 5.41). Hammerstones were most likely supplemented by the use of animal bone and horn tools for prizing apart cracked rock and scooping ores and waste rock (Craddock 1995), as seen, e.g., at Karnab and Mushiston (Doll 2003). Later workings often relied on the use of metal tools, well attested in the Ramesside mines at Timna (e.g., Weisgerber 2006: 8, Fig. 11). In many cases, "fire-setting" was also used by ancient miners to improve the ease and efficiency of ore extraction. In this technique, a fire was lit against the rock and ore face to be mined and its high temperature acted to weaken the rock and make it easier to break up by hammering (Craddock 1995: 33–7; Weisgerber and Willies 2000;). The characteristic curved profiles of fire-set mine workings are particularly apparent at the Early Bronze Age mine of Kestel (Craddock 1995: Fig. 2.6) and fire-setting was also used, e.g., at Bronze Age Veshnoveh (Stöllner 2005) and Mushiston (Weisgerber and Cierny 2002). This technique had a great advantage not only for ancient miners, but also for modern archaeologists, as it produced charcoal that can be used to radiocarbon-date ancient mining activities.

An excellent example of the development of mining techniques is provided by the long-term field research at Feinan and Timna. In the latter area, development from relatively short horizontal adits (up to 2 meters wide and 10 meters long) in the Chalcolithic period, to deeper shafts (with depths of up to 10 meters) leading to large underground chambers up to 15 meters wide by the Early Bronze Age (Weisgerber 2006: 10, Figs. 15–16) can be documented. By the late 2nd millennium BC, prospection and mining shafts up to 40 meters deep were dug to give access to the ore strata at Timna, in which large chambers were mined out.

Once mining extended to any considerable depth underground, the major problems faced by the miner expanded to include not only ores and rock, but just as importantly air and water. This is seen clearly at Timna in the Ramesside period, where the use of complex double shafts improved air flow into the mines and allowed a dramatic expansion of mining in comparison to earlier periods (Weisgerber 2006: 14). In other cases, the high altitude of mines would have allowed for only seasonal exploitation, and short durations underground, as seen, for example, at the Bronze Age tin mines of Mushiston in Tajikistan located at 2,830 meters above sea-level (Alimov et al. 1998; Parzinger and Boroffka 2003: 234–6).

In all instances, mining would have depended upon an elaborate support infrastructure (for the provision of tools, equipment, food, etc.) and would have been coordinated with post-mining extraction operations such as ore processing (i.e. comminution and selection) and, in many instances, smelting. While the archaeological evidence for these components of production can be of variable volume and quality and often depends on the study of a range of interacting sites/locales, knowledge of such aspects is critical for situating ancient mining and metallurgical operations in their cultural and economic context.

4 Smelting Metals

Smelting is the separation of a desired metal from the elements (such as oxygen, silicon, sulfur, or iron) that it is combined within a mineral. As the elements in a mineral are chemically bonded, they cannot be separated by simple mechanical processing such as crushing, grinding, or washing. Rather, smelting is a chemical reaction in which a reducing agent (usually carbon monoxide gas, CO) combines with the unwanted mineral elements and releases the metallic element. For example:

SnO_2	2CO	Sn	$2CO_2$
(tin oxide)	(carbon monoxide gas)	(metallic tin)	(carbon dioxide gas)

The chemical reactions underpinning metal smelting required high temperatures, usually in the range of 1100–1300°C, which were difficult to achieve using ancient technology. More significantly, metal extraction required great skill and knowledge to meet the competing requirements of the smelt, which included a *high oxygen* input in order to promote combustion and achieve high temperatures, but a *low oxygen* reducing atmosphere in order to promote the necessary chemical reactions. High oxygen flows were usually achieved by the use of an artificial draught from bellows or blowpipes, although some furnaces, including those of the Early Bronze Age at Feinan, were oriented to exploit prevailing natural winds rather than relying on forced draughts (Hauptmann 2007: 106–7). The require-

ment of a reducing atmosphere was usually met by using charcoal as a fuel for the smelting operation, as it reacted with oxygen in the furnace to create the reducing gas carbon monoxide (Craddock 1995: 156ff).

Although the smelting of very pure secondary oxide or carbonate minerals (e.g., malachite, cassiterite) would have produced very little waste, most ores were of a lower grade and incorporated pieces of host rock and "gangue" minerals that would have introduced unwanted components such as silicon, sulfur, aluminum, and (for non-ferrous metallurgy) iron into the smelting charge. Smelting technology soon developed to allow such unwanted components of the furnace charge to be separated in the furnace by the formation of a liquid "slag." Upon cooling and solidification, such metallurgical slags are often very hard (being in effect manmade rocks) and they have survived in great quantities at smelting sites across the ancient Near East. Scientific studies of slags are critical for reconstructing the technological parameters of ancient smelting operations, including the ores, fuels, and fluxes used, the temperatures achieved, the control of the furnace atmosphere, and the nature and quality of the metallic product of the smelt (e.g., Bachmann 1980).

The earliest evidence for the smelting of copper (Cu) ores comes from sites at opposite ends of the Taurus-Zagros mountain arc, in Anatolia and Iran. It is possible that slags from the Neolithic levels at Çatal Höyük represent the smelting of copper ores in the 7th/6th millennium BC, although some scholars have suggested that they are related not to copper smelting but rather to copper melting (Craddock 2000: 155; Yalçin 2000a: 22). More certainly, evidence from sites in Cilicia and the upper Euphrates region indicates the smelting of copper ores by c.5000 BC (Yalçin 2000a, 2000b). The primary evidence consists of smelting slags and crucibles whose relationship to copper smelting has been demonstrated analytically – e.g., at Tülintepe and Tepeçik (Yalçin 2000a: 23, Tab. 2). Secondary evidence of smelting at c.5000 BC comes from changes in the composition of copper objects from Mersin in Cilicia and Değirmentepe in eastern Anatolia, which show increasing levels of impurities such as arsenic, antimony, and nickel that are generally rare in native copper artifacts but diagnostic of smelted metal (Yalçin 2000a: 22–3; 2003: 531).

At the same time as these developments were taking place in Anatolia, copper smelting was occurring at Chalcolithic Tal-i Iblis (southeastern Iran). Here, copper carbonates, sulfides, arsenates, and chlorides were smelted in elongated bowl-shaped crucibles, in simple charcoal-filled pits, to produce copper with variable arsenic content (Pigott and Lechtman 2003: 294–5). Smelting temperatures of c.1200°C were achieved by the use of a forced draught from blow pipes or bellows (Frame 2004: Fig. 5.46; Frame and Lechtman, in press). By the 4th millennium BC, several sites in Iran, such as Arisman, had a complex and large-scale copper smelting technology. Here, early crucible-based smelting operations gave way to the use of larger reaction vessels, including the earliest intact (and repeatedly reused) copper smelting furnace in Iran (slagheap A) dated to the late 4th millennium BC (Vatandoust et al. 2011).

By the Bronze Age, copper smelting was widely attested in the ancient Near East. Some of the best evidence comes from the long-term field and laboratory projects undertaken at the sites of Feinan and Timna in the southern Levant and in the Sultanate of Oman, described below.

Finds of copper ore, crucibles, and copper artifacts in settlement sites of the Late Chalcolithic Levant, such as Abu Matar, Shiqmim, and Safadi, indicate that metallic copper was smelted from ores mined at Feinan and Timna by the Chalcolithic period (Levy and Shalev 1989; Hauptmann 2007; Golden 2009). During this period, extractive metallurgical activities were concentrated in settlements distant from the mines themselves; evidence for smelting at Timna and Feinan cannot be archaeologically documented before the Early Bronze Age, c.3500 BC, when settlements such as Fidan 4 and Feinan 100 show evidence of domestic-scale copper smelting in crucibles (Craddock 2000: 156; Genz and Hauptmann 2002: 149–50; Hauptmann 2007: 14). In the Early Bronze II–III periods (c.3100–2300 BC), the scale of copper smelting expanded dramatically and was undertaken adjacent to the mines at specialized sites which showed a greatly developed smelting technology using wind-powered furnaces rather than crucibles (Craddock 2000; Genz and Hauptmann 2002: 150; Weisgerber 2006; Hauptmann 2007: 229ff). Copper from these primary smelting sites was further processed into ingots and artifacts at nearby, specialized settlements such as Early Bronze III Khirbet Hamra Ifdan (Levy et al. 2002).

In southeastern Arabia, an intensive program of fieldwork by the German Mining Museum demonstrated the large-scale production of copper from the 3RD millennium BC onwards (Hauptmann 1985). Evidence of Bronze Age smelting was recovered at approximately 20 sites, including the small village extraction site of Maysar 1, with amounts of copper slag at each site varying from several hundred to 4,000 tons. It is likely that many more Bronze Age copper smelting sites once existed in the region (subsequently destroyed by later extraction activities) and it is estimated that a total of 2,000–4,000 tons of copper were produced in Oman during the 3rd millennium BC (Hauptmann 1985: 108). This evidence ties in closely with written sources from 3rd and early 2nd millennium BC Mesopotamia mentioning the import of large amounts of copper from the Persian Gulf region, and is further supported by compositional and lead-isotope analyses of the copper ingots and artifacts from both regions (Prange et al. 1999; Prange 2001; Craddock et al. 2003). Southeastern Arabia continued to be an important copper producer in later periods: Iron Age copper slag heaps in Oman contain up to 25,000 tons of slag, and copper smelting in early Islamic Oman (8th–9th centuries AD) has left individual smelting sites estimated to contain up to 150,000 tons of slag (Hauptmann 1985; Weeks 2003: 14–42).

The earliest lead (Pb) finds in the ancient Near East are a 6th millennium BC bangle from Yarim Tepe in northern Iraq and a slightly later conical lead piece from Halaf period Arpachiyah, near Mosul (Moorey 1994: 294). As native lead is extremely rare, such artifacts raise the possibility that lead smelting may have

begun even before copper smelting (Craddock 1995: 125). Although there is currently no primary evidence for the smelting of lead before copper, the idea is feasible from a technological perspective, as lead can be reduced from its major ores, galena (PbS) and cerussite ($PbCO_3$), at lower temperatures than copper and in a less reducing atmosphere (Craddock 1995: 205ff.). Lead artifacts and copper-lead alloys became much more common during the 4th millennium BC at sites in southern Mesopotamia and Iran, probably as a result of the discovery of techniques for extracting silver from argentiferous lead (see below). Contemporary evidence of lead smelting slags in Iran comes from Tepe Hissar (Pigott 1989a; Thornton, cited in Weeks 2008). Arisman and Tepe Hissar have also produced evidence for the cupellation of lead to produce silver (see below). Lead-isotope analyses of production residues from Arisman indicate that the famous lead mines of Nakhlak (central Iranian plateau) were the source of its argentiferous lead (Pernicka 2004).

From the middle of the 4th millennium BC, silver (Ag) artifacts began to appear across the ancient Near East, in Mesopotamia (Moorey 1994: 235–6), Anatolia (Hauptmann et al. 2002; Yakar 2002: 16–20), the Levant (Prag 1978; Genz 2000) and Iran (Kohlmeyer 1994; Benoit 2004). These early artifacts might have been smelted directly from the major silver ores argentite (Ag_2S) and cerargyrite (AgCl), but they could equally have been extracted from silver-rich (argentiferous) metallic lead (that has been smelted from its ores as described above) through a process known as cupellation. Cupellation relies upon the fact that lead is much more easily oxidized than the noble metals silver and gold. Thus, if argentiferous or gold-rich (auriferous) metallic lead is heated with excess oxygen, the lead will oxidize to form litharge (PbO), while the precious metals remain behind in their unaltered state, usually coalescing as a small pool or "button" on the top of the litharge cake (e.g., Craddock 1995: Fig. 6.9). There is good evidence of the cupellation of lead to extract silver already at the early/mid-4th millennium BC site of Fatmali Kaleçik in southeastern Turkey (Hess et al. 1998). The technology was widespread by the late 4th millennium BC and is attested at Arslantepe (Turkey), Habuba Kabira (Syria), Arisman (Iran), Tepe Hissar (Iran), and Ilgynly-Depe (Turkmenistan) (Tosi 1989; Kohlmeyer 1994; Hess et al. 1998; Pernicka et al. 1998; Pernicka 2004; Salvatori et al. 2009).

The sources and exchange of tin (Sn) remain one of the most controversial issues in the metallurgy of the ancient Near East. In nature, tin occurs predominantly in the form of its oxide, cassiterite (SnO2), although in specific instances other tin-bearing ores such as stannite ($CuFeSnS_4$) may have been significant. In the 3rd millennium BC, objects of metallic tin were extremely rare in the Near East. The handful of known artifacts includes a spiral bracelet from Thermi on the Aegean island of Lesbos dated to the mid-3rd millennium BC (Begemann et al. 1992), caps on a lapis lazuli pinhead from Early Dynastic III period Kish in Mesopotamia (Moorey 1994: 300), and a ring from Tell Abraq in the UAE dated to c.2100–2000 BC (Weeks 1999). Such a picture contrasts dramatically with the

2nd millennium BC, when the large-scale trade of tin into Anatolia is documented in the texts of Assyrian merchants at Kanesh/Kültepe (Dercksen 2005; Veenhof 2010) and more than one ton of metallic tin in the form of ingots and finished artifacts was recovered from the shipwreck at Uluburun (c.1300 BC) alongside numerous additional tin ingots recovered from the waters off the Levantine coast (Pulak 2000). However, as discussed below, although tin was rarely used as a pure metal in the Early Bronze Age, it was widely utilized as a component of copper-based alloy artifacts from perhaps as early as the late 4th millennium BC.

The archaeological evidence of the ancient mining and smelting of tin is very limited. In the 1980s, supposed tin mining and smelting sites were discovered at Kestel and Göltepe in the Bolkardağ Mountains of southern Turkey (Yener 2000). The mine site of Kestel exemplifies the difficulties of reconstructing ore types and grades in ancient workings, as almost all the relevant material was apparently mined out in antiquity. Ceramics and radiocarbon dates indicate that the mine was first exploited during the 3rd millennium BC (Early Bronze Age), before work ceased c.2000 BC (the start of the Middle Bronze Age), although there were later periods of activity. Yener and colleagues maintain that cassiterite was mined at Kestel and processed at nearby Göltepe through a complex process of ore beneficiation, crucible smelting, crushing, and grinding to extract small prills of metallic tin from the low-grade ore (Yener and Vandiver 1993a, 1993b; Yener 2000). Although tiny tin prills have indeed been documented in the metallurgical residues from Göltepe (Earl and Özbal 1996; Adriaens et al. 1999), other scholars doubt the significant occurrence of cassiterite and have suggested that the mine was in fact exploited for auriferous lead (i.e., for gold) or iron ore (Muhly et al. 1991; Wagner et al. 2003: 486–7; see Weeks 2003: 168–9 for a review). Lead-isotope analyses of the tin artifacts from Poliochni and Tell Abraq (mentioned above) indicate that they did not come from Kestel/Göltepe, and although some tin ingots from the Uluburun shipwreck isotopically match ores from the Bolkardağ region (Pulak 2000), the mines show no evidence of use in the Late Bronze Age. Thus, the significance of Kestel/Göltepe as a 3rd millennium tin source remains disputed. Even if the site was producing tin, it cannot have been supplying the entire Near East, and other sources must be sought.

The remaining known tin sources of significance for the ancient Near East are located in Iran and Central Asia. The Central Asian mining of tin is best documented, particularly at the sites of Karnab (Uzbekistan) and Mushiston (Tajikistan) (Parzinger and Boroffka 2003). Karnab shows hundreds of open-cut mines (1–8 meters wide, 10–100 meters long, and up to 18 meters deep) that were dug down from the surface following cassiterite-bearing veins. Miners used stone hammers, bone and antler tools, and fire-setting to break the host granite and ore-bearing rock in operations that can be dated to the late 2nd and 1st millennia BC by radiocarbon dates and associated Andronovo pottery (Boroffka et al. 2002). At Mushiston, situated at 2,830 meters above sea-level, larger underground shafts and galleries were dug to exploit a complex and rich mixture of

oxidized copper and tin ores. Mining at Mushiston has been radiocarbon-dated to as early as c.1500 BC (Boroffka et al. 2002: 142), although earlier exploitation is possible. Together, these major sites and smaller mines nearby provide excellent evidence for tin mining in the 2nd and 1st millennia BC (Alimov et al. 1998; Boroffka et al. 2002; Weisgerber and Cierny 2002; Parzinger and Boroffka 2003). These sources are likely to have been important to the Near Eastern tin trade of the 2nd millennium BC, although as yet no evidence has been recovered for the smelting of the tin ores.

Possible ancient tin mines have also been identified at Deh Hosein in the Zagros Mountains of western Iran, where more than 75 large ellipsoidal depressions (up to $70 \times 50 \times 15$ meters) indicate ancient mining activities on a large scale that can, at present, be radiocarbon-dated as far back as the early/mid-2nd millennium BC (Nezafati et al. 2006, 2009b). Tin, gold, and copper ores are reported from the site, and it may have been important as a source of tin (or perhaps bronze) for the local metalworking industry of Luristan and regions further afield. No smelting sites have yet been recovered adjacent to the ancient mines.

Tin deposits are known in other areas of the Near East, including the Arabian peninsula, and deposits of alluvial cassiterite are also reported from the eastern desert of Egypt and noted in significant numbers in Afghanistan (Weeks 2003: 165ff). There is currently no evidence for the prehistoric exploitation of these deposits.

Iron (Fe) ores are widely available in the Near East (Pigott 1996: Fig. 16) and Rostoker and Bronson (1990: ch. 4) have, more broadly, outlined the great variety and frequency of iron-bearing deposits in comparison to non-ferrous ore bodies, particularly medium and low-grade deposits that would have been exploitable by early, small-scale iron smelting industries. In general, red-brown-black iron oxides such as hematite (Fe_2O_3) and magnetite (Fe_3O_4) and hydrated "bog ores" such as limonite ($FeO(OH)\cdot nH_2O$) and goethite ($FeO(OH)$) would have been the most commonly available and easily smelted. Indeed, relatively low-grade iron ores in bog deposits, ferruginous "black sand" deposits, and laterized soils may have been particularly significant for early iron production in the ancient Near East (Piaskowski 1982; Pigott 1996: 161; Veldhuijzen and Rehren 2007). The smelting of iron is different from that of copper, lead, or tin, in that the metal was never produced in its liquid form. At the temperatures achievable in ancient iron smelting furnaces, the iron produced was a sponge-like solid (Maddin 2003: Fig. 2), mixed together with charcoal and some of the less fluid slag from the smelting process in what is known as a "bloom." After primary smelting, the bloom was extracted from the furnace and the metallic iron component was consolidated mechanically by forging the bloom at high temperatures to force out the liquid slag. Iron is distinct from the other base metals in that it can be welded together simply by hammering at high temperatures; thus, the forging of the bloom served to create a coherent, fused mass of metallic iron that could be

subsequently used for artifact fabrication (Avery 1982; Rostoker and Bronson 1990; Craddock 1995: 241ff; Maddin 2003).

The earliest archaeological appearance of iron in the ancient Near East has been extensively reviewed (Waldbaum 1980, 1999; Muhly et al. 1985; Pigott 1985; Moorey 1994: 278–92; McConchie 2004). Small numbers of iron objects with low nickel concentrations, likely to be made of smelted rather than meteoritic iron (although see Craddock 1995: 104), appear especially in the more westerly regions of the Near East from the later 3rd millennium BC and with increasing frequency through the 2nd millennium BC. By the 8th/7th century BC iron was used on a much larger scale for the production of utilitarian tools and weapons across the Near East. This change in usage is particularly well illustrated in the Neo-Assyrian heartland, where multiple examples of forged iron blooms have been excavated from the palace at Khorsabad amongst iron remains weighing more than 160 tons (Curtis et al. 1979: 371, Fig. 42; Moorey 1994: 289–90).

The archaeological evidence of early iron use is supplemented by a significant, if sometimes difficult to interpret, textual record (e.g., Maxwell-Hyslop 1972; Košak 1986; Moorey 1994: 287ff). Texts from Kanesh/Kültepe have been interpreted as evidence for the working of bloom iron in the early 2nd millennium BC (Maxwell-Hyslop 1972; Dercksen 2005) and written sources from Boğazköy clearly indicate iron bloom smelting and smithing of artifacts by the Hittites in the 13th century BC (Muhly et al. 1985: 71–3, 79). Unfortunately, the archaeological evidence for early iron smelting installations is almost non-existent. Although there have been archaeological claims for iron smelting sites in the ancient Near East dated to as early as c.1300 BC, the earliest indisputable archaeological evidence for primary iron smelting comes from Tell Hammeh in Jordan and dates to c.900 BC. It consists of nearly one ton of debris from iron smelting and bloom consolidation as well as technical ceramics and furnace structures (Veldhuijzen and Rehren 2007). It was not until the mid-1st millennium BC that clearly documented evidence of iron smelting appeared more widely across the Near East.

5 Alloys and Impurities

An alloy is a metallic substance made up of two or more elements, at least one of which is a metal. Alloys exhibit important physical differences compared to pure metals, which would have been noticed and exploited by ancient metallurgists: they can be harder and tougher, more malleable, and they may have a lower melting point than either of their constituents, which means, when their ability to act as deoxidants is also considered, that alloys are generally much easier to cast than pure metals. In addition to these changes in mechanical properties, the aesthetic effects of alloys were significant factors in their early use: alloys have a

different color and may have different sonority from pure metals. The effect of alloying elements on the properties of metals varies with their proportion in the alloy and many have an effect at levels of only c.1 percent or less. For this reason, the difference between an alloying element and an impurity can sometimes be difficult to discern. It is likely, in fact, that the transformative effects of many of the most common alloying elements – tin, arsenic, antimony, zinc, carbon – were first noticed when they were inadvertently incorporated as impurities in metals smelted from mixed ores.

There is a multitude of alloys known from the ancient Near East. This section focuses on the most commonplace copper-based alloys, including arsenical copper (or arsenic-bronze), bronze (or tin-bronze), and brass, as well as alloys of iron and carbon (i.e., steel).

The earliest and most widespread of copper alloys is arsenical copper or arsenic bronze. This alloy commonly contains from c.1–7 percent arsenic (As), although artifacts with over 20 percent As have been recorded. Objects of arsenical copper are reported from as early as the 5th millennium BC in Anatolia, Mesopotamia, and Iran, and the alloy achieved particular prominence from the 4th millennium BC across the Near East (Eaton and McKerrell 1976; Chernykh 1992; Thornton 2010). Arsenical copper alloys show a very long technological continuity and continued to be used for more than 1,000 years after the introduction of tin-bronze in the 3rd millennium BC.

Arsenical copper is harder than pure copper, has a lower melting point, and is much easier to cast. It is also more malleable than pure copper and can be cold-hammered to a much greater extent without cracking (Smith 1981: Fig. 4.9; Lechtman 1996). As the arsenic content increases, the alloy takes on a silvery color, enhanced by a natural process of "inverse segregation" within the alloy that can cause the formation of a surface layer enriched in arsenic relative to the bulk artifact composition (Eaton 1980). An example of the exploitation of the silvery color of arsenic can be seen in a Bronze Age bull figurine from Horoztepe in Anatolia, the body of which is made from copper inlaid with stripes of the lighter-colored 12 percent As alloy (Smith 1973).

The widespread occurrence of arsenical copper, not only in the Near East but across both the Old and New Worlds, is no doubt related to the common co-occurrence of arsenic and copper ores in nature (Charles 1967, 1980, 1985; Lechtman 1996). In the Near East, arsenic-rich copper deposits are known in Anatolia (e.g., Zwicker 1980; Hauptmann et al. 2002), the Caucasus (Smirnov 1989; Kavtaradze 1999) and Iran (Pigott 1999a; Pigott, cited in Weeks 2008). As there is no evidence for the production of metallic arsenic in the ancient Near East (Moorey 1994: 240), the production of arsenical copper most likely involved either the smelting of mixed copper and arsenic ores, or the addition of arsenic-rich minerals to molten copper under charcoal (Charles 1985; Lechtman and Klein 1999). As a result, an ongoing debate has arisen as to whether early arsenical copper was produced intentionally or accidentally, although more recently

the discussion has tended to focus upon whether such production was "controlled" or "uncontrolled" (Pigott, cited in Weeks 2008). Most significantly, recent research at Tepe Hissar in Iran has highlighted the possibility that, already by the 4th millennium BC, arsenic-rich "speiss" (an iron-arsenic compound) was intentionally smelted in order to be directly alloyed with copper to make arsenical copper (Thornton et al. 2009). Analyses of material from late 4th/early 3rd millennium BC Arslantepe (Turkey) have also revealed slags that were rich in a nickel-arsenic speiss (Craddock 2000: 160) and it is interesting to consider what role such a substance might have played in the production of ternary Cu-As-Ni alloys that are widely, if discontinuously, distributed across the Near East in the Bronze Age (Hauptmann et al. 2002; Hauptmann 2007: 297–301, Fig. 8.19).

In addition to Cu-As and Cu-As-Ni alloys, ternary alloys of copper, antimony, and arsenic (Cu-Sb-As) have also been recorded in the ancient Near East. The best and most significant example is provided by the hoard of Chalcolithic (c.3600 BC) artifacts recovered from Nahal Mishmar, the "Cave of the Treasure", near the Dead Sea (Bar-Adon 1980). In addition to objects of hematite and ivory, 416 copper-based artifacts were recovered there. While 17 of the metal items are commonplace tools such as axes/adzes, chisels, and hammers, the vast majority are "cultic" or prestige items such as mace heads (242), maces/standards/scepters (120), "crowns" (10), vessels (5), and other items without an obvious utilitarian function. Analyses indicate that the "cultic" items are made of a range of alloys rich in arsenic (up to 15 percent As), antimony (up to 26 percent Sb) and, more rarely, nickel (up to 9 percent Ni), whereas the tools in the hoard are made of very pure copper (Shalev and Northover 1993; Tadmor et al. 1995). The "cultic" artifacts with high As and Sb would have had a very clear, silvery, or even purplish metallic appearance, strongly contrasting with the reddish color of the unalloyed copper. The complex and intricate cultic Cu-Sb-As alloy artifacts are amongst the earliest examples from the Near East of objects cast using the lost-wax (*cire perdue*) technique (see below), a technological innovation that was no doubt facilitated by the lower melting temperature of such ternary alloys. In comparison, the pure copper tools from Nahal Mishmar were cast in simple, open (unifacial) molds. Stylistic studies of the hoard artifacts and scientific analyses of the stone and clay cores in the "cultic" objects indicate that they were cast locally (Goren 2008), whereas the Cu-Sb-As alloy metal itself was almost certainly foreign to the region. Sulfidic inclusions suggest that the complex alloys derived from the use of minerals in the tennantite-tetrahedrite ($Cu_{12}As_4S_{13}$-$Cu_{12}Sb_4S_{13}$) series that are not present in the major copper deposits of the Levant but are common far to the north in eastern Anatolia and the Caucasus (Tadmor et al. 1995: Fig. 30).

Bronze or tin-bronze is the other major alloy of copper encountered in the ancient Near East. The definition of a tin-bronze is arbitrary, but in general artifacts with a tin content of >1 percent Sn can be regarded as tin-bronzes. Most tin-bronzes contain 5–15 percent Sn, with a 10 percent Sn bronze being regarded

as an ideal alloy in terms of its advantageous mechanical properties. Ancient texts with recipes/instructions for the manufacture of bronze specify a very wide range of tin content, from as little as 1 percent to as high as 20 percent Sn (Muhly 1973: 243–4; Waetzoldt 1981; Archi 1993; Limet 1993). Adding tin to copper has a very similar range of effects as adding arsenic; up to about 15 percent Sn (its solubility limit in copper), there are improvements in strength and toughness, cold-workability, and ease of casting. The addition of tin also changes the color of copper from reddish to golden. Above about 15 percent Sn, tin-bronze alloys become increasingly brittle and difficult to cold-work.

There has been a great debate over the relative mechanical properties of tin-bronzes vs arsenical copper, and these have been regarded as a key reason for the replacement of arsenical copper by tin-bronze during the Bronze Age. Several studies suggest that there is little to separate the two alloys (e.g., a 5 percent As bronze and a 10 percent Sn bronze) in terms of improved strength, hardness, and castability. Arsenical copper may be more ductile and therefore favored in early metalworking industries where cold-working predominated over casting, but tin-bronzes can be worked to a greater overall hardness than arsenical copper (Lechtman 1996). However, the contexts in which early tin-bronzes are recovered and the uses to which tin-bronze was put suggest that considerations of mechanical properties were not paramount in the adoption of tin-bronze and it may be that other properties were more significant in their selection and use by ancient metallurgists in the Near East. Arsenic is of course a deadly poison and heating arsenic-rich ores and objects would have released poisonous, arsenious oxide gas, albeit in small quantities. Continued exposure to arsenic-rich materials would no doubt have affected the health of metallurgists working with them, a problem not faced when working with non-toxic tin and cassiterite (Charles 1967, 1980). Moreover, as outlined above, controlling the arsenic content of arsenical copper could have been a difficult matter, leading to the creation of a material with inconsistent properties. As tin could be added to copper in its metallic form, the ability to accurately control alloy composition and material properties of tin-bronzes was greatly enhanced (Charles 1980; Lechtman 1996).

The earliest tin-bronzes in the Near East date to the early 3rd millennium BC. Key sites include Troy and adjacent Aegean islands (Pernicka et al. 1984; Stos-Gale et al. 1984; Pernicka et al. 1990; Begemann et al. 1992; Stos-Gale 1992); Ahlatlibel, Mahmatlar, Alaça Höyük, and Horoztepe in central Anatolia (Jesus 1980; Muhly 1993); Tarsus, Tell Judaidah, Ebla, and Tell Qara Quzaq in southern Anatolia and northern Syria (Stech and Pigott 1986; Muhly 1993; Montero-Fenollós 1997); the Y cemetery at Kish and the Royal Cemetery at Ur in southern Mesopotamia (Stech 1999); and Velikent in the Caucasus (Kohl et al. 2002). These early occurrences parallel the evidence from Mesopotamian cuneiform sources, which first distinguish between copper and tin-bronze in the Early Dynastic I period (c.2900–2750 BC) and which first mention metallic tin in the Early Dynastic II period (c. 2750–2500 BC) (Muhly 1973; Moorey 1994:

251ff). By the later 3rd millennium BC, tin-bronze was used also in the Levant, Iran, Central Asia, and eastern Arabia, although it was not until well into the 2nd millennium BC that tin-bronze became the dominant copper alloy in the ancient Near East and both pure copper and arsenical copper continued to be utilized in many areas (e.g., Weeks 2003: 173–8; De Ryck et al. 2005).

Brass, the alloy of copper and zinc (Zn), is usually regarded as a metal of the Classical world and examples are widespread from the Roman period onwards (Craddock 1978; 1995: 294). However, recent reviews have highlighted the occurrence of small numbers of Cu-Zn alloys (with c.5–20 percent Zn and often also appreciable amounts of tin) across the Near East from the mid/late 3rd millennium BC onwards, with increasing numbers in 2nd and early 1st millennium BC contexts (Craddock and Eckstein 2003; Thornton and Ehlers 2003; Thornton 2007).

Brass is more difficult to manufacture than tin-bronze. This is largely due to the difficulty of producing metallic zinc, which was extraordinarily rare in the ancient world (one fragment has been recorded in the Athenian Agora excavations; Craddock 1995: 295). As zinc melts at 420°C and boils at 907°C, it is a vapor at the temperatures at which it is smelted and will be lost to the atmosphere unless distillation apparatus is in place. Zinc is also gaseous at temperatures below the melting point of copper (1083°C). In the Classical world, brass was produced by a process known as cementation, in which zinc carbonate ore (smithsonite, $ZnCO_3$) was mixed in a closed crucible with finely granulated metallic copper and charcoal and heated to temperatures of c.950°C. The calamine was reduced to zinc vapor, which diffused into the still solid copper. After the smelting and absorption were completed, the temperature was raised above c.1000°C in order to melt the new brass alloy and allow it to form a coherent ingot (Craddock 1995: 292ff). Using this technique, brass with up to c.40 percent Zn could have been produced, although levels of 20–25 percent Zn are more common in "fresh" cementation brass (Welter 2003). As there is currently no evidence for cementation from the pre-Classical Near East, the brass objects that occur sporadically from the 3rd millennium BC onwards were most likely produced by smelting mixed copper and zinc ores (Thornton 2007), probably in a closed crucible or furnace that could have minimized the escape of zinc vapor (although this is not strictly necessary; Rostoker and Dvorak 1991).

A range of other alloys is known from the ancient Near East. These include the natural alloy electrum, already discussed above. Analyses of 3rd millennium BC electrum samples from Mesopotamia indicate that many contain c.1–6 percent copper (Moorey 1994: 231–2; La Niece 1995). Although copper can be found naturally in electrum, it is likely that this represents an intentional addition to the alloy in order to increase its hardness and durability. Techniques to enhance the surface appearance of electrum by depletion gilding were developed by the 3rd millennium BC (La Niece 1995) and by the 1st millennium BC evidence from Sardis (Turkey) indicates that techniques based upon cementation

with salt had been developed to allow the refining of electrum in order to remove silver and copper and produce pure gold (Craddock et al. 2005)

Other alloys incorporating precious metal include that of copper and silver (incorporating more than 50 percent Ag in some instances), reported at sites from the Caucasus and southeastern Anatolia to southern Mesopotamia from the late 4th to the early 3rd millennium BC. Examples are known from Velikent (Gadzhiev and Korenevskii 1984), Arslantepe (Hauptmann et al. 2002) and Uruk (Müller-Karpe 1991). It has been suggested that the Cu-Ag alloys at Arslantepe and in southern Mesopotamia represent material and/or technological influences from the Caucasus (Hauptmann et al. 2002).

Copper-lead alloys are known from as early as the 4th millennium BC at Susa in Iran (Tallon 1987) and leaded copper and tin-bronze occur, albeit infrequently, at a number of sites in Mesopotamia and the wider Near East from the 3rd through 1st millennium BC (Philip 1991; Moorey 1994: 294ff; Rosenfeld et al. 1997; Klein and Hauptmann 1999). Although lead has a deleterious effect on the cold-workability of copper, it greatly increases the fluidity of the metal and improves its casting properties. Particularly good examples of lead used in such a way are provided by amulets from eastern Iran and Baluchistan, datable to the later 5th or 4th millennium BC, incorporating up to 40 percent Pb, which are the earliest known examples of lost-wax casting (Mille cited in Weeks 2008: 336).

The last alloy to be considered here is steel, an alloy of iron and carbon (C). The incorporation of even small concentrations of carbon into iron can significantly increase its hardness. Iron with low levels of carbon (under c.0.1 percent C) is known as "bloom iron" or "wrought iron" and its strength and toughness are similar or inferior to that of standard tin-bronze (Rostoker and Bronson 1990: 9; Rehder 1992). In contrast, alloys of iron with higher levels of carbon (c.0.1–2.0 percent C) – i.e., "steel" – show dramatic improvements in strength and hardness over tin-bronze. Iron with c.2–5 percent carbon is known as "cast iron." This is very hard, brittle, and unsuited to forging, and does not appear to have been produced in the ancient Near East (although see Moorey 1994: 285).

It is clear that early iron smelters produced a heterogeneous bloom that had variable levels of carbon; some areas would have been wrought iron, whereas other areas could have absorbed enough carbon to be classed as mild steels (Avery 1982: 207; Rostoker and Bronson 1990: 97–8). Such heterogeneity could have survived bloom consolidation in relatively oxidizing atmospheres, leading to the unintentional production of malleable billets containing both wrought iron and steel. Alternatively, steel can be deliberately produced by carburizing or "steeling" wrought iron in a furnace under charcoal – a slow, solid-state diffusion process that can take many days. It can prove difficult for archaeometallurgists to distinguish between individual artifacts made from steel produced accidentally or in an uncontrolled manner in the iron bloomery and those that were intentionally carburized, although the metallurgical characteristics of larger object

assemblages provide a better guide to intentionality (Maddin 1982). Early examples of carburized artifacts are known from Cyprus, Anatolia, and the Levant in the late 2nd millennium BC, where they occurred alongside uncarburized iron (Waldbaum 1999). Based upon analytical studies, Wheeler and Maddin (1980: 121) have suggested that "smiths were carburizing intentionally on a fairly large scale by at least 1000 BC in the Eastern Mediterranean area." Contemporary ferrous artifacts with variable levels of carbon are known from Luristan in Iran. However, these are interpreted as the unintentional result of heterogeneous bloom smelting (Moorey 1991a; Rehder 1991).

The effects of carbon in steel can be dramatically increased with heat treatment involving forging (hammering), quenching (rapid cooling), and tempering (mild heating to remove brittleness) (Rostoker and Bronson 1990: 4–5). The archaeological evidence for the developed heat treatment of iron is relatively limited, partly due to the high corrodibility of iron and the consequent difficulty of analyzing corroded artifacts. Studies by Stech-Wheeler et al. (1981), Maddin (1982), Smith et al. (1984), and Muhly et al. (1985), amongst others, indicate that the heat treatment of iron was quite variable in the late 2nd and 1st millennia BC. Evidence for the intentional quenching and tempering of carburized iron comes from 11th century BC sites such as Lapithos, Idalion, Amathus, and Kouklia-Skales on Cyprus. This is matched by a 12th/11th century BC pick from Mount Adir in Israel that is made of quenched and tempered steel (Maddin 1982) and possibly by an even earlier, Middle Bronze Age blade from Pella (Jordan) of quenched steel, although its archaeological context is questionable (Smith et al. 1984). In other parts of the Near East, however, iron with inconsistent carburization and little or no evidence for developed heat treatment continued to be produced well into the 1st millennium BC (e.g., Curtis et al. 1979).

6 Artifacts and Fabrication Techniques

As discussed above, the earliest metal artifacts from the ancient Near East are relatively simple "trinkets" such as awls, chisels, and beads produced only by hammering and heating. However, with the ability to melt and cast metals and alloys, from the 5th millennium BC onwards, a much wider variety of artifacts began to be produced. By the Bronze Age, copper-base weapons such as swords, daggers, knives, axes, maces, arrowheads, and spears were manufactured across the Near East, as was military equipment, including armor, helmets, and horse gear. Metals were used for administration, craft, and agricultural production, as attested by the existence of copper-base stamp and cylinder seals, adzes, saws, drills, hoes, shovels, and sickles. Metals were also used for personal adornment and toiletries, such as mirrors, clothes pins (*fibulae*), rings, beads, and razors. Metal vessels, including cups, bowls, jugs, and cosmetic containers, are known from as early as the late 4th millennium BC and sheet metal was used to decorate

architectural structures, furniture, and other equipment. Metals were also used in the manufacture of figurines, statuettes, and larger-scale human statuary, and a host of more enigmatic items such as the famous "standards" of Bronze Age Anatolia (Özyar 2000).

Good illustrations of the range and typological variety of early metal artifacts from the ancient Near East can be found in Hauptmann and Pernicka's (2004) overview of Mesopotamian metalworking, Tallon's (1987) publication of the metal artifacts from Susa in Iran, Deshayes' (1960) extraordinarily broad geographical overview of Bronze Age tools from the Indus to the Balkans, and Chernykh's (1992) volume on early metallurgy in the Balkans and the Black Sea region (see also Chernykh et al. 2002). In addition, 13 volumes of the *Prähistorische Bronzefunde* series are currently devoted to areas of the ancient Near East, covering figurines, swords, and daggers, axes and adzes, and vessels from the Levant (Seeden 1980; Gershuny 1985; Miron 1992; Shalev 2004); figurines and vessels from Iraq (Rashid 1983; Braun-Holzinger 1984; Müller-Karpe 1993); axes, tools, belts, and fibulae from Anatolia and the Caucasus (Erkanal 1977; Caner 1983; Kellner 1991); and additional artifact types from Iran, Oman, and Cyprus (Negahban 1983; Matthäus 1985; Yule and Weisgerber 2001).

These assemblages demonstrate the relatively rapid development and spread of metalworking skills in the ancient Near East. In particular, the development of casting can be traced from the first use of open or unifacial molds in the 5th and early 4th millennium BC, to later bivalve and multi-piece molds of stone or clay that allowed for the production of, amongst other things, socketed tools and weapons (Tallon 1987; Moorey 1994: 269ff, Pl. VII; Chernykh et al. 2002: 90; Müller-Karpe 2002; Pizchelauri and Pizchelauri 2002; Benoit 2004). Because of the limited number of molds that have been reported from southern Mesopotamia, Müller-Karpe (1991) has raised the possibility that sand-casting was also used in this area (see Ottaway and Wang 2004 for a technical discussion of sand molds). Lost-wax (*cire perdue*), or investment casting (see Coghlan 1975: 61–4 for a description of the technique), is attested by the late 5th millennium BC in Baluchistan (Mille, cited in Weeks 2008; Mille et al. 2004) and by the 4th millennium BC at Nahal Mishmar in the Levant (Tadmor et al. 1995; see above) and in southern Mesopotamia and neighboring regions (Moorey 1994; Benoit 2004). The technique allowed the production of complex, three-dimensional artifacts, as the cast artifact did not have to be pulled from the mold. While early examples of lost-wax casting tend to be small, by the later Bronze and Iron Ages lost-wax castings of a very large size were being produced. One of the largest surviving examples is the broken, 1.29 meter high Middle Elamite statue of Napir-Asu from Susa, weighing c.1,750 kilograms and consisting of a decorated copper exterior with a solid tin-bronze core (Potts 1999: 218, Pl. 7.3).

Precious metals were most commonly used for the production of jewelry and prestige items, most often found in elite religious, secular, and especially burial contexts. The most famous examples include the headdresses, jewelry, vessels,

and musical instruments from the Early Dynastic III period royal graves at Ur (Zettler and Horne 1998), although elaborate precious metal artifacts were deposited in tombs across the Near East by the 3rd millennium BC (e.g., Aruz 2003). Some utilitarian artifacts, such as chisels, are occasionally found in precious metals (e.g., La Niece 1995), but it is clear that they were for display and not designed to function as tools. The precious metal jewelry of the ancient Near East has been comprehensively reviewed by Maxwell-Hyslop (1971) and a more recent overview for Mesopotamia can be found in Moorey (1994: ch. 5).

For the later periods, the discovery at Nimrud of four Assyrian royal tombs dated to the 8th/7th centuries BC has revealed thousands of gold artifacts – jewelry, vessels, and other items – weighing hundreds of kilograms (Moorey 1994: 222–3 Hussein and Suleiman 2000). Alongside 1st millennium discoveries such as the gold vessels from Hasanlu and Marlik in Iran (Negahban 1983), the Mesopotamian royal jewelry attests to the continued existence of a wide range of skills in the working of precious metals first developed in the 3rd millennium BC. These include sheet-working techniques such as the raising and sinking of vessels, decoration using chasing, repoussé, engraving, punching and stamping, and joining by soldering and brazing. More complex techniques including the use of filigree wire-working, granulation, and depletion gilding are also attested in Mesopotamia and the wider Near Eastern Bronze Age world (Moorey 1994: 216ff; La Niece 1995; Aruz 2003).

Interestingly, the earliest occurrences of iron tend also to be for decorative items, especially jewelry, and for weapons that may have held prestige status (e.g., Siegelová 2005: 38). The best examples of the latter include the late 3rd millennium BC dagger from Tomb K at Alaça Höyük in Anatolia, an iron axe-head with a bronze and gold socket from Ugarit (c.1400 BC), and an iron dagger with a gold hilt from the tomb of Tutankhamun in Egypt (Waldbaum 1980). At this early date, the constant association of iron with gold suggests that it too was regarded as a precious metal. By the late 2nd millennium BC, iron began to be used for utilitarian purposes and by the early/mid-1st millennium BC, both texts and archaeology indicate that iron and steel came increasingly to dominate the production of functional agricultural equipment such as sickles, ploughshares, and hoes; tools such as saws, axes, and adzes; and weapons such as spearheads, swords, and daggers (Curtis et al. 1979; Siegelová 2005). The large-scale use of iron in Assyria has been linked by some scholars with the adoption of iron in regions under Assyrian influence, such as northwestern Iran, where the Iron Age citadel of Hasanlu has yielded more than 2,000 iron artifacts (Pigott 1989b, 1999a).

The production of such iron and steel tools depended on the development of a set of techniques substantially different from those of the bronze-worker, who was familiar primarily with the casting of liquid metal. These are the skills of forging, welding, and hot-working iron and steel in the *solid state*: the skills of the blacksmith. A number of technical studies have highlighted the time it took

for Near Eastern metalworkers to appreciate the qualities of iron and steel and modify their fabrication processes to produce effective artifacts. Certainly, the early iron artifacts from Luristan and Hasanlu betray their makers' greater familiarity with bronze-working than with ironworking (Smith 1971; Rehder 1991; Pigott 1999a). The earliest textual references to blacksmiths come from Assyria in the 12th century BC, where they were closely associated with royal houses – a relationship that continued into the 1st millennium BC (Curtis et al. 1979; Waldbaum 1980: 90). In Israel there is archaeological evidence of blacksmiths' workshops at the 9th century BC site of Tell Beth Shemesh, including furnaces, smithing hearth bottom slags, and hammerscale recovered through exhaustive sampling protocols (Veldhuijzen and Rehren 2007; Veldhuijzen 2009), and in 8th/7th century BC contexts at Tell Dor (Eliyahu-Behar et al. 2008).

7 Concluding Remarks

The evidence for mining and metallurgy in the ancient Near East is vast, and this review chapter is necessarily brief, superficial, and incomplete. While I have focused upon the technical aspects of mining, smelting, and artifact fabrication, it must be recognized that metals were important for far more than their intrinsic properties. The value of metals was influenced by their rarity, strength, and color, but it was ultimately defined *culturally*, by the individuals and societies who used them. It was in part the adoption of metals as markers of prestige or status, readily apparent in the archaeological record, that saw this new category of material adopted so widely and rapidly across the Old World and exchanged in quantity over such long distances. As the object types described above attest, despite being relatively rare, often geologically distributed at great distances from concentrations of population, and difficult to extract, metals had, by the Bronze Age, infiltrated all aspects of Near Eastern society. Whether one considers the possible use of Central Asian tin at Kanesh/Kültepe, Omani copper at Ebla, Egyptian gold in the Levant, or Iranian silver at Uruk, it is clear that metals linked ancient Near Eastern cultures in ways that both reflected and generated their social, political and economic development.

GUIDE TO FURTHER READING

A good general overview of early metal mining and smelting is provided by Craddock (1995), whilst Rostoker and Bronson (1990) is a fundamental reference for early iron. For the Near East specifically, Pigott (1999c) includes several important papers. Useful publications on specific technical aspects include Bachmann (1980) on archaeological slags, Smith (1981) and Scott (1991) on metallographic analyses, and *JMA* 8 (1995) for

a series of papers on lead-isotope analysis. Metallurgy in Anatolia is reviewed in *Anatolian Metals, vols. I–IV* (Yalçin 2000b, 2002, 2005, 2009) and in Yener (2000). For an overview of Mesopotamian metallurgy, Moorey (1994) is indispensible. For Iran, see Tallon (1987) on Susa, the reviews of Pigott (1999a, 1999b) and Thornton (2009), and various papers in Stöllner et al. (2004). For the Levant, see Rothenberg (1990), Weisgerber (2006), Hauptmann (2007), and Golden (2009). For the Arabian Peninsula, see Hauptmann (1985), Weeks (2003), Peli (2006), Peli and Téreygeol (2007), and Weeks et al. (2009). Ancient Near Eastern texts dealing with aspects of metallurgy are discussed by Limet (1960, 1972, 1985) and Muhly (1973), in addition to the specific references in the main text. A broader context for understanding the metallurgy of the ancient Near East is provided by the "Modelling Early Metallurgy" double issue of *JWP* 22 (2009), by Nicholson and Shaw (2000), and by more general archaeometallurgical publications, including Rehren, Hauptmann, & Muhly (1998), Hauptmann et al. (1999), Young et al. (1999), Stöllner et al. (2003), and La Niece et al. (2007).

CHAPTER SEVENTEEN

Glass

Wendy Reade

1 Introduction

Glass was one of the first materials to be made by man. Until the mid-2nd millennium BC, or the Late Bronze Age (LBA), the production of glass objects in the Near East appears to have been limited, with very few examples recovered from archaeological excavations. From the late 16th century BC, the volume of glass production increased markedly, the evidence of which is found in the beads, small mold-made pieces, core-formed vessels, inlays, and ingots excavated at sites throughout the Near East and Egypt, such as Nuzi in Iraq and Pella in Jordan.

These earliest glass objects appear to have been the product of an already complex pyrotechnological industry, the origins of which have been much debated. Before this time, vitreous technology centered on faience production and the glazing of stone, with rare exceptions, such as a piece of raw glass from Eridu (Barag 1985: no. 179) and other sporadic finds (Moorey 1994: 190–1). When glass-making flourished in the mid-2nd millennium BC, it was not, therefore, a new invention. The technological advance signified by this increased and systematic manufacture is evident in the appearance of new production techniques, such as fusing, marvering, trailing, and core-forming of vessels, and the creation of a wider range of colors than had previously been used (Moorey 1994: 193). General summaries of the nature of glass and the technology and techniques of ancient glass production have been published – e.g., by Newton and Davison (1989: 1–17, 54–69), Stern and Schlick-Nolte (1994: 19–95), and

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Schlick-Nolte and Lierke (2002: 11–40). The vitreous products of this industry include glaze, faience, and frit, besides glass. This chapter is concerned with glass and its technological development from the LBA to the end of the Iron Age (IA) in the mid-1st millennium BC.

When studying the earliest glasses, the utility of the traditional archaeological approach of visual classification by physical type is limited by the narrow and simple range of shapes of objects encountered, other than vessels. It is difficult to determine the origin of these objects and hence the geographic extent of their manufacture and distribution. From physical studies alone, it is impossible to know the nature of the raw materials used to make ancient glasses (Matoïan 1999: 56). Chemical studies, or compositional "finger-printing," are developing as a result of the increased interest in the practical questions that they can help to answer and the refinement and improved sensitivity of the analytical instrumentation now available.

Ancient glass compositions can be characterized to ultra-trace element levels measured in parts per billion (ppb). Compositional data are used to determine as far as is possible the raw materials employed in glass production and enhance the interpretation of the earliest glass-making practices. Glass is, by definition, an amorphous material, made from a variable combination of natural materials of variable composition, making the interpretation of its elemental composition a complex task.

2 Historical Background of Early Glass

The development and proliferation of glass-making occurred during the Late Bronze Age in the cosmopolitan cultural framework of the Hurrian-dominated, northern Syro-Levant and Mesopotamia and the powerful Egyptian state and its vassals. In the mid-2nd millennium BC these cultures were already connected by trade routes which led north–south along the Levantine coast and the Jordan valley from Egypt to Syria, and east along the arcs of the Tigris and Euphrates rivers which formed the Fertile Crescent (Moorey 1989; 1999: 5–6, 10; Kuhrt 1995: 283; Van de Mieroop 2007: 127–35).

At this time, Cyprus, the Aegean and the coastal regions of the eastern Mediterranean, including Egypt, were connected by regular maritime trade. The inland regions, such as Mesopotamia, were not directly involved but were connected to the coastal traders by overland trade routes. In the later 2nd millennium BC the quantity of goods that entered the Near East from the west reached unprecedented levels and included ceramics, copper, tin, ivory, and other products in a complex exchange network, vividly illustrated by LBA shipwrecks such as those of Cape Gelidonya and Uluburun off the Turkish coast. A large number of raw glass ingots, recovered from the Uluburun wreck, provide evidence of trade in this commodity (Bass et al. 1989; Knapp 1993; Akkermans and Schwarz 2003:

352; Van de Mieroop 2007: 117). Textual evidence and surviving arts and crafts demonstrate the internationalism of this period and the movement and exchange not only of goods, but of ideas and people (Akkermans and Schwarz 2003: 354).

The end of the Late Bronze Age, c.1200 BC, and the commencement of the Iron Age belong to a period which is termed a "Dark Age" that affected the whole of the eastern Mediterranean region. From this time, written records are scarce and there has been much debate regarding the various events that are thought to have contributed to the collapse of the LBA civilizations. The large urban centers and political systems of the eastern Mediterranean world experienced a period of crisis and collapse which saw the abandonment of several cities, including Ugarit on the Syrian coast, Alalakh in southeastern Turkey, and Tell Brak in northern Syria. The Hittite state to the north, and Mycenaean Greece and Cyprus to the west, were destroyed, while Egyptian imperial involvement in the Near East was curtailed. The Middle Assyrian empire in Syria, which had emerged after the defeat of Mitanni in the late 14th century BC, held out until its territories were finally reduced by the mid-11th century BC. The once flourishing maritime trade of the LBA ended with widespread destruction and political instability in the region (Liverani 1987; McGovern 1987a: 271; Dever 1992: 18–19; Drews 1993; Akkermans and Schwarz 2003: 358–9). Glass becomes scarce in the archaeological record at this time.

McGovern (1987a: 267) argued that the LBA cosmopolitan city-state system was transformed into a much more insular society in the early IA, with few foreign contacts and a lower standard of living, in part due to the disruption of trade. Elements of early IA material culture superficially appear to be different from those of the LBA, but cultural and technological continuity is also evident in the uninterrupted use of the same cemeteries and settlement sites and in elements of material culture (McGovern 1987a: 267–9). The economic decline of the period is reflected in the apparent reduction in the production of glass at this time. There is an almost total absence of glass finds from the late 2nd/early 1st millennia BC until the 9th–8th centuries BC, when glass vessels and other glass objects, such as inlays and beads, were being made again in the Near East (von Saldern 1965; 1970: 205; 2004: 5–67; Harden 1968: 49, 53; Barag 1970: 131; 1985: 51; Webb 1987: 145; Moorey 1999: 198–9). Harden (1968: 53) proposed that from the 9th century BC onwards there were probably two centers of glass vessel production, one on the Syrian coast and one in Mesopotamia. Both made core-formed vessels and, more rarely, mosaic glass, and developed casting and cold-cutting of glass, as found at Nimrud, for example. Results of recent chemical analyses of Mesopotamian glasses support the theory that there was more than one glass manufacturing site in the LBA Near East (Degryse, Boyce, et al. 2010).

At the end of the 10th century BC, the Assyrians began a series of successful campaigns against the peoples to the west, establishing the Neo-Assyrian empire (c.900–609 BC). In the IA, trade became a more commercialized, geographically widespread venture, no longer exclusively controlled by elite powers (Akkermans

and Schwarz 2003: 9–10, 360–1, 377, 386). By the late 8th century BC, the Assyrian empire was the largest political entity the Near East had ever seen (Akkermans and Schwarz 2003: 378–9). Before its fall in the late 7th century BC, sites like Nimrud, in Iraq, and Hasanlu, in Iran, were characterized by both the quantity and variety of their glass finds, which are securely dated to this period of resurgence in glass-making (Moorey 1999: 198).

At Nimrud, vessels were predominantly monochrome (many are colorless) mold-made and cut-glass bowls (von Saldern 1965), rather than the polychrome core-formed vessels of the preceding LBA. This suggests that significant technological change took place between the LBA and the IA. This can also be seen in the typological distinctions that exist between the LBA core-formed vessels and those of the IA, which are smaller and of poorer quality glass and workmanship, and which exhibit no direct links with earlier LBA types (Moorey 1999: 200). Barag (1970: 135, 171–4) remarked on the limited distribution of core-formed vessels in the LBA in contrast to the diffusion of such vessels to remote and very different regions in the IA. LBA vessels display less variety in shape and were frequently made with a blue base color, whereas IA vessels have a much wider range of shapes, usually made in very dark colors, such as dark brown, green-black or black, and sometimes in blue, turquoise, brown, and yellow, with one known white example.

Glass all but disappeared from Egypt between the 11th/10th and the 7th/6th centuries BC, the time of the troubled Third Intermediate Period. Small numbers of glass samples have been found, dating to the 26th Dynasty, but glass remained rare until the 4th century BC (Nicholson 1993: 61; Moorey 1999: 200). A lack of IA glass-making evidence from Egypt has led to the suggestion that the Nimrud mold-formed bowls were made either locally or in Phoenicia (Moorey 1999: 199). Von Saldern (1970: 209) was undecided on whether the origins of IA glass were Phoenician, Syrian, or Assyrian, and Barag (1985: 52–5) later argued for manufacture by Phoenician craftsmen, perhaps working in Assyrian court workshops. This was based on circumstantial evidence, such as glass inlays attached to carved "Phoenician" ivories and the presence of similar glass inlays on a cut glass bowl (von Saldern 1970: nos 29–30 linking the glass from Nimrud with Phoenician production). This proposition was supported by Orchard and Brill (1978) and Moorey (1999: 200). The Phoenicians have been widely recognized as the manufacturers and exporters of well-crafted metal vessels, jewelry, ivory furniture components, and glass objects (Akkermans and Schwarz 2003: 387–8).

3 The Early Glass Industry

Many writers have commented that glass was made to imitate precious stones, primarily lapis lazuli, turquoise, and, later, rock crystal, amongst others (see e.g., Pliny, *Natural History* 36.67.196–9, 37.10.28–9, and 37.33.111–12; Oppen-

heim et al. 1970: 9–15; Moorey 1999: 77). The status of glass as a highly prized material in its own right is evident not only from the predominance of glass in the archaeological record in temples, palaces, and elite burials, but from ancient texts, such as the Amarna letters of 14th century BC Egypt, which draw comparisons between stones and glass and which list glass as a prized commodity exchanged between the elite. The Assyrian glass-making texts, from the 7th century BC library of Assurbanipal at Nineveh, contain recipes for the production of glass, but are not technically explicit. Hence the technology of and raw materials used in ancient glass-making remain imperfectly understood (Oppenheim et al. 1970: 22–68; Moran 1992; cf. Nicholson 1993: 49; 2007: 2; Nicholson and Henderson 2000: 195–6; Shortland 2007: 261–262).

Little is known about where glass was produced in the LBA and IA Near East. The trade in glass ingots, such as those found in the Uluburun shipwreck of the late 14th/early 13th century BC (Bass 1986; Pulak 1988: 14; Bass et al. 1989), indicates that glass-making and glass-working could have been separate industries and that the formation of glass into objects could be carried out in locations far from the raw glass production site, a point recently proven by chemical analysis of beads made in Mycenaean Greece from glass of Egyptian and Near Eastern origin (Walton et al. 2009). The discovery of glass ingots at LBA and IA sites such as Ugarit, Nuzi, Tell Brak, and Nimrud suggests that glass was worked at these places, if not made there (Moorey 1999: 202–3). That the division between glass manufacture and object production was widespread in antiquity has been widely discussed (Baxter et al. 1995; Freestone et al. 2000: 66–7; Gorin-Rosen 2000; Matoïan 2000a, 2000b; Nenna et al. 2000; Rehren et al. 2001; Shortland 2007: 262–7).

Glass-making remains are rare and, to date, are documented only in Egypt at Tell el-Amarna (Nicholson 1995a, 1995b, 1996, 2007; Shortland and Tite 1998; Shortland 2000a, 2000b), Malkata (Mass et al. 2002: 68; Nicholson 2007: 21) and Qantir-Piramesses (Rehren and Pusch 1997, 1999, 2005, 2008; Rehren, Pusch, & Herold 1998; Schoer and Rehren 2007). It is believed that glass was made in the Near East at this time, possibly at several production centers in the Syro-Mesopotamian region, but no definitive glass-making remains have been identified (Moorey 1999: 201–2). Although Pliny's account (*Nat. Hist.* 36.65.191) of the origins of glass-making in the lime-rich sands at the mouth of the Belus river in modern Israel is considered apocryphal (Wedepohl 1997: 247), other strands of circumstantial evidence point tantalizingly to the production, if not the origin, of glass-making in the north Syrian or Mesopotamian regions. This evidence includes the use of two key words in the textual references to glass: *mekku*, of West Semitic origin, found in texts from Anatolia, Syria, and Nuzi in Mesopotamia, is synonymous with the word *eḫlipakku*, which is used in the Assyrian glass-making texts and is possibly of Hurrian origin. Both denote "raw glass," which, according to the Amarna letters, the Egyptian king sought to acquire from the local rulers of Levantine cities such as Tyre. The Assyrian

glass-making texts are believed to have had their origins earlier in the 12th century BC (Oppenheim et al. 1970; Oppenheim 1973; Moorey 1999: 195). Turner (1956c: 277T–279T) summarized the ancient references to glass-making ingredients and the centuries-long connection of the Belus river sands with glass-making along the Syrian coast.

Based on the geographic distribution of excavated glass artifacts at sites such as Nuzi, Tell al-Fakhar, Tell al-Rimah, Tell Brak, Assur, and Nineveh, regular production of glass in quantity, and particularly of glass vessels, is thought to have occurred in northern Syria or Mesopotamia. All these sites were under the domination or influence of the Hurrians (Petrie 1926: 230; Beck 1934: 8, 19; Harden 1956: 319; 1968: 46–7; Barag 1970: 184; Grose 1989: 45–48; Tite et al. 2002: 589). Glass manufacturing in Egypt is now generally believed to have begun slightly later (Oppenheim 1973: 263; cf. Nicholson 1995a: 11–19; Nicholson et al. 1997: 143, 147; Jackson et al. 1998: 11–12; Nicholson and Jackson 2000: 11–21; Shortland 2000c; Shortland and Eremin 2006: 581).

The organization of LBA glass workshops is thought to have been centered in the palaces and temples of major cities, where much of the glass and glass-working remains have been found, although Moorey (1999: 197, 202) did not discount the possibility of small-scale production outside palace and temple workshops. McGovern et al. (1991: 401) thought that the differing chemical compositions of the glasses from Tell al-Rimah, Nuzi, Nippur, and the Beqaa valley demonstrated that glasses were largely produced by well-developed, local industries, while their similarities indicated that they shared a common technological tradition. The compositional homogeneity of LBA Egyptian plant ash glasses over a period of approximately 500 years has been seen as a possible result of a closely controlled raw material supply and workshop practice (Rehren 2008: 1346), as could be expected of a strictly monitored, elite material. LBA Near Eastern glass production has been described in the same way (Robson 2001; Shortland 2008). Glass-working remains in the royal palace at Nimrud suggest that royal control continued to be exerted over this industry in the IA (von Saldern 1965: 241.2; Moorey 1999: 202–3).

Glass ingots and many pieces of cullet (recycled broken or waste glass) were found in the LBA palace at Tell Brak in northern Syria, which Oates et al. (1997: 81, 85–6) interpreted as evidence of glass manufacture, or at least glass-working, from as early as the 15th century BC. There was no evidence of a workshop at LBA Ugarit (Ras Shamra) on the Syrian coast, but the existence of one has been hypothesized by Matoïan (1999: 56) because of the "exceptional and original" material recovered there, including small chunks of glass, Egyptian blue and cobalt, and hundreds of vitreous objects (Matoïan 2000b: 41–2).

Ritual and divination techniques were applied to the highly regarded glass production process (Oppenheim et al. 1970: 32–3, 44–7), which was probably carried out within the temple grounds. Robson (2001: 54) observed that the "boundaries between science and religion, medicine and magic were always

blurred in the ancient Near East," and hence it is not surprising that the production of glass was a combination of practical and ritual procedures. She has further argued that different colors of glass were believed to have magical properties including curative powers (2001: 51–2). That the magical and medical fields lay within the sphere of priests explains why the recipes for making artificial stones were included in the corpus of literature to which the Assyrian glass texts belong. It is believed that these recipes were handed down from the mid-2nd millennium BC as part of a codified tradition. Although color preferences changed from the LBA to the IA, there is no reason to suggest that glass did not continue to imitate stone. Dark and turquoise blues, red and purple, known from the LBA, are found also at IA sites, such as Nimrud, and the emergence of larger numbers of colorless glasses might reflect an advance in technology that enabled the imitation of rock crystal.

It is interesting to observe that the earliest glasses were in fact colored rather than left in their natural, "colorless" state (Petrie 1926: 230). Although the process of coloring glass required a high degree of specialization, it was easier to color than to decolor glass – i.e., to remove all tinge of color – perhaps explaining the lack of truly colorless glass at this time (Nicholson and Henderson 2000: 197, 214). The lack of naturally uncolored glass, which would have been easier to produce than either intentionally colored or decolored glass, remains unexplained.

4 Object Studies

Typological studies of LBA and IA Near Eastern glass, in which vessels and molded objects have been assembled and classified with regard to shape, decoration, chronology, and origin, have been central to our understanding of early glass-making in this region, providing the archaeological context for subsequent research (Fossing 1940; Barag 1962, 1970, 1985; von Saldern 1965, 1966a, 1966b, 1970; Harden 1968). Von Saldern traced the history of Mesopotamian cut-glass vessels of the 8th century BC onwards at Gordion in central Turkey (1959); and of mosaic glass at Hasanlu and Marlik in Iran, and Tell al-Rimah (1966b) and Nimrud (1965, 1966a) in Iraq.

Barag (1970: 131) surveyed the archaeological evidence of the production of core-formed glass vessels in Mesopotamia from the mid-2nd to the mid-1st millennium BC, for which there is no textual evidence. He identified two distinct groups, corresponding to the LBA (15th–13th centuries BC) and the post-"Dark Age" IA (8th–6th centuries BC). From his examination of the archaeological evidence from Palestine and Syria, Barag (1970: 185) was in no doubt that contemporary glass vessels from Mesopotamia had a different, probably local, origin. He surveyed the connections between the Aegean, the Syro-Levantine region, and Mesopotamia, considering nude female pendants, star and plain disk

pendants, and spacer beads, such as those found at Nuzi, and concluded that they were produced in Mesopotamia, while noting that they also could have been made in the Syro-Levantine region (Barag 1970: 188–93). The work of von Saldern (1970: 203–12) complemented that of Barag with a chronological study of Near Eastern glass, other than core-formed glass, from 1500 to 600 BC. He observed the move from opacity to translucency in IA glass, and noted that the bowl, a shape found at Nimrud, became the most popular form at this time. After Nimrud fell in 612 BC, the manufacture of transparent luxury glass continued in the same region and further west into Achaemenid and Hellenistic times.

Catalogues of glass from the Near East, Egypt and the Mediterranean from the mid-2nd millennium BC to the early Roman period were compiled by Grose (1989) and Stern and Schlick-Nolte (1994). Grose's study focused on the typology and chronology of objects, and Stern and Schlick-Nolte added a summary of manufacturing techniques. The addition of chemical "typologies" to the physical object data continues to add immensely to the current state of knowledge of LBA and IA glass production (see below). Early chemical studies of LBA glasses from the Near East were well summarized by Moorey (1999: 190–8, 206–10; cf. Henderson 2000: 48–51).

5 Glass Composition

Ancient Near Eastern glass is known as "soda-lime-silica" glass because it was formed from these three key components. Silica was the main component and was typically derived from quartz or sand. Soda, as the dominant alkali found in plant ash, or mineral soda such as natron, acted as a flux for the silica by lowering its melting temperature. Lime increased the chemical stability of the glass by reducing its solubility in water and was introduced as part of the plant ash or sand component of the batch. To this base glass was added colorant, opacifying or decolorant agents. The remaining components, such as potash, magnesia, alumina, and iron oxide, were included in the glasses by association with the main ingredients. Each ingredient could be complex in character and variable in composition (Turner 1956c: 296T) and this adds to the difficulty of identifying raw materials from analyzed elemental glass compositions.

In the LBA there were two main groups of soda-lime-silica glasses: high-magnesia, high-potash (HMHK) and low-magnesia, low-potash (LMLK), which depended on the use of different types of alkali (Sayre and Smith 1974: 56, 58). HMHK glasses are generally defined as having oxide contents in excess of c.1.5 percent, whereas LMLK, or natron-type, glasses have oxide contents of 0.5–1.5 percent (Brill 1999a: 277).

The HMHK glasses were known in the Near East from the 2nd to about the mid-1st millennium BC when HMHK glass from sites west of the Euphrates all but disappeared. The discovery of a few high magnesium glasses from the late 1st millennium BC suggests that there was some continuation of the HMHK

tradition at the relatively eastern sites of Nippur, Nimrud, Hasanlu, and Persepolis. The HMHK technology was reintroduced widely in Islamic times (Sayre 1964: 9–11; 1965: 151; Sayre and Smith 1967: 283; Brill 1999b: 43–4, 46–7).

The LMLK glasses, on the other hand, were believed to have first appeared in the mid-1st millennium BC when the HMHK tradition declined (Sayre and Smith 1974: 58). This proposition was not challenged until the discovery of the 10th century BC LMLK glasses in the burial of Nesikhons in Egypt (Schlick-Nolte and Werthmann 2003), and the analysis by Brill (1999b: 46–7) of LMLK (non-cobalt) glasses from Nimrud which show that these glasses pre-dated the appearance of other documented LMLK glass by up to 500 years.

The translation of the Neo-Assyrian glass-making texts made a significant contribution to our knowledge of the technological history of Mesopotamian glasses (Oppenheim et al. 1970). The interpretation of the chemical and technical information in the texts, which was of a literary nature rather than in the form of explicit instructions for glass-makers, identified quartz pebbles and plant ash as the chief ingredients, although many other ancient terms remain unclear (Brill 1970: 109–10).

6 Silica

The major ingredient of ancient glass was silica in the range of c.60–70 percent, sourced primarily from quartz pebbles or sand. The alumina and iron contents of glasses came mainly from impurities in the sand, possibly from the grinding stones used to prepare the ingredients, and finally from the refractory containers used in melting glass (Matson 1951: 84; Bezborodov 1975: 57–60; Henderson 1985: 270–271; Lucas and Harris 1989: 481; Brill 1999b: 474–9; Degryse et al. 2005: 294–5, Tables 5–6; Rehren and Pusch 2007: 223–5). An iron oxide content in glass of less than 0.6 percent indicates the use of quartz as the source of silica, because it introduces very low concentrations of impurities to the final glass (Tite et al. 1998: 118). Potential sources of silica include quarried siliceous minerals and rocks, such as vein quartz, chert, and quartzite, as well as pebbles of these materials and coastal or inland sands (Freestone 2006: 205–6).

7 Lime

Lime acted as a stabilizer to reduce weathering of the silica-soda glass network (Henderson 1985: 277). While elements such as aluminum or iron also had preservative qualities at elevated levels, lime was a key component of ancient glasses, hence their designation as "soda-lime-silica." The question as to whether or not lime was deliberately added to ancient glasses has been much debated and remains unresolved. According to the two-component model of glass-making, silica and a soda-rich flux were the chief ingredients, with lime entering the glass via either or both of them.

Pliny (*Nat. Hist.* 36.66.192) made an enigmatic reference to the addition of shells to the glass batch, presumably as a source of lime, but the otherwise scant mention of lime in ancient texts, and no mention of lime or magnesia in later texts until the 18th century AD, led to the conclusion that until this time glass-makers did not know that their glasses contained these substances. Yet lime has been an important and substantial component of most of the glasses that have survived from early times, acting as a stabilizer for the soda-silica network (Turner 1956a; 1956b: 175T–176T). The discrepancy between what was written down (e.g., by Pliny) and the actual composition of ancient glasses has led to much discussion as to how early glass-makers could not have known about lime, and in what form it might have been added to the glasses (Henderson 1985: 272; Smedley et al. 1998: 149; Shortland 2007: 263, 271–2).

Lime is present in some sand – e.g., in the sands from the mouth of the Belus river in modern Lebanon (Turner 1956c; Sayre 1965: 146; Brill 1970: 109). It has been suggested that lime might have been added intentionally to the batch (Tite et al. 1998: 118; Nicholson and Henderson 2000: 216; Shortland and Eremin 2006: 590–1), although this view remains contentious (Henderson 1985: 288; Cosyns and Hurt 2007: 6; Rehren 2008: 1346). The unintentional addition of lime as a contaminant during production processes, either from the melting crucibles or the fuel ash, and the significance of the melting temperature and the melting process on the alkali content of the glass batch, have been suggested as alternative and less likely explanations for the presence of lime (Shugar and Rehren 2002: 147; Jackson et al. 2003: 451; Rehren and Pusch 2005: 1756; 2007: 231–3; 2008: 1348–9).

It is widely accepted that a mixture of sand and natron, or of quartz and plant ash, must have been selected by glass-makers to produce glasses with similar ratios of silica:lime:soda in what is known as the two component model of glass-making (Freestone et al. 2000: 70). If lime-rich sand were mixed with plant ash, the resulting lime content would be too high, causing incomplete melting or devitrification, as was observed in the 9th century AD Bet She'arim slab from Israel which contained approximately 16 percent lime (Brill and Wosinski 1965; Brill 1967: 92; Freestone and Gorin-Rosen 1999; cf. Matson 1951: 83). Conversely, mineral soda combined with a sand containing insufficient lime would have been chemically unstable, showing that the selection of ingredients would have been critical for the successful manufacture and preservation of the resulting glass (Freestone 2006: 208).

8 Plant Ash

The role of plant ash in glass-making was to provide the alkali, particularly soda, as a flux to reduce the melting temperature of the silica component from 1710°C (Henderson 1985: 270–1). It is present typically between approximately 13 and

20 percent in early glasses. Chemical analysis has shown that plants grown near the sea would have had a relatively high soda content, desirable for glass-making, and that plant ashes contain many other constituents besides soda and potash, resulting in great variability in the relative proportions of the constituents of ashes from different plants, and from the same plants, depending on the locality in which they were grown. This variation is observed in the corresponding variations in the compositions of ancient glasses (Turner 1956a: 42T; 1956c: 282T–291T; Brill 1970: 110, 124; Bezborodov 1975: Table 5; Sanderson and Hunter 1981: 27–30; Smedley et al. 1998). Even soil adhering to plants or contaminants acquired during the ashing process contribute to the variability of the mineral content of the ash composition (Brill 1970: 110; Canti 2003: 347). A variety of plant ashes specifically from Syria was studied by Barkoudah and Henderson (2006: 306–10), who provided new chemical data for ash compositions showing that the same plants grown in different locations have different compositions (cf. Brill 1970: 110).

The effects that ashing could have on the original elemental content of the plants, and the proposition that alkali earth oxide concentrations in LBA plant ash glasses were controlled largely by the melting temperatures and the melting behavior of the system, adds to the complexities of interpreting the relationship between the original composition of the plants and the final composition of glasses made from the plant ashes (Misra et al. 1993; Tanimoto and Rehren 2008: 2567). Another possible variable in the nature of plant ashes was demonstrated by Smedley and Jackson (2006; Jackson and Smedley 2008) when they measured the changes in yield weight and in the composition of bracken during its growth cycle. The compositional differences in glasses made with ashes from plants harvested at different times during the growth cycle has implications for the interpretation of archaeological glass compositions, and although bracken was not used to make Near Eastern glasses, the principle of these findings could be considered in the study of Near Eastern plant ashes.

Despite the variability of plant ash composition, the ancient glass produced from it was of a relatively consistent composition, within geographical and chronological limits (Rehren 2000), although how this was achieved remains unclear, as do the relationships between the compositions of plants, their ashes, and the glasses produced from them (Freestone 2006: 205; cf. Shugar and Rehren 2002; Jackson et al. 2005; Tite et al. 2006).

9 Mineral Soda

Mineral soda was used in the IA as an alternative to a plant ash source of soda flux to make glasses. LMLK glasses are thought to have been made using a mineral soda source, most widely believed to be natron, or trona, the naturally occurring sodium carbonate/sodium bicarbonate (Na_2CO_3, $NaHCO_3$) found in

the Western Desert oases of Egypt, such as the Wadi Natrun (Shortland 2004). Trona was also sourced in antiquity from the Beheira province in Lower Egypt (Nicholson and Henderson 2000: 216).

Analyses of the composition of natron salts from 11th and 18th Dynasty tombs and from the Wadi Natrun in Egypt showed that it was a relatively uncontaminated soda source with a low concentration of both potash and magnesia (c.0.1 percent) and hence would not have contributed these oxides to the glasses. It has been concluded that HMHK glasses could not have been made with natron, but rather with plant ashes (Turner 1956c: 283T–284T; Sayre and Smith 1967: 289–91; Bezborodov 1975: 56; Brill 1999b: 480; Shortland 2004; Shortland et al. 2006: 525).

Until recently, it was thought that glass of the natron-type was dominant in the Mediterranean and surrounding regions from the mid-1st millennium BC through to the late 1st millennium AD (Smith 1963; Sayre and Smith 1974: 58). Shortland et al. (2006) traced the history of the use of natron as a flux in ancient vitreous materials, noting that there was no conclusive evidence for the use of natron as the main flux in 2nd millennium BC glasses, but it appears to have been introduced as early as the 10th century BC in the glasses from the Egyptian tomb of Nesikhons (Schlick-Nolte and Werthmann 2003); the 10th–8th centuries BC in the glasses from Pella in Jordan (Reade et al. 2009); and the 9th–8th centuries BC in the glasses from the Assyrian capital Nimrud (Reade et al. 2005).

10 Colorants, Opacifiers, and Decolorants

Ancient glasses were modified with a wide range of additives, which imparted color, opacified naturally translucent glass, or decolored naturally tinted glass to achieve a colorless product. Visual modifiers in Near Eastern and Egyptian glasses included copper as a common coloring agent, which produced blue, green, and opaque red glasses, and cobalt as a dark blue coloring agent in both Egyptian and Babylonian glasses, although it was used less frequently than copper. Manganese was used as a purple or black coloring agent, and antimony variously as a refining agent, decolorant, and opacifier in glasses (Farnsworth and Ritchie 1938: 159–64; Turner 1956a; 1956b: 179T). The use of manganese as a decolorant in glasses occurred after the IA (Henderson 1985: 284).

Calcium antimonate produced white; lead antimonate produced yellow and a mixture of copper blue; and calcium antimonate produced an opaque, turquoise color. Cobalt blue, together with calcium antimonate, made a dark opaque blue, and lead antimonate yellow and copper together created an opaque green. Iron oxide present from 0.3 to 1.5 percent would have imparted a translucent greenish hue to glass (Schreurs and Brill 1984: 199). Dark brown or amber could also be produced by the presence of iron oxide (Nicholson and Henderson 2000: 217). In the IA, antimony was used for both decoloring and opacifying glass (Brill 1999b:

47), while iron in sufficient quantity (usually in excess of 5 percent iron oxide) produced a dark, green to black colored glass (Stapleton and Swanson 2002b: Table 1). The nature and uses of individual colorants and opacifiers have been conveniently summarized by Nicholson and Henderson (2000: 217–18) and Shortland (2002: 517–19), amongst others. Although these summaries were based on Egyptian LBA glasses, they are equally applicable to LBA Near Eastern glasses.

The presence of tin in some blue glasses from Malkata and Lisht in Egypt suggests the use of the by-products of bronze-making and working (Mass et al. 2002: 67, 69), because when the ratio of tin to copper is in the order of 1:10, the derivation of these elements from bronze is indicated (Shortland 2005: 2). While Egyptian copper blue glasses may contain copper derived from bronze, this is not the case for copper blue glasses from the Near East, such as those from Nuzi or Pella. This suggests that copper sources were different in the two regions.

Turning to dark blue colorants, there are two possible sources of this in the Near East and Egypt. Chemical analyses indicate that an Iranian arsenical cobalt ore with low manganese content was used in a very early Near Eastern glass from Eridu, dated c.2000 BC, and in two Western Asiatic cobalt blue glasses (Garner 1956a; 1956b; Sayre and Smith 1974: 51, 54; Kaczmarczyk and Hedges 1983: 294). Generally, there are few glasses from the LBA Near East colored by the addition of cobalt.

Compositional analyses of Egyptian faience from Predynastic to Roman times and of 2nd millennium BC blue pigments established that the cobalt colorant used in ancient Egyptian New Kingdom vitreous materials was probably derived from the alum deposits of the Western Oases of Egypt, especially the Kharga and Dakhla Oases, the only known sources of alum containing cobalt in this region. Cobalt from alum is associated in glasses with elevated concentrations of manganese, magnesium, nickel, zinc, iron, and aluminum, and relatively low levels of potassium, sodium, and calcium, giving it a distinctive chemical signature (Farnsworth and Ritchie 1938: 159–64; Sayre 1963: 267–8; Kaczmarczyk and Hedges 1983: 41–55; Kaczmarczyk 1986: Table 34.3; Shortland and Tite 2000: 145–6; Gratuze and Picon 2005: 272–3; Shortland et al. 2006: 157; Jackson and Nicholson 2007: 104).

From the 12th to the 7th century BC cobalt virtually disappeared from post-New Kingdom vitreous materials, reappearing during the 26th Dynasty in the Late Period (7th century BC) when it must then have originated from a different source, because the elements associated with cobalt derived from alum were no longer present at elevated levels. Cobalt in Egyptian vitreous materials from this time resemble cobalt in Mesopotamian pigments of all periods, which have been assumed to be from an Iranian cobaltiferous ore (Kaczmarczyk and Hedges 1983: 45–7, 53; Kaczmarczyk 1986: 373–4).

Lilyquist et al. (1993: 36, 41–3; Lilyquist and Brill 1996) showed that the Egyptian cobalt blue glasses of the 2nd millennium BC, from as early as the reign of Thutmose III (1479–1425 BC), were compositionally distinct from other

contemporary glasses, having high alumina and magnesia contents from the addition of the alum colorant, but low potash levels. This anomalous composition is restricted to cobalt alum blue glasses and does not fit the accepted models of HMHK (plant ash) or LMLK (natron) glass, provoking discussion about the alkali source for the Egyptian cobalt glasses. It has been suggested that they were made with natron, which explains the low potash levels, while the high magnesia content was due to magnesia in the alum (Shortland and Tite 2000: 146–7). Alternatively, it has been argued that the cobalt blue glasses were made using a low-potash plant ash of a different type than that used in Near Eastern plant ash glasses, with the conclusion that copper and cobalt colored glasses were made using different types of plants, one of which was lower in potash than the other (Rehren 2001; Jackson and Nicholson 2007: 112–13). Interestingly, the analyses of IA cobalt blue glasses from Nimrud reveal a similar high-magnesia, low-potash glass colored with alum-derived cobalt, associated with elevated levels of the same trace elements, indicating an Egyptian origin for the colorant which was added to glass most likely made on the Syrian coast, 400 years after cobalt ceased to be used in Egypt (Brill 1999b: 47–8; Reade et al. 2005).

Antimony was also used as an opacifier and a decolorant depending on its state of chemical valence in the glass (Sayre 1963: 272; Biek and Bayley 1979: 6). Antimony in the form of calcium antimonate ($Ca_2Sb_2O_7$ or $CaSb_2O_6$) produced white opaque glasses. Whether this compound was added as a pre-made ingredient to colorless glass, or whether it formed within the glass after the addition of antimony, is unclear (Shortland and Eremin 2006: 591). When white glass was mixed with translucent copper blue, turquoise opaque glasses resulted (Rooksby 1959, 1962; Turner and Rooksby 1959, 1961, 1963; Mass et al. 2002: 78; Shortland 2002: 522). Alternatively, it has been proposed that antimony was added as an opacifier to translucent blue glass to make turquoise opaque glass (Nicholson and Henderson 2000: 208). The intentional inclusion of a material such as stibnite (antimony sulphide, Sb_2S_3), found throughout the Mediterranean and Near East, was suggested as the source material, because there are no known mineral forms of calcium antimonate in Egypt or the Near East (Mass et al. 2001: 41; 2002: 70, 78). Yellow and green opaque glasses were created by adding lead antimonate ($Pb_2Sb_2O_7$) (Mass et al. 2002: 70–1). Unintentional opacity could also be due to devitrification, incomplete vitrification, or to there being many gas bubbles or impurities in the glass (Henderson 1985: 286).

The tradition of opacifying with antimony was evident from the earliest glasses and into Roman times (Brill and Moll 1963: 299), and the use of antimony as an opacifying agent appears to have led to the discovery that antimony could, under the appropriate conditions, decolor glass. Antimony and manganese were added intentionally to glasses as decolorants from the 1st millennium BC (Sayre 1963: 272; 1965). Earlier colorless glasses from both 2nd millennium BC LBA Egypt and the Near East did not contain large concentrations of either antimony or manganese, indicating that these elements were not used as decolorants in this

period. Analyses of colorless glasses of the 2nd millennium BC from Egypt reveal that they contain little or no antimony or manganese (Bimson and Freestone 1987: 12; Wypyski, in Lilyquist et al. 1993: 36; Shortland and Eremin 2006: 584; Jackson and Nicholson 2007: 182). Decoloring of the glass might instead have been achieved by careful control of the furnace atmospheres (Jackson and Nicholson 2007: 106) or could have been the result of using pure batch materials (Nicholson 2007: 1).

High concentrations of antimony in colorless glasses occurred from the 9th/8th century BC, as shown by analyses of colorless glasses from Nimrud (Reade unpublished data), until the end of the 1st millennium BC when antimony was largely replaced by manganese as a decolorant. The elevated levels of antimony were similar in both decolored and opaque glasses.

Antimony was added to ancient glass for three distinctly different purposes: as a decolorant, by oxidizing iron to render the glass colorless; as a fining agent, to remove small seeds or bubbles from the glass; or, at levels of c.1–2 percent of antimony oxide in the glass, as an opacifying agent (Brill 1970: 116).

11 Chemical Compositional Analyses

Chemical studies of ancient glass initially characterize the basic glass composition without additives such as colorants. To this is added data from trace element and isotopic analyses which allow detailed characterization and comparison of groups of glasses. The differences and similarities between the glasses or groups of glasses indicate the use of different raw materials and/or manufacturing processes, because the trace elements provide distinctive geological signatures that vary between regions.

The collection of detailed compositional data to answer archaeological questions about the technology, organization, and recipes for glass production, including the nature, sources, and craftsmen's choices of raw materials, and the geographical and chronological distribution of raw materials, raw glass, and finished glass objects, is made possible by the development of sensitive analytical techniques such as inductively coupled plasma-mass spectrometry (ICP-MS), with "interpretation . . . becoming the central challenge" (Lilyquist and Brill 1996: 8). The published chemical analyses of selections of glasses from the LBA and IA Near East are compiled below. These studies form part of the growing database of compositional information that scientists, technologists, and archaeologists alike use to try to unravel the details of ancient glass production.

12 Analyses of LBA Near Eastern Glasses

Archaeological contexts have not always been well recorded, and relatively few Near Eastern glasses have been chemically analyzed. Moreover, as the data from

the published studies have not been brought together and examined as a whole, our understanding of the LBA glass industry remains fragmentary. Moorey (1985, 1999) did much to clarify the context and chronology of excavated glasses.

Recent analyses of LBA Near Eastern glass compositions have been made by several researchers in an attempt to learn more of the nature of these early glasses and the raw materials used in their manufacture. Unusually early glasses from Dinkha Tepe in Iran (c.1800–1600 BC), analyzed by McGovern et al. (1991), were found to be colored blue with copper. Glasses from 14th century BC contexts at Tell Brak in northern Syria have been analyzed by a number of scholars (Brill and Shirahata, Velde and Henderson, in Oates et al. 1997: 89–94, 94–100; Brill 1999b: 39; Shortland and Eremin 2006: 595; Shortland et al. 2007: 784; Degryse, Boyce, et al. 2010). Several groups have analyzed glasses from 15th–14th century BC Nuzi (Vandiver 1982: 84; 1983: 239–47; Brill 1999b: 40–1; Shortland and Eremin 2006: 595; Shortland et al. 2007: 784; Degryse, Boyce, et al. 2010). The chief purposes of the latter two studies were, first, to provide a comparison for Egyptian glass compositions rather than to investigate in any detail the compositions of the Mesopotamian glasses themselves and, second, to answer questions about where and how widespread glass-making was in the 2nd millennium BC – whether workshops were specializing in particular colors and whether local or imported raw materials were being used. Brill has analyzed a selection of glasses from Tell al-Rimah in northern Iraq dating to the 15th–13th century BC (1999b: 42–3), and from 13th century BC Choga Zanbil in southwestern Iran (1999b: 45). Brill's (1999a, 1999b) collected data from the analyses of a variety of glasses were published, but without interpretation, nevertheless providing an invaluable tool for future compositional work. The more recent work by Degryse and co-workers used isotopic analysis to differentiate glasses from Nuzi and Tell Brak, thereby providing evidence of more than one production site in LBA Mesopotamia.

McGovern and co-workers examined silicate industry development, the origins of the glass industry in the region of Syria-Palestine around 1600 BC, and craft interaction between Egypt and the Levant, especially with reference to the vitreous materials found at the site of Beth Shean in Israel, and in the Baq'ah Valley in Jordan (McGovern 1980, 1985, 1986, 1987b, 1995; Swann et al. 1989; McGovern et al. 1993; James and McGovern 1993: 157).

Walton et al. (2009) have used trace element analysis to show that beads from Mycenaean Greece (1400–1300 BC) were locally made from glass which originated both in Egypt and the Near East, providing clear evidence for trade in raw glass to the Mycenaean cities at this time. The trade in raw glass is well known from the Uluburun shipwreck. Recent compositional analyses of three ingots from this wreck by Jackson and Nicholson (2010) have demonstrated that they were made in Egypt, adding to the growing picture of eastern Mediterranean trade at this time.

In general, LBA Near Eastern glasses are remarkably homogeneous in base glass composition and are HMHK glasses, many of which are colored copper blue. The location and number of production centers is unknown, but the industry appears to have used well-controlled raw materials of similar composition to produce raw glass, traded widely as a valued commodity.

13 Analyses of IA Glasses

Few IA glasses have been analyzed and no work has been published that compiles and interprets the Near Eastern IA assemblage as a whole in its chemical, geographical, and chronological contexts. Chemical analyses of IA glasses include those of glasses from Hasanlu by Stapleton and Swanson (2002a, 2002b) and Brill (1999b: 43–4); 12th–11th century BC glasses from Marlik Tepe in Iran; one 8th century BC sample from Altin Tepe in Iran; 10th–8th century BC glasses from Pella in Jordan by Reade et al. (2009); and 9th–8th century BC glasses from Nimrud by Brill (Orchard and Brill 1978; Brill 1999b: 45, 47–9, 52), Reade et al. (2005) and Turner and Plenderlieth (Turner 1954: 449T, 455T; 1955: 61, 67).

A brief examination of the published data reveals that IA object forms and colors exhibit some differences from those of LBA glasses, and although more geographically widespread were still limited. There was an increase in the use of strong dark colors, such as black, and in the number of colorless and transparent glasses, indicative of the significant variations in chemical composition that were beginning to occur (see above). It is generally agreed that these glasses were manufactured in the Near East, probably the coastal region of Syria, and so it is interesting to note that black glasses of identical composition have been found at both Pella in Jordan and Hasanlu in modern Iran, and as far west as France, while closely similar cobalt blue glasses have been found at Nimrud and in France, illustrating the wide-ranging trade achieved in the IA. Analyses of IA black glasses from various sites in the Languedoc region of France, near the Mediterranean littoral, dating to the early 1st millennium BC (11th–9th century BC), have been performed by Gratuze and co-workers. Gratuze analyzed samples from Champ-de-Mont, Quitigny (in press b), L'Alveyron, including Bouche Rolland, Bringairet, and Lac du Bourget (in press d), Mons (2001b), Mez-Notariou (2002), Puech de Mus (2005), and Gratuze and Cosyns (2007) analyzed glasses from Neufchâteau-Le Sart.

Analyses of cobalt blue glasses from IA France were undertaken by Gratuze (1999, 2000, 2001a, 2001b, 2002, in press a–c), Gratuze and Picon (2005) and Gratuze and Cosyns (2007). The similarities in base and colorant composition of these cobalt blue glasses to those from contemporary Nimrud led Gratuze and Picon to attribute a Syro-Palestinian origin to the French glasses. The chemical analysis of the Pella and French black beads supports this.

14 Summary and Concluding Remarks

Ancient Near Eastern glasses were typically of a soda-lime-silica or high alkali base composition. Soda was the chief alkali flux for the silica, being derived from either plant ashes, which brought with them magnesia, potash and lime, or mineral soda such as natron, which was of relatively pure composition. It is generally believed that pure sand or quartz would have been combined with plant ash, or mineral soda with a lime-rich sand, in the widely accepted two-component model of ancient glass-making. It has long been argued whether the addition of lime, a key constituent which stabilized glasses to prevent dissolution, was intentional or accidental.

Colors were produced by the addition of metal minerals such as cobalt, copper, manganese, and iron, for example, and the transparency of the glass was reduced by adding antimony as an opacifying agent, which, when combined with lead or calcium, formed opaque yellow or opaque white glasses respectively. Opaque turquoise glass was probably made by adding antimony to translucent blue glass. Copper blue glasses were ubiquitous, having been excavated throughout the Near East and Egypt, while colors such as cobalt blue, black, red, yellow, purple, brown, and white are much rarer, perhaps having been produced at specialist workshops.

Current knowledge suggests that antimony was used to decolor glasses from the early 1st millennium BC, whereas analyses of the limited number of colorless glasses made before this time in the LBA show that decoloring was achieved without the addition of a decolorant.

The advent of the LBA witnessed the production of the earliest consistently manufactured glass objects in simple forms. The composition of this soda-lime-silica glass is relatively homogeneous; the consistent HMHK formulation as revealed by elemental data suggests that glass production in the LBA Near East was tightly controlled, probably by the royal court and/or temple interests. The Egyptian cobalt blue glasses have an anomalous composition of high magnesia and low potash, but whether this can be attributed to an alum plus plant ash mix, or an alum plus natron mix, remains unclear. Archaeological, chemical, and textual evidence indicate that glass was made to imitate precious stones and was itself a highly valued material, made in a closely regulated industry that followed standard recipes.

After a decline in glass-making at the end of the LBA, new glass formulations are in evidence in the glasses from IA Pella and IA Nimrud. Innovations include the introduction of natron-fluxed glasses, appearing first at Pella and in Egypt from the 10th century BC, followed by those from 9th–8th century BC Nimrud. Plant ash glasses continued to be made, but their compositions were different than those of the LBA glasses. Glasses deliberately decolored with antimony appear in the 9th–8th century BC, earlier than previously recognized. The cobalt blue glasses found at Nimrud appear to have been made with cobalt alum from

Egypt over a period of more than 400 years (Third Intermediate Period) after they had ceased to be made in Egypt itself. The Pella and Hasanlu IA black glasses and the Nimrud IA cobalt blue glasses were probably made in the Syrian region of the Near East and were traded widely as far as France.

The LBA and IA witnessed critical developments in the sophisticated and complex glass-making industry prior to the established and consistent production of the ensuing Hellenistic and Roman periods. While considerable advances have been made in the knowledge of ancient glass-making primarily through the use of detailed elemental fingerprinting techniques, such as inductively coupled plasma mass spectrometry (ICP-MS), information on the nature and extent of LBA and IA Near Eastern glass production is still disjointed and limited. The nature of the raw materials used, and the geographical location of glass manufacture and subsequent working into objects often remain unclear.

Most recently, advances are being made in the chemical study of glasses using isotopes primarily of strontium, neodymium, and oxygen, brought in with the sand and plant ash components of glass (Freestone et al. 2003; Leslie et al. 2006; Degryse and Schneider 2008; Degryse et al. 2009; Degryse, Boyce, et al. 2010; Degryse, Freestone, et al. 2010). The interpretation of isotopic data helps to distinguish different raw material origins or types, and to discriminate between glasses from different sites or regions, for example between Egyptian and Near Eastern glasses. The role of archaeometric data in the interpretation of ancient glass production and provenance cannot be underestimated: without it little would be known about this early synthetic material.

GUIDE TO FURTHER READING

Oppenheim et al. (1970) is an indispensable work containing the translation of the Assyrian glass-making texts with commentary by Oppenheim, chemical interpretation by Brill, and typologies of Near Eastern glass by Barag and von Saldern. Grose (1989), a catalogue of glasses, is a standard reference for early glass typology, as are Barag (1985), Harden (1968), and Stern and Schlick-Nolte (1994). General summaries of the nature of glass and the technology and techniques of ancient glass production have been published by Newton and Davison (1989: 1–17, 54–69), Stern and Schlick-Nolte (1994), and Schlick-Nolte and Lierke (2002). General chemico-technical works on Near Eastern glass have been published by Henderson (2000) and Nicholson and Henderson (2000). Brill's (1999a, 1999b) mighty collection of data from chemical analyses of many early glasses is invaluable. Lilyquist et al.'s (1993) work on Egyptian glass provided important physical and chemical data of glasses in the Metropolitan Museum's collection. Many studies have been made of the raw materials of glass production, with those of Turner (1954, 1956a–c) and Sayre and Smith (1974) paving the way of early compositional research, to be followed by the landmark publication of Kaczmarczyk and Hedges (1983). Early chemical studies of LBA glasses from the Near East were compiled and well-summarized well by Moorey (1999). Glass conservation is addressed by Newton and Davison (1989) and Tennant (1999).

CHAPTER EIGHTEEN

Textiles

Irene Good

1 Introduction

Relatively little extant cloth remains from early archaeological sites, but enough information has accumulated over the past century and a half to create a clear picture of change in textile technology from the early Neolithic until the Islamic period. The study of textile history, more specifically of woven cloth, marks an unusual breech in the standard trend of evolutionary histories, both natural and cultural. In a standard evolutionary model, complex forms evolve from simpler ones, to those more adapted to a specific niche. Through time, some, once homologous types, diverge to the point where they bear little relationship to ancestral forms. In histories of technology the development from simplicity to complexity is nearly a constant. In loom and spinning technology this is also generally true. However, in the material manufactured, namely cloth, complex weaves developed out of plain ones *independently* of loom technology, not only in western Asia but throughout Eurasia and the New World. This fact is testament to the creative process. It is also a key factor in the development of wealth, the signification of hierarchy and social differentiation, and the harnessing and display of power in early complex societies. The making of cloth, especially labor-intensive cloth, is therefore a very important aspect of material cultural history.

The earliest true woven cloth was made from flax (*Linum usitatissimum*). Flax was domesticated (both for oil and for bast fiber) early on, and soon became widespread throughout western Asia.

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

2 The Beginnings: Reed Mats, Basketry, and Twined Cloth

The earliest evidence for textiles in the Ancient Near East comes from Çayönü (c.8000 BC) and consists of a twined (i.e., not made on a loom, but using basket technique on a simple frame) bast fiber textile fragment made from what is probably wild flax. There are also a few textile fragments from other sites in the Neolithic, where we find twined cloth, basketry, and matting, as well as loom-woven plain cloth made of plant fibers. This cloth type remained the mainstay for several millennia until wool appeared along with the introduction of twill weave. This important development was made possible by the introduction of a distinct loom that featured an apparatus to enable the change from one shed system to another.

Egyptian linen, well known from pharaonic tomb remains, has a long history of manufacture going back to the Neolithic. Much literature exists on clothing and textile techniques from pharaonic (van't Hooft et al. 1994), Roman and Byzantine (Bourguet 1964; Trilling 1982) and later Islamic times, including linen (Baginski and Tidar 1980). Very little has been written, however, on the technical study of ancient Egyptian flax fibers or on other aspects of Egyptian linen production (Helbaek 1959). Both the Mesopotamian and the Egyptian environments favored linen production because of their relatively mild climatic conditions, resulting from their proximity to the sea.

3 Textile Production and the Economic Fabric of a Nascent State

Sheep's wool is one of the most economically and culturally important textile fibers to have emerged in human history. Wooly fleece, however, did not develop until the late 4th millennium BC, at least 5,000 years *after* initial sheep domestication. There is enigmatic, indirect evidence for the development of wool in the form of a clay figurine from Tepe Sarab near Kermanshah which dates to c.5000 BC. The body of this figurine has a distinctive pattern of triangular incisions which has been interpreted as primitive, hairy fleece (Ryder 1987: 114). The age/sex ratios of the sheep bones from Tepe Sarab indicate that they were being kept for a long while, suggesting their use for secondary products (Bökönyi 1977: 25). Though present evidence is by no means certain, it suggests that sheep may have begun to be used for secondary products as early as 5000 BC in Kermanshah. All other evidence for the development of wool appears much later, however.

The Sumerian tale of the *Courtship of Inanna and Dumuzi* highlights the contrast between wool and linen. The Queen of Heaven is simultaneously courted by a shepherd and a farmer. Though she is drawn to the farmer because he can offer fine linen cloth, in the end the shepherd is able to match, in refined wool

production, the high quality of the farmer's cloth. This early Sumerian story illustrates the ancient Mesopotamians' appreciation for the development of wool – a "taming of the fleece" – and demonstrates how great is the historical significance of wool, its development and its role in textile production in Mesopotamian society.

From 3rd millennium texts we can glean important information regarding wool. In the late 3rd millennium BC at Ur, there were three main wool types according to the animals which bear the fleece, namely fat-tailed (Sum. **udu-gukkal**), **uligi** (Sum. **udu-uli-gi**), and goat (Jacobsen 1970: 218; Waetzoldt 1972: 3–6; Steinkeller 1995: 51–4). Fleece from the breed of sheep denoted **uligi** was graded below that of fat-tailed sheep, but above black sheep (Jacobsen 1970: 423, n. 10). The wool itself was first distinguished by the breed of sheep from which it derived, and then by whether it was graded at the time of plucking (the wool was plucked, not sheared) or at Ur. Texts from the Ur III period (c.2100–2000 BC) provide detailed sheep and goat terminology (Steinkeller 1995). Many of the relevant texts were discovered at Drehem (ancient Puzrish-Dagan), a distribution center for both domestic and wild animals founded by Shulgi c.2050 BC (Steinkeller 1995: 49). Some of the categories used differed from those employed at nearby Lagash (Steinkeller 1995: 54). Designations for fleece included wool from "native" sheep, foreign or mountain sheep, long-fleeced sheep, Shimashki sheep, and black sheep, in addition to goat hair (Steinkeller 1995: 57). Colors ranged from white, black, reddish-brown, and yellow to mottled. Old Assyrian texts from Kültepe (ancient Kanesh) in Anatolia dating to the early 2nd millennium BC refer to white, yellow, bright red, reddish, and "dark" fleece (Veenhof 1972: 137, 186–8).

The earliest actual textile remains made of sheep's wool are from Shahr-i Sokhta, a large urban center in eastern Iran that was occupied from c.3100 to 1800 BC (Good 1999; 2006: 202–9). These wool samples provide a diachronic view of the state of sheep's wool, from the vantage point of a very early date, in a region where the question of sheep domestication is complex. There is evidence that the urial (*Ovis vignei*) may have either developed into a local domesticate or contributed genetically to a local domestication (Meadow 1984b: 324).

The loom used to make plain-woven linen cloth was the horizontal ground loom; this is in contrast to the upright loom, used later for making tapestry. This second loom type was probably first developed and used in Egypt. Later it was introduced into Syria, probably in the early 1st millennium BC (possibly during the so-called "Egyptianizing period").

A third general type of early loom was the warp-weighted loom. This loom was developed in eastern Europe and spread west and north. It did not become part of the toolkit of western Asian weavers until the Late Bronze Age, when it appeared at Troy. During the 1st millennium BC it spread eastward into the Levant and beyond. This type of loom is significant because it leaves traces in the archaeological record in the form of weights. It is possible to compare loom-

weight types and reconstruct local and regional traditions. As far as technological advance, the warp-weighted loom allowed the change from one shed series (odd and even, as in the plain or "tabby" weave) to two or more, making it possible to weave in twill. Compound weaves are those having either complimentary or supplementary warps and/or wefts. There are competing theories on the development of compound weave and its relationship between the textile traditions of East and West. New research on Late Iron Age textiles from Iran is offering a window into this pivotal period in the development of textile production.

4 Variations on a Theme: *Kaunakes*, Carpet, Tapestry, and Felt

Pile carpet is one of the most important economic and aesthetic traditions derived from the loom. It has been widely supposed that pile technique is a sort of imitation of the pelt of an animal, and that the interest in this texture ultimately derived from a nomadic source and reflected a nomadic sensibility. It has been generally assumed that western or Turkoman tribes are the direct descendants of the originators of pile carpet manufacture, while more easterly peoples, of Mongol-Tungus heritage, are completely without pile carpet traditions (Thompson 1988: 65; cf. Krader 1955: 301), relying instead on felt (O'Neale 1936: 415; Rubinson 1990: 57).

Aside from a very few pieces of archaeological evidence, there is virtually nothing known about pile carpet until Sasanian times (Ackerman 1938; Bier 1978), and not much until Egyptian finds such as the 13th–14th centuries AD Fustat carpet (Geijer 1979), the textured pile carpet fragments from Quseir al-Qadim (Vogelsgang-Eastwood 1994) and a very interesting Coptic carpet in the Metropolitan Museum of Art (Dimand 1933; Dimand and Mailey 1973).

Further afield, we have also learned much from important finds from Siberia, most notably the famous 4th century BC pile carpet from Pazyryk (Rudenko 1970). This carpet is made up of *ghiördes* (symmetrical, or Turkish) knots with a count of 3,600 per square decimeter or about 6 knots per linear centimeter (15 knots per linear inch). The overall size of the carpet is c.1.8 × 2 meters. In terms of artistic motifs, the rug from Pazyryk has remained a source of lively academic discussion. Less well known are the small fragments of pile carpet from a tumulus site known as Bash-Adar in the Karakul Valley (Tajikistan), dated to c.420 BC, roughly 100 years earlier than the Pazyryk carpet. Despite their relatively close geographical and chronological proximity, these fragments are significantly different. The Bash-Adar fragments are composed of the *Sehna* (asymmetrical, or Persian) knot, and the count – 7,000 knots per square decimeter, or 8 knots per linear centimeter (21 knots per linear inch) – is almost twice that of the Pazyryk example. Interestingly, this carpet is considered a local product (Rudenko 1970: 302). There is very little published description of this fragment apart from the fact that it is polychrome, and that there are two rows

of binding weft in a tabby weave between each row of knots (Rudenko 1970: 303), again differing considerably from the Pazyryk carpet.

Amongst the numerous textile finds from Shahr-i Sokhta is a selvedged fragment of a pile band (Good 2011). The binding of the ground cloth is plain tabby weave, with a strong warp-face, unlike nearly all the other textile fragments from the site, most of which were either weft-faced or balanced. This suggests that it was a band rather than a fragment of a much wider textile. The warp threads are spun in a strongly S-twist, and are made of a relatively coarse wool with and average fiber diameter of 20–25 μ. The weft threads are z-spun, and almost overtwisted. They also average 20–25 μ in diameter. Scanning electron microscopy of these fibers indicates that the knots are made of fine wool while the warp threads are made of goat hair. The softer, darker and finer threads used for the pile consist of fibers averaging closer to 14 μ, and form a *Sehna* or asymmetrical type of knot. The linear knot count is estimated at 5 knots per centimeter (13 knots per inch on the horizontal; 6 knots per centimeter, 15 per inch, on the vertical), making approximately 3,000 knots per square decimeter. This is comparable to the Pazyryk carpet.

A few other early instances of pile technique are known. Excavations at the Iron Age site of Hasanlu in western Iran have yielded numerous textile fragments which have yet to be fully studied. Among these fragments, which date to the beginning of the 1st millennium BC, are several that are described as pile (Dyson 1964: 24; Kawami 1992: 11), though this has not been verified.

In addition to the few rare instances of actual cloth woven in pile technique, knives used in trimming pile are also known (Khlopin 1982). Examples of this type of curved knife with an outward edged blade are attested from the early 2nd millennium BC onwards at several early urban Bronze Age sites throughout southern Turkmenia, including Gonur in the ancient oasis of Margiana, and Parkai and other sites in the Sumbar Valley. A cautionary note is necessary, however, in interpreting this data. The drawings in many published reports are simply not informative enough to distinguish pile knives from bronze or iron sickles. Secondly, there are probably instances where this type of knife was not recognized or published among the small finds. And finally, this type of knife probably represents only one adaptation; there are almost certainly other tools that could have been used in other regions to accomplish the same task.

A very distinct textile tradition in Mesopotamia and in the Bactria-Margiana regions of Turkmenistan, Afghanistan, and Uzbekistan is illustrated by the so-called *kaunakes* (Greek meaning "fleece") garment. It is made up of a sometimes patterned, sometimes plain, long, rectangular cloth sewn together and usually worn on the diagonal. A prototype of this garment appeared in the late 4th millennium BC in Mesopotamia and it is frequently depicted on Early Dynastic (mid-3rd millennium BC) seals, bas-relief sculpture, and stone and metal figurines. In Elam (southwestern Iran) there are contemporary and 2nd millennium depictions of this garment type as well. There was a marked shift by the mid-3rd

millennium BC from this cloth to the fringed or fleecy type. This type of garment is apparently one worn by the nobility and priestly classes. If one looks carefully, it seems quite clear that the garment is made of long, narrow bands of napped material sewn together to form the skirt. This construction is seen elsewhere in the ancient world, and indeed continued well into the late 2nd millennium BC and beyond, but it is unique because of its nap.

It is likely that the *kaunakes* was made of a piled textile, rather than of a true fleece or pelt, especially given the fact that earlier garment depictions clearly show non-fleecy cloth constructed in the same manner. If, therefore, it was crafted on a loom, perhaps even created in a ritual manner to imbue spiritual significance, then the *kaunakes* provides a very early illustration of the same technique used to make carpets (cf. Hirsch 1992; Kawami 1992; Wertime 1998). Moreover, there are tantalizing hints of the possible manufacture of pile cloth in the form of carpets from Mesopotamia. Akkadian *kamidu* and *kasiru* ("knotter") hint at the possibility that pile technique was a specialized craft in Mesopotamia in the 2nd and possibly the 3rd millennium BC.

This early inferential evidence, however preliminary, indicates manufacture of pile technique, broadly speaking, from the mid-3rd millennium BC, and in the region known as Greater Turan (Good 2006) and contributes to our understanding of the nature of early carpet production in two ways. First, we can now say that the idea that pile carpet was the heritage of nomadic groups is both historically simplistic and inaccurate. Secondly, though found in linen as a decorative textural motif in Egyptian materials, and also on the *kaunakes* garments of Mesopotamia, the pile technique's principal purpose was more practical, centered not on carpets per se but rather on clothing, harnessing, and architecture. Warp-faced bands with pile technique were used both for horse straps and for tent binding. An example from Aq Kupruk in northern Afghanistan that probably dates to the Kushan period (c.30–240 AD) was most likely the girth band of a horse, as indicated by its narrow width, felt backing, and perhaps also its horsetail hair selvedge. Parthian, Sasanian, and Sogdian depictions of horse harnessing often show a front breast or "false martingale" strap on the horse for riding as well as draft (Littauer and Crouwell 1979). Kushan horse harnessing can also be seen on coins, particularly the tetradrachms of Soter Megas and his horse c.55–105 AD. The pile band may have been used on this part of the harness as it is a prominent place to display colorful patterns.

Prior to these specialized developments, sedentary cultures existed with a mixed economy of agriculture and pastoralism. It was within this type of economic structure that carpet-weaving and felt-making began. Perceptions of a nomad-settled agriculturalist dichotomy persist not only amongst historians of carpet and other textile techniques, but amongst archaeologists as well. Based on ethnographic analogy with the transhumant carpet-weavers of today, archaeologists view the curved-blade pile-trimming knife as a hallmark of steppe nomads, with the tacit assumption that early mobile steppe pastoral nomads were the

inventors and producers of the first pile carpet. There is no evidence to indicate that this was so. On the contrary, the posited pile knives have all been found in settled valley villages that may or may not have been interacting with steppe peoples. In fact, one of the best-known examples of the curved knife comes from Sumbar, a catacomb burial site of the Late Bronze Age (late 2nd millennium BC) in the western Kopet Dagh region. This site shows clear ceramic continuity with the earlier urban traditions of Hissar and Tureng Tepe at a time when the surrounding areas witnessed a decline in urban economy and were converging with elements of steppe nomadic traditions (Masson 1992: 351–2; Hiebert 1994a: 172–8; 1998). Before horses contributed to the development of a specialized form of cattle-breeding nomadism, they were domesticated and harnessed for riding in a settled, mixed agropastoral economic setting in which the pile technique developed.

What are other early indices of *carpet* manufacture, either of pile technique or of *kilim*? Aside from the beautiful relief sculptures from the Neo-Assyrian palace of Tiglath-pileser III (744–727 BC) at Nimrud, very little information can be derived from ancient art until much later. However, The Neo-Assyrian evidence not only points to the use of carpets with established design structures, but more importantly to the fact that these motifs are ultimately derived from the Kassites (Ch. II.37), often thought to have been an intrusive group from somewhere in western Iran that arrived in the early 2nd millennium BC (Sommerfeld 1995). Specifically, the four-pointed rosette motif on the Pazyryk carpet often cited as evidence of Neo-Assyrian influence can in fact be derived from earlier examples at Dur Kurigalzu dated to the 14th century BC.

Textile historians have generally considered pile technique, felting, and *soumak* (weft-wrapping) weaving to have derived from pastoral rather than agrarian traditions. The use of animal as opposed to vegetable fiber has also been thought of as an indicator of origin, reinforced by details from Sumerian texts such as the tale of Inanna. Recent study of 3rd millennium BC textile remains from the Indo-Iranian borderlands has shed light on the early development of these so-called pastoral technologies, giving us a clearer view of the relationship between tiller and shepherd. The evidence from Shahr-i Sokhta also points to the early use of *soumak* technique, and supports the idea that weft-wrapping is a developmentally related technique (cf. Emory 1980; Wertime 1998: 96). There is also very early evidence for *soumak* and pile technique in southwestern Turkmenistan. *Soumak* technique shows up as impressions in ceramics at Gonur Depe in an early 2nd millennium BC context.

The traditional view is that fiber use and textile technologies reflect steppe vs sown economies. Following Laufer (1930, 1937), Barber suggested (1987, 1991) that there was a discrete development of textile technologies on the steppes, differing from those of the settlement economies of Europe, the ancient Near East, and China. This hypothesis is based on a very simple and reasonable assumption: namely, that different needs brought about different technologies,

and in the case of textile manufacture and fiber procurement, nomads from the steppe produced felts and pile carpets, and did not develop extensive weaving techniques on looms. Embroidery on appliqué felted textiles, plaited bandwork, and patterned leatherwork were the purview of nomads. Conversely, woven textiles (linen as well as wool) were produced in settled, early villages and towns.

A review of both the archaeological and the epigraphic evidence does not suggest the development of separate fiber procurement strategies and textile technologies, but rather a two-tiered divergence from a chronologically early, generalized mixed economy fiber and textile repertoire, into a more specialized farmer/shepherd continuum, followed by a later (late 2nd/1st millennium BC) steppe nomadic adaptation. Although felts, *soumak*, and pile technique are characteristic of steppe nomadic lifeways, these techniques were ultimately derived from earlier, socioeconomically complex settlements, in which textile production had developed to the level of a specialized craft. It is not a separate material cultural tradition that is reflected in the tale of Inanna, but rather *specialization* in textile production: of excellent linen in the lowlands and increasingly diverse types of wool, goat hair, and other secondary products in the highlands, as participating sectors in a larger economic framework. This larger framework is also reflected in economic texts identifying textiles using regional descriptors from the 3rd millennium BC onwards, in effect as templates for cloth production and exchange.

Felt is made of matted or compressed animal fibers, made permanently interlocked by mechanical means through friction, heat, and moisture. This process is sometimes encouraged by the addition of whey to help make the scales distend, allowing for the felting to occur more readily (Barber 1991: 216). Felt is very strong, withstands repeated wetting and drying, and is an extremely good insulator. Felting animal fibers is very labor-intensive and requires a large amount of raw material. It is clearly a technique that developed after the introduction of wooly fleece and goat hair.

There is evidence for felt in economic and legal texts from the Ur III through the Old Babylonian period (late 3rd to early 2nd millennia BC) in Mesopotamia. Steinkeller (1980) discussed the significance of certain texts which describe felt (Sumerian **túg-du$_8$-a**), felting, and mattresses. Although his treatment was of great lexical interest, Steinkeller's principal aim was to touch upon the significance of the technical and manufacturing aspects of felt as a material. He concluded, however, as did Laufer before him and Barber afterwards, that the manufacture of felt must have originated amongst Central Asian nomads (Steinkeller 1980: 89). What does the archaeological record (to date) tell us?

The earliest felt comes from Beyçesultan in central Anatolia and dates to the Early Bronze Age II period (c.2600 BC), considerably earlier than the earliest cuneiform references to felt in Mesopotamia. These dates are also roughly contemporary with the earliest extant wools, from Shahr-i Sokhta in eastern Iran, which also come from a complex, urban settlement context.

As mentioned above, woven woolen cloth can also be felted, or fulled, and even "teaseled" or brushed to produce a nap. This material is described in detail in Old Assyrian texts from Kültepe in Anatolia (early 2nd millennium BC) where there are references to closely woven, coarse wool cloth of thick thread, felted on one side only, with the nap uncut, called *iš-te-na-ma* (Veenhof 1972: 104–5). Even earlier examples of felted woven material with these exact specifications have been found in Period II contexts at Shahr-i Sokhta (c.2800–2400 BC).

By contrast, of the small but tangible pieces of evidence which do exist from the Pontic Steppes, early (contemporaneous) textile remains do not include felt, but rather plain woven wool cloth, and a high proportion of twined vegetable fiber cloth and netting (Shishlina 1999; Shishlina et al. 2001). This is also the case further east, from the Tobol river valley (Harding et al. 2000) in the eastern Urals to the Minusinsk regions and mixed forest steppe areas of the Transbaikal (Weber 1995). The vast majority of the Eneolithic and Early Bronze Age steppe evidence for textiles comes from textile-impressed ceramics.

Old Assyrian economic texts concerning the sale of textiles and wool, as well as letters, often between husbands and wives, which discuss transactions in textiles, have been excavated at Kültepe (ancient Kanesh), the site of an Assyrian trading colony in Anatolia (Ch. I.30). Though these texts date to the early 2nd millennium BC, they depict institutions with deep histories (Leemans 1960: 116–18, 129). Among other things, they show that different types of cloth were denoted by region – e.g., *abarnium*, a type of cloth from the town of Abarnia. Sometimes these cloths were actually manufactured in Assur, but retained the names which characterized their place of origin (Veenhof 1972: 189–91), much as we refer to "Oxford cloth" today. The practice of naming articles by their place of origin also applied to fleece- and hair-bearing animals, such as the Magan goat (Leemans 1960: 115; Steinkeller 1995). These emic categories represent templates of cloth manufacture and exchange, and are indicative of social requirements for textile diversity in in early complex societies.

During the later phase of horse-riding pastoral expansion on the steppes (late 2nd/1st millennia BC), textile techniques did not follow a unique trajectory, as traditionally proposed. Rather, they reflect a continuum of techniques, with new aesthetic styles, and "recombined" templates, accommodating a newer, more mobile form of pastoral nomadism. The textile traditions of pastoral and settled peoples in Central and Western Asia from the 3rd through the 1st millennia BC reflect a series of highly complex historical processes of product diversification, technological integration, and recombination of technique, form, and style. The contrast between felt and cloth or wool and linen is an overly simplistic, and indeed false dichotomy, a conceptual vestige of early agropastoral diversification. The techniques used for felt, weft-wrapping, and pile on the steppes ultimately derived from earlier urban traditions.

5 A Coat of Many Colors: Pigments and Dyeing

Archaeological evidence of dyeing is scarce. A textile fragment from Nahal Mishmar from c.3500 BC appears to have been dyed red (Bar-Adon 1980), but neither the context nor the date of this fragment is clear (Good 1999). Red-colored cloth was found in the Royal Cemetery at Ur c.2400 BC (Woolley 1934; Barber 1991). The earliest written evidence of textile dyeing (as distinct from applying pigment as a paint to a textile) comes from early Old Babylonian texts (c.2000–1900 BC) and is roughly contemporary with dye vats at sites of the Indus civilization (Forbes 1964). Plant-derived red, brown, and yellow dyes are attested in 18th Dynasty Egypt (c.1550–1292 BC). By 1500 BC the Phoenicians had discovered that they could dye purple using *murex* (Muricidae) shells, and by 1000–700 BC the Chinese were using indigo from *Polygonum tinctorium*, according to Western Zhou sources (Zhang et al. 2008: 1101, with refs). Evidence from Chärchän in Xinjiang demonstrates a full palette of primary colors c.1000 BC (Zhang et al. 2008).

6 Garments, Gifts, and the Social Life of Cloth

The evolution of dress in the ancient Near East has been fairly well documented through figurative art, though the earlier Neolithic continues to be somewhat elusive. Garment form for both male and female underwent several transformations. Traditions, once set, continued for many centuries, as shown by the *kaunakes* of the Mesopotamians, or the tight-fitting kilt of the Hittites. Generally speaking, the Levant and Mesopotamian regions shared a common tradition of wearing a rectangular shift, or *chiton*, which was tailored directly on the loom. This basic garment form had many variations, short or long, layered or unlayered. By the 3rd millennium BC a diagonally wrapped, banded garment emerged, depicting deities and royal personages in particular. This basic family of garments is in sharp contrast to traditions further east (Iran) and north (the Caucasus and Anatolia). Iranian dress was distinguished by the introduction of trousers and jackets, sometime in the later 2nd millennium BC. One reason for this very basic contrast in traditions was technological: cloth was either woven in bolts to be cut for garments, or garments were tailored directly on the loom. This basic difference in approach has strongly influenced garment type and form. From the 2nd millennium BC through the later pre-Islamic period, dress (including hairstyle and headdress) became more specialized and regionalized throughout the ancient Near East. This is magnificently illustrated in the procession of tribute-bearers shown on the Apadana reliefs at Persepolis.

GUIDE TO FURTHER READING

Basic introductions to the archaeological evidence of textiles in the ancient Near East can be found in Barber (1991), Gillis and Nosch (2007), and Andersen and Nosch (2011). For a specific study dealing with Babylonian textiles, see Good (2007). Textiles at Mari are treated in exhaustive detail in Durand (2009). For the types of looms used in antiquity, see Broudy (1979). Textile exchange is discussed in Good (2006). For a technical study of dyeing and pigmentation, see Hofenk de Graaff (2004).

CHAPTER NINETEEN

Watercraft

R.A. Carter

1 Introduction

The great Tigris and Euphrates rivers inspired the development of a wide range of types and sizes of watercraft. Water transport was the main means of communication and exchange along the heartlands of Mesopotamia, eastern Anatolia, and southwestern Iran, intrinsic to the lives of the prehistoric inhabitants of the most densely settled parts of the ancient Near East and implicated in the subsequent development of complex urban societies.

The Persian Gulf and eastern Mediterranean provided further opportunities for subsistence, settlement, trade, and transport. The Gulf was one of the world's great international trade conduits, first linking prehistoric southern Mesopotamia and Arabia, and then the Bronze Age civilizations of Mesopotamia, Arabia, Iran, and the Indus valley. Meanwhile, along the shores of the Levant, the mastery of the Mediterranean was equally important in forging the Bronze Age civilizations of the region.

Data is available from archaeological boat remains, site and finds distributions, iconographic evidence and models, glyptic (seals and seal impressions) and cuneiform texts. The focus of this summary will be the watercraft of Mesopotamia and the Persian Gulf during the Chalcolithic and Bronze Ages (c.5500–1300 BC), with briefer reference to the Mediterranean, the Red Sea, and evidence from both earlier and later periods.

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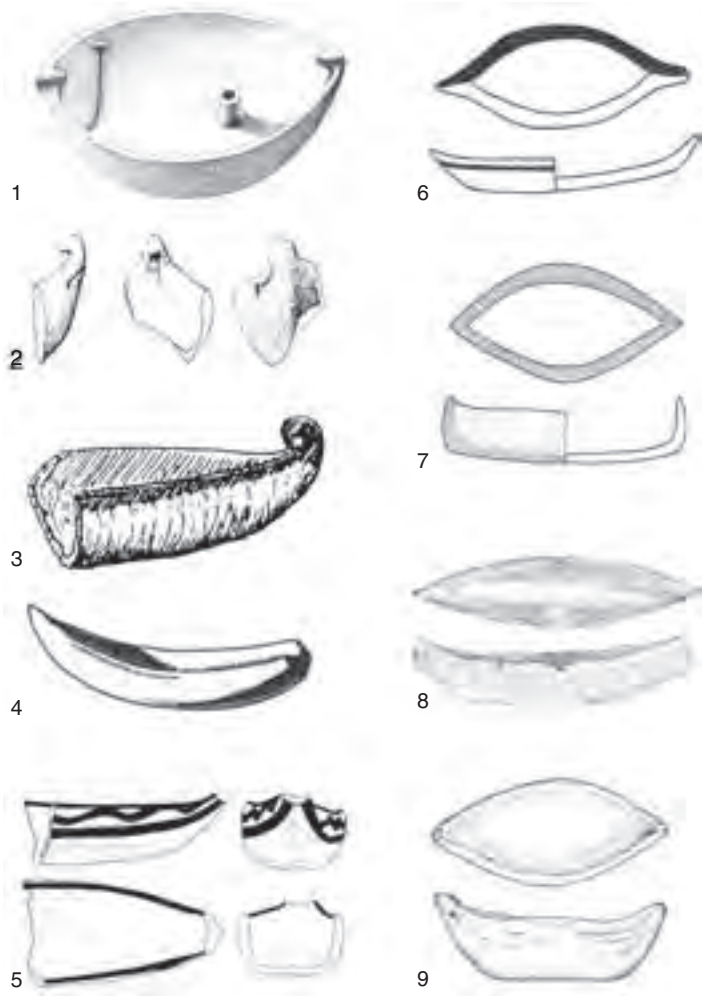

Figure 19.1 Ubaid-period boat models, cf. Table 19.1.

2 Ubaid-period Watercraft: Models and Depictions

The Ubaid period (c.6000–4300 BC) in Mesopotamia provides the first direct evidence for watercraft, both riverine and maritime, in the form of boat models (see Figure 19.1 and Table 19.1), a painted depiction, and boat remains. The evidence indicates that several kinds of vessel were used for riverine and maritime transport, some of which, perhaps most, were of reed-bundle construction with bitumen coating. At least two kinds of masts were used and this comprises the earliest known evidence of sailing.

Models are found at both coastal and inland sites. The major southern Mesopotamian sites bordered the sea, being situated on patches of slightly raised land

Table 19.1 Ubaid-period boat models

No.	*Site*	*Date*	*Comments*	*Reference*
1	Eridu	Ubaid 4	Eridu Cemetery, above platform of Grave 51	Safar et al. 1981: 230, Fig. 111
2	Oueili	Ubaid 3	Only one end preserved	Breniquet 1987a: Pl. III
3	Al-Ubaid	Ubaid 3	"Loose in soil" in settlement	Hall and Woolley 1927: 153, Pl. XLVIII
4	Uqair	Ubaid 4	Ubaid settlement ("a private house and a street"). "Roughly made and baked hard"	Lloyd and Safar 1943: 151, Pl. XVIII.13
5	Mashnaqa	Ubaid 3	Stratum II, "a featureless deposit (perhaps midden) with burials"	Thuesen 2000: Fig. 5
6	Abada	Early Ubaid 3	"Level 1"	Jasim 1985: 66, Fig. 63a
7	Abada	Early Ubaid 3	"Level 1"	Jasim 1985: 66, Fig. 63b
8	Uruk	Ubaid 4 or 5	"Lacking only chips from both ends"	Lenzen 1968: Taf. 23h
9	As-Sabiyah	Ubaid 2/3 (Early Ubaid 3)	Cached or discarded at foot of wall; tips missing	Carter 2006: 53–5

Note: Dates follow Oates. Ubaid 2/3 = Early Ubaid 3. For Abada 1, cf. Eridu XII–XI, Early Ubaid 3 (Oates 1987a: 479, Chart 1). The Eridu cemetery and Uqair are considered Ubaid 4 (Oates 1960: 37; 1987a: 479, Chart 1). Ubaid levels at Uruk are either Ubaid 4 or Ubaid 5/Terminal Ubaid (Oates 1983: 260).

("turtlebacks") within a marshy, wetland environment which ranged from gallery forest and reed beds to estuarine conditions and open sea (Pournelle 2003b: 190–1; Carter 2010). Knowledge of watercraft was crucial in this environment, enabling transportation of people, necessities, and exchange items, and the gathering of fundamental resources such as reeds, fish, and game. Reeds would have been a particularly significant resource, providing fodder, fuel, and construction material for boats, dwellings, and essential handicrafts such as basketry and matting (Algaze and Pournelle in press).

The earliest known boat model was found on the floor of Level 17 at Eridu, Ubaid 1 period (c.5800–5300 BC) (Qualls 1981: 12–13, Cat. 1; Safar et al. 1981: 230). Half is missing, but it had curved ends and a flattened bottom. It was "covered on all surfaces with thick bitumen paint," an early indicator that boats were waterproofed in this way. Later Ubaid-period boat models are known from Eridu, As-Sabiyah, Oueili, Abada, Mashnaqa, Uruk, Tell Uqair, and Al-Ubaid, covering a time span from the Ubaid 3 to the Terminal Ubaid, in locations ranging from Kuwait (As-Sabiyah) to Syria (Mashnaqa).

The variations amongst these models indicates a range of boat types, probably reflecting differences in construction, materials, function, and environment. Most have curved ends and slightly flattened bottoms, but two have more vertical or truncated ends (Figure 19.1[7–8]). The length-width ratio varies between a slender, canoe shape (Figure 19.1[5, 8]) to a rounded, broad-beamed shape (Figure 19.1[1]). Three have inturned or coiled ends (Figure 19.1[1–3]), as does an unpublished model from Eridu (Qualls 1981: 14, Cat. 5, Baghdad IM 55118; Safar et al. 1981: 230). Others with broken tips (e.g., Figure 19.1[5, 9]) may have had this feature as well. This probably indicates reed construction, though the coil shape is also seen carved into the stemposts of historic wooden boats. Other indicators of likely reed construction include bundle shapes, in the case of a model from As-Sabiyah, Kuwait (Figure 19.1[9]). It would be unwise to assume that all the models represented boats of reed construction, however. Mesopotamia's timber resources are often underestimated, but it remains to be proven whether planked or dugout boats were used at this time. Wooden elements and frames may have been needed for larger boats. The mast socket on one of the models (Figure 19.1[1]), for example, would have required a sturdy wooden frame if the boat itself was built largely of reed. Several of the models (Figure 19.1[3, 5, 6]) show paint below the outer edge. If this represents paint on the reed boats, then it implies that the surface was covered to provide a paintable surface. The use of skins stretched over a wooden frame is also possible.

Judging by the unpublished, bitumen-coated model from Eridu and finds from As-Sabiyah (Kuwait), bitumen was used to coat reed boats. Excavations at As-Sabiyah recovered numerous pieces of bitumen amalgam with reed impressions on the inner face and barnacles on the outside (Carter and Crawford 2010: ch. 5), interpreted as fragments of the coating of sea-going reed-bundle boats. This form of boat construction was common in the Bronze Age and persisted on the inland waterways of Iraq into the 20th century AD (Ochsenschlager 1992).

Some of the models have piercings along their edges (Figure 19.1[1, 9] and Qualls 1981: Cat. 5, from Eridu), which are usually interpreted as holes for rigging, suggesting the use of mast and sail. The identification of a mast socket on one model (Figure 19.1[1]) has been challenged; it has been identified instead as a "spinning bowl" used to ply thread (Strasser 1996). Such devices are not attested in the region, however, nor they did occur elsewhere until more than 2,000 years later. Moreover, the model, particularly the cross-piece, is too small, fragile, and unstable for that function (Bourriau and Oates 1997). A further find from As-Sabiyah supports the use of mast and sail in the Ubaid period. This is a reworked piece of painted Ubaid pottery, shaped into a disc. The paint was abraded in antiquity to represent a boat with a bipod mast (Figure 19.2). Such masts were particularly suitable for reed bundle boats (Casson 1995: 13; Vosmer 2000: 240).

Figure 19.2 Painted ceramic disc from H3, As-Sabiyah (courtesy, British Archaeological Expedition to Kuwait).

3 Ubaid-period Maritime and Riverine Exchange

An extensive maritime trading network during the Ubaid period is indicated by the distribution of Mesopotamian pottery along the Arabian shore of the Persian Gulf (Oates et al. 1977; Masry 1997), as well as the boat model, painted disc, and bituminous boat remains from As-Sabiyah. Recent analysis indicates that the pots were items of exchange, traded down the Gulf in bitumen-coated, reed-bundle boats and then exchanged between Arabian Neolithic communities as prestige items (Carter 2010). This remarkable exchange system, which thrived in the Ubaid 3 period and continued into the Ubaid 4 period (c.4800–4300 BC), entailed regular, perhaps seasonal, long-distance trade by boat.

Within the Gulf itself, the local Neolithic had a strong coastal and maritime orientation, as demonstrated by the existence of numerous coastal and island shell and fish midden sites (Beech and Elders 1999; Beech et al. 2005), for which one must assume a familiarity with seafaring. It is uncertain whether bitumen-coated reed boats were used throughout the Gulf, and one might imagine the existence

of other boat and raft types used for short-haul voyages to the islands and fishing grounds, including uncoated reed-bundle boats, rafts supported by inflated skins, and rafts built of palm spines ancestral to the historic *shasha* (see below). Even wholly wooden boats or rafts cannot be ruled out, given the woodier conditions revealed by paleolandscape studies (Parker, Davies, & Wilkinson 2006).

Maritime trade was accompanied by regular and intensive riverine exchange, as suggested by the presence of boat models at inland sites in northeastern Syria (Mashnaqa, on the Khabur), central Iraq (Tell Uqair), and eastern Iraq (Tell Abada, in the Hamrin). It may be significant that no Halaf-period models or other boat depictions are yet known. This hints at a new attitude to watercraft in the Ubaid period, whereby water transport came to occupy a central and privileged position. The period saw the development of a shared suite of Ubaid styles in a region stretching from the Mediterranean to the Persian Gulf (Carter and Philip 2010b). Riverboats would have played a key role in drawing the region and its constituents into more intensive patterns of local and longer-distance exchange and cultural interaction.

4 Uruk and Jamdat Nasr-period Glyptic

Southern Mesopotamian society occupied an area of great agricultural potential and enhanced communications provided by mastery of the watery environment (Algaze 2001a; Algaze and Pournelle in press). Watercraft, therefore, assumed a central role in the processes of population agglomeration, increasing social complexity, specialization, and bureaucratic elaboration, which culminated in the emergence of state institutions and urbanism in the 4th millennium BC.

Depictions of watercraft at this time appear on cylinder seals of Late Uruk date (c.3400–2100 BC) (Figure 19.3). These show more complex construction than the Ubaid-period models, perhaps due to the difference in medium and the fact that some boats were clearly ceremonial. A very specific kind of vessel is seen on seals from levels IV and III at Uruk itself, and Late Uruk/Jamdat Nasr levels at Tell Uqair, Uruk and Tell Billa (Figure 19.3[1–5]). Nearly all show a man punting at the front and another paddling or steering at the back, with a high curved back end braced by an upright, sometimes joined to the curve by two parallel cross-pieces, with the prow also high and curved, and topped with blossom-like motifs (Figure 19.3[1–5]). These vessels usually carry a shrine and/or individuals engaged in devotional activities. The blossom motifs are interpreted by some scholars as EN signs ("lord," perhaps with sacred overtones) (Qualls 1981: 102). Notwithstanding the 1,000-year chronological separation, it is hard not to draw comparisons with Sumerian accounts of ceremonial journeys by the boat of the gods (see below).

Simpler boats are also depicted (Figure 19.3[6–9]). With one possible exception (Figure 19.3[7]), a mast or sail is never shown, possibly because these are

Figure 19.3 Late Uruk and Jamdat Nasr glyptic. 1. Uruk IV (Lenzen 1961: Pl. 26a–b); 2. Uruk IV–III (Lenzen 1960: Pls. 26i, 31a-f); 3. Uqair (Lloyd and Safar 1943: 147–56, Pl. 30.115); 4. Uruk III (Amiet 1980 Pl. 46.655); 5. Tell Billa (Amiet 1980 Pl. 46.656); 6. Uruk (Amiet 1980: Pl. 13bis.G); 7. Unprovenanced (Amiet 1980: Pl. 46.657); 8. Unprovenanced (Amiet 1980: Pl. 40.609); 9. Susa, "Archaïque" (Amiet 1980: Pl. 15.260); 10. Susa, Proto-Elamite (Amiet 1980: Pl.38.589); 11. Susa, Proto-Elamite (Amiet 1980: Pl.38.588).

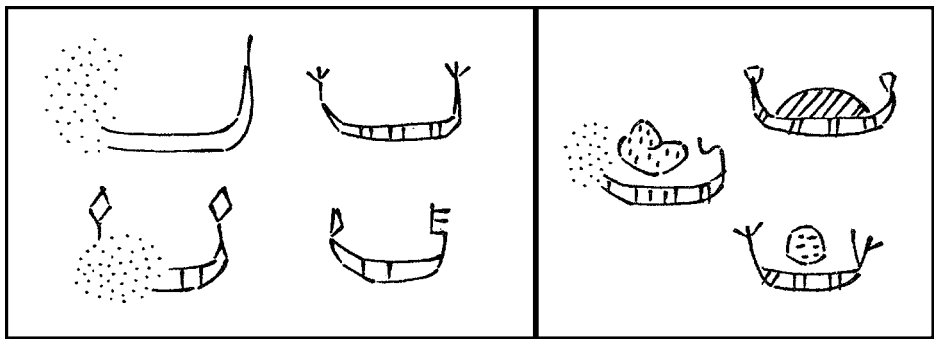

Figure 19.4 Protoliterate signs relating to watercraft (Green and Nissen 1987: 241). Left: Sign 339, **ma$_2$**. Right: Sign 340, **magur** (**ma$_2$** + **sig$_2$**, **ur$_5$** or **gug$_2$**).

rivercraft, the maritime exchange networks of the Ubaid period having fallen largely into abeyance. Although unequivocal pictorial evidence for sails is not seen again until the early 2nd millennium BC (see below), it is inconceivable that earlier Bronze Age trading vessels were not propelled by wind.

A different kind of boat or raft, with a fatter shape and parallel vertical lines suggestive of the lashing together of reed bundles (Figure 19.3[10–11]), is depicted on Proto-Elamite seals. Another seal from Susa shows a simpler more elegant form with a coiled tip (Figure 19.3[9]).

Boat-shaped symbols appear in the Archaic (proto-cuneiform) sign-list, and Qualls considered seven signs listed by Falkenstein (1936) to be watercraft (Qualls 1981: Cat. 381–7). More recent studies have shown most of these to be variants or unrelated to watercraft, and reduced the number to two, (Figure 19.4) **ma$_2$** and **magur** (Green and Nissen 1987: 241, signs 339–340). Both show high ends and signs of reed bundle construction (vertical binding lines on the hull, sprays or EN signs at the tips). The sign for **magur** shows the boat carrying a literal or symbolic load, being **ma$_2$** combined with **sig$_2$** or **ur$_5$** – i.e., hair/hides and liver (Halloran 2006). The additional sign also resembles **gug$_2$**, however – i.e. cake or date-bread used by royalty or offerings. This would perhaps be a more logical interpretation of the sign.

5 Uruk and Jamdat Nasr Models and Archaeological Evidence

Uruk and Jamdat Nasr period boat models are rare. A complete model, with truncated ends, a V-shaped profile, and a flat bottom, was found at Jamdat Nasr itself (Matthews 2002b: Fig. 38.3), while a Late Uruk/Jamdat Nasr bitumen model is reported from the Sin temple at Khafajah (Delougaz and Lloyd 1942: 136; Qualls 1981: Cat. 7). Another model of possible Late Uruk/Jamdat Nasr dates is a long

silver example, in two parts, said to come from Uruk (Göttlicher 1978: Cat. 90; Qualls, 1981: 49, Cat. 85). One end is S-shaped and the other curves inwards. The two ends do not join exactly and may come from different models.

The archaeological evidence is completed by several pieces of impressed bitumen from Haçinebi, on the Euphrates (southeastern Turkey). The largest and earliest shows parallel reed bundles with lashings and comes from a context dated to 3800 BC (Schwartz 2002: Fig. 1). The bitumen from this phase, which predates contact with Uruk Mesopotamia, is of Anatolian origin (Schwartz et al. 1999: 79). These examples confirm that bitumen-coated, reed-bundle boats remained in use, as far north as Anatolia, during the early 4th millennium.

6 Uruk and Jamdat Nasr Sea and River Trade

The only evidence for contact between Mesopotamia and the Gulf during the Uruk period is an unstratified Late Uruk or Jamdat Nasr seal found in Abu Dhabi (Potts and Pittman 2009), and imported Late Uruk pottery found at Umm ar-Ramadh and Umm an-Nussi in eastern Saudi Arabia (Piesinger 1983: 473, 485, 489, 491, 493, 496). It seems that attention was directed less at this time toward maritime expeditions and more to travel on the rivers to northern Mesopotamia, southeastern Anatolia, and western Iran.

By the Jamdat Nasr period, the appearance of Mesopotamian pottery in burial cairns in Kuwait, Bahrain, and the Oman peninsula indicates the renewal of regular connections (Potts 1986: 129–30). This was probably stimulated by the trade in copper, which began to be smelted in the Oman peninsula at that time. Simultaneously, Dilmun appears in the Archaic texts, sometimes in conjunction with copper. It is likely that seaworthy watercraft began traveling regularly between southern Mesopotamia and the Gulf, carrying copper and other goods.

Mesopotamian influence on the art and architecture of early Egypt has raised the possibility of contact by sea between Mesopotamia and Egypt during the late 4th millennium. Petroglyphs in the Wadi Hammamat showing unusual boats suggested to some scholars that a maritime route led from Mesopotamia southwards, around Arabia, up the Red Sea and thence into Upper Egypt. With one possible exception, however, none of these petroglyphs shows Mesopotamian boats, and our understanding of the Uruk world now indicates that contact with Egypt was via northern Mesopotamia and the Nile Delta. The exceptional boat petroglyph resembles the ceremonial vessels of the Late Uruk/Jamdat Nasr seals, complete with bracing pole at the end (Mark 1997: 81–2, Fig. 44). Another Egyptian boat depiction, virtually identical to the Uruk/Jamdat Nasr glyptic boats, appears on a knife handle from Jebel Arak south of Abydos (Mark 1997: 69–73, Fig. 34). These two depictions can only be explained as copies of imported seal iconography, or, more contentiously, as evidence that Mesopotamian boats of the era circumnavigated Arabia.

Figure 19.5 Early Dynastic and Akkadian glyptic. 1. Ur (Amiet 1980: Pl. 61.827); 2–3. Unprovenanced (Amiet 1980: Pls. 86.1134 and 1131); 4. Khafajah (Amiet 1980: Pl. 86.1135); 5. Hama (Amiet 1980: Pl. 91.1208); 6. Tell Asmar (Amiet 1980: Pl. 91.1204); 7–8. Fara (Amiet 1980: Pls. 86.1130 and 104.1374); 9. Kish (Amiet 1980: Pl. 107.1420); 10. Tell Asmar (Amiet 1980: Pl. 113.1505). 1 = ED I; 2–9 = ED I–III; 10 = Akkadian.

7 Early Dynastic and Akkadian Glyptic

Early Dynastic and Akkadian glyptic shows some boats constructed of reed bundles, with reeds and binding cords clearly depicted (e.g., Figure 19.5[3, 5–6, 9–10]). Both high- and low-ended vessels are seen. The shape and coiled ends of the vessels continue to suggest reed-bundle construction, though some have

smooth hulls. These may be reed vessels coated with bitumen (Potts 1997a: 123) but it remains possible that wooden boats had become common, their shape mirroring that of reed boats. With very rare exceptions (Figure 19.5[1]) the characteristic bracing pole had vanished by the Early Dynastic period, along with the floral sprays at the tips, and a more S-shaped form at the prow and stern becomes characteristic.

The range of contexts in which boats are depicted is greater in the Early Dynastic and Akkadian periods than previously and includes spear-fishing, possibly the movement of goods (piles of grain? matting?), feasting, and the veneration of gods. An interesting development of the sacred boat during the Early Dynastic and Akkadian periods is the God-Boat (Figure 19.5[9–10]) – i.e., "a boat with a human prow-figure, often crowned with a horned miter, who provides the motive power for the boat by means of a punting pole" (Qualls 1981: 127). The horned crown denotes divine status and the passenger or steersman too is divine.

8 Models and Depictions of the 3rd and Early 2nd Millennia BC

Boat models reappeared during the Early Dynastic period. At Ur, numerous clay models were found in graves and at the bottom of drains of Early Dynastic date, presumably ritually deposited (Woolley 1934: 92, e.g. PG 1050; 1955b: 141–2). Significant numbers of clay models were also found at Susa, Diqdiqah, Telloh, al-Hiba, and Kish, with lesser numbers at other sites (Qualls 1981). These imitate the S-shaped and C-shaped hulls seen in the glyptic but generally lack details which might reveal construction techniques or materials (Figure 19.6). An example from Telloh, however, dated variously from 2800 BC to the Neo-Sumerian period (c.2150–2000 BC), has one well-preserved, coiled end above a broken thwart, with an intact thwart at the other end (Göttlicher 1978: Cat. 20; Qualls 1981: Cat. 60). Seats or thwarts on bitumen models from Ur suggests that wood was used even if the hulls were of reed.

No fewer than 58 bitumen models come from Early Dynastic and Akkadian tombs, sometimes in the grave but often in the entrance shaft (Qualls 1981: Cat. 88–99, 171–217). Most are unpublished and severely distorted. Smaller examples were made of "a mixture of bitumen and earth," while larger ones, up to 2 meters long, were "modelled in the same material on a framework of withies" (long sticks) (Woolley 1934: 145). Of the well-preserved ones, three shapes can be recognized with curved ends; tall vertical ends, now bent over (Figure 19.7); and rarely with asymmetric ends (Göttlicher 1978: Cat. 40, 41, 89).

Judging from their shape, the bitumen models probably represent boats with reed bundle hulls. Their excavators considered them to be wooden boats, but this was prior to the archaeological discoveries of reed bundle boats. One had "lines of white paint running longitudinally along the bottom of the craft [which]

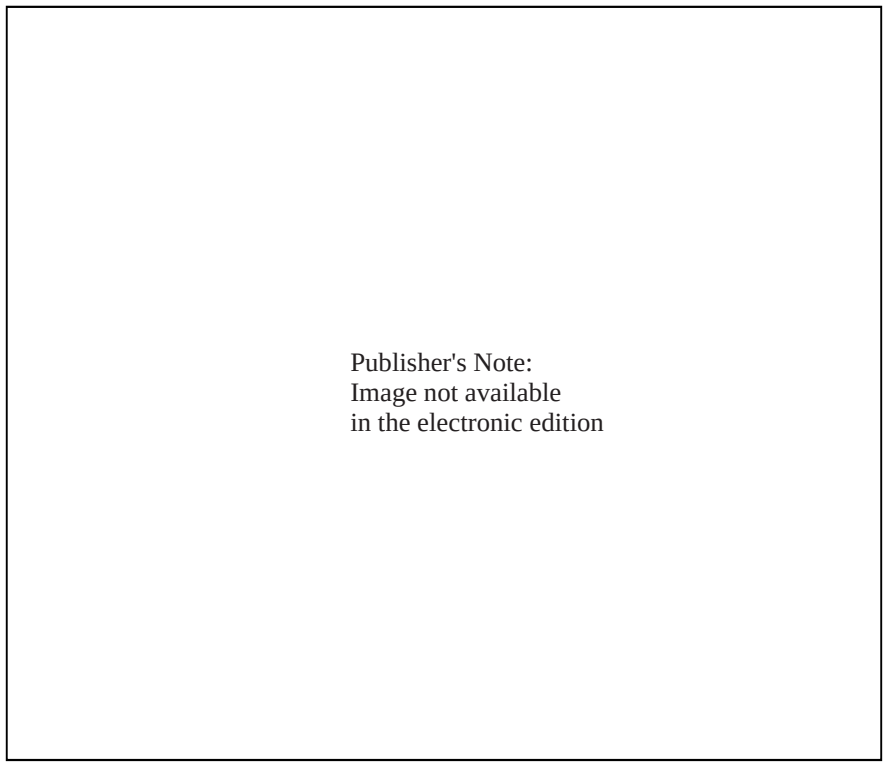

Figure 19.6 Clay model with S-shaped ends from Ur (U.19495), bottom of grave stratum, probably ED I (courtesy, British Museum).

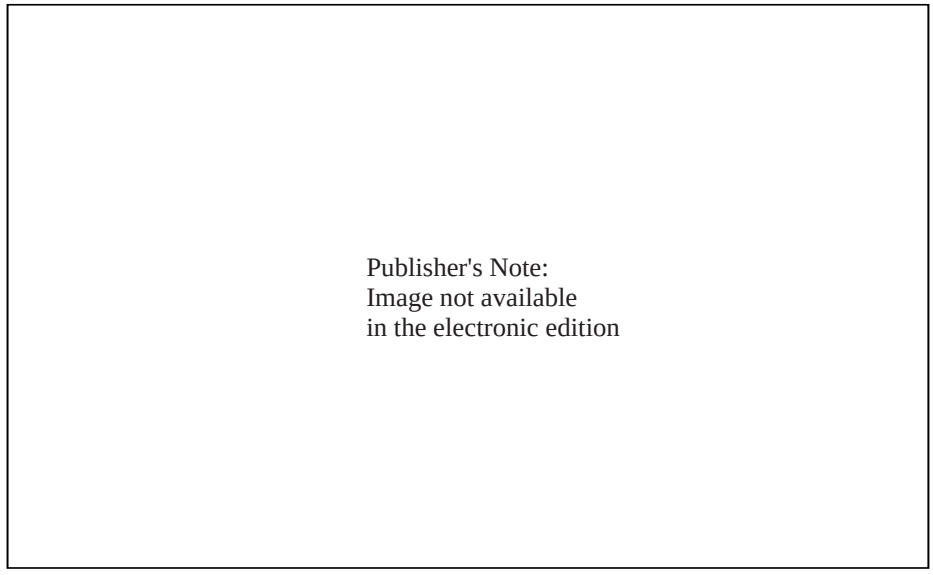

Figure 19.7 Bitumen model from Ur (U.8848–9) (courtesy, British Museum).

Figure 19.8 Silver model from Ur (courtesy, Michael Roaf).

imitated planking" (Woolley 1934: 155). These could represent a wooden hull, wooden decking in the bottom of the boat, or even the shapes of reed bundles. One had two copper punt poles (Woolley 1934: 155) and others had seats made of wood, while all had clay or copper vessels with offerings of food and drink, either to feed the dead or lure away the demoness Lamashtu (Woolley 1934: 145).

The silver model (Figure 19.8), from grave PG 789 in the Royal Cemetery at Ur was accompanied by a poorly preserved, copper model of similar design. It has a flat bottom and gently upward-curving ends, with six thwarts and a possible canopy support in the middle (Woolley 1934/2: Pl. 169; Göttlicher 1978: Cat. 90). One photograph shows eight paddles, a bifurcated punting pole and sundry other scraps (Salonen 1939: Taf. IX). The boat is narrow and sleek, giving an impression of great speed and suitability for warfare or hunting. The rigid medium of metal and the slight curve of the ends tentatively imply a wooden construction. Additionally, Qualls lists two small, simple copper models from Ur, found northeast of the *ziggurat* and perhaps of Early Dynastic date (Qualls 1981: 50, Cat. 87–88). These may be the small copper boat models referred to as sanctification offerings deposited during repairs to the *ziggurat* during "the Larsa period" – i.e., in the early 2nd millennium BC (Woolley 1939: 111).

Very little, perhaps none, of the evidence from the 4th to early 2nd millennia depicts watercraft other than double-ended, crescent-shaped, or high-ended boats, and in the case of the models, boats with flat bottoms and coiled or inturned ends. This is also the case with incised boats on so-called *pots-à-tabac*, a ceramic vessel characteristic of Isin-Larsa period (de Graeve 1981: 24–6). Notably absent are the utilitarian barges, rafts, and circular coracles known from later periods. Possible exceptions are provided by two rectangular models from Telloh, c.2800 BC, which, if they are boats, represent a different kind of cargo craft (Göttlicher 1978: Cat. 21, 22). Additionally, a surface find from the

Warka survey shows the end of a broad-beamed boat with a near-vertical end and an internal partition, perhaps also representing a kind of cargo boat (Potts 1997a: 125–6, Fig. V.3).

9 Sumerian Textual Evidence

The textual evidence includes administrative documentation, mainly Ur III (2100–2000 BC) but also Early Dynastic III (c.2500–2350 BC) and Isin-Larsa periods (c.2000–1900 BC), detailing incomings and outgoings of materials used in the manufacture and repair of boats; and dispensation of rations to individuals involved in boat-building. There are also lexical lists, religious texts detailing the building of sacred boats, and merchant's records.

The generic Sumerian term for a boat was **má**, while the term **má-gur$_8$** (henceforth **magur**) was also frequently used to identify the sacred and ceremonial boats of the gods and kings; a boat with high ends; and a sea-going boat (Salonen 1939: 12; Zarins 2008: 215). Widell suggests the **magur** was a boat of deeper draft (Widell 2009: 158). Sacred **magur** boats were splendidly named: Enki's boat was called *The Crown, the ibex of the deep*, while Ninlil's boat was entitled *The Quay, the ornament of the current* (Klein 1990: 90, 107).

Lexical lists provide a rich source of boat terminology. Tablet four in the early 2nd millennium series known as HAR-ra = *ḫubullu* contains more than 100 terms for watercraft and numerous names of the wooden parts of boats (Landsberger, 1957: 172ff; Widell, 2009: 158). These include sailing boats, rental-boats, store-boats, fishing boats, travel-boats (several terms), boats for traveling downstream, pontoon-bridge boats, fodder boats, wine boats, boats for dry bitumen, harbor boats, boats for carrying goddess' robes (?), and war boats (Salonen 1939; Weszeli 2009: 161). While these terms reveal little about construction, they say much about the uses of Mesopotamian watercraft.

Certain kinds of boat were named after geographical locations, including the Magan boat (after the Oman peninsula, and adjacent parts of Iran?), the Dilmun boat (Bahrain and the Eastern Province of Saudi Arabia), and the Meluhha boat (the Indus region). Mari, Agade, and Assur boats are also listed (Salonen 1939: 53). Other types or uses of boat are mentioned in poetic similes: Gudea's Cylinder A refers to "ships which carry grain of the fields," while the Lugalbanda epic refers to a silver-transporting ship; a grain-transporting ship; a ship transporting apples; a ship laden with cucumbers; and a ship at the place of harbors (Klein 1990: 91). It is unclear whether these were standard types of boat, or simply descriptive terms formulated for the purposes of this passage.

The economic texts focused mostly on size as a determining factor, with boats generally described according to their capacity, measured in **gur** (1 **gur** = 300 liters). Thus, we hear of boats of 10–120 **gur**, with some smaller (1 and 5 **gur**) and a few larger ones (300 and 360 **gur**) occasionally mentioned (Landsberger

1957: 180; Widell 2009: 159). Boats of 60 **gur** appear to be the most frequent, with 10, 20, and 120 **gur** boats also relatively frequent.

In the case of boat sizes, the **gur** may have denoted a unit of mass rather than volume. It is unclear whether the **gur** figure refers to the total volume of the boat, the volume of cargo carried, the mass displacement of the boat, or the mass of the cargo (Vosmer 2008: 230–31). Vosmer concluded that it must refer to the volume or mass of the cargo alone. If so, then a 60 **gur** boat would have a cargo capacity of 18 cubic meters, a 120 boat would hold 36 cubic meters, etc. If mass, and if 1 **gur** = 300 kilograms (the mass of 300 liters of water), then the cargo capacity would be 18 metric tons for the 60 **gur** vessel. A 360 **gur** boat would therefore have a vast capacity of 108 tons. These issues remain unresolved.

Vosmer modeled cargo (mass) capacities against various shapes of vessel and calculated that a 60 **gur** boat would have a water-line length of c.13.5 meters (using the 300 kilogram **gur** mass), and perhaps an overall length of 15–17 meters, while a 120 **gur** boat would be slightly more than 16 meters in length at the waterline (Vosmer 2008: 233). This is slightly larger than Salonen's estimates based on the counts of floor and side ribs for different sized boats in an economic text from Umma (TCL V: 5673) of Ur III date (2100–2000 BC), on analogy with traditional Iraqi boats of the early 20th century. Salonen calculated that boats of 10, 30, 60, and 120 **gur** would measure 6, 8, 11, and 14 meters, respectively (Widell 2009: 159).

The economic and religious texts show that some vessels were built almost entirely of wood, while others were built of a combination of wood and reed. Boats and rafts built entirely or largely of reeds, perhaps coated with bitumen, probably continued to be used but are not clearly attested in the texts, perhaps due to their humble status. Materials were locally available, including wood, though imported timber was also important. Early Dynastic and Ur III texts from Telloh (ancient Girsu) indicate that wood was cut from managed woodlands (referred to as gardens, Sumerian **kiri$_6$**), wild forests (**tir**), and marshlands (**ambar**), to provide planks, beams, battens, oars, poles, and dowels. The most important wood, particularly for planking and large pieces, was **ù-suḫ$_5$**, probably a local pine (*Pinus brutia*), but possibly another type of fir tree. Poplar, willow, and palm trunks were also widely used for boat parts and accessories, as were juniper and unidentified types (Powell 1992: 110; Potts 1997a: 126; Zarins 2008: 212). For more prestigious or perhaps larger vessels, cedar was imported from the north (Lebanon), as well as other kinds of wood from Dilmun, Magan, and Meluhha to the south.

Reeds (Sum. **šid)**, probably *Phragmites australis*, and rushes (Sum. **gi-zi**), probably the bulrush *Typha sp.*, were important even in wooden boats, where they were used for matting (Waetzoldt 1992; Potts 1997a: 126, Zarins 2008: 212–13). Reeds/rushes appear to have been gathered and delivered in bundles (**gi-sa-kilib** or **gi-sa**) on a contract basis, sometimes in very large quantities. The size and weight of a reed bundle is unknown, though Vosmer speculates that

25–27 kilograms, the weight conveniently handled by one man, would be typical (Van de Mieroop 1992b: 150; Vosmer 2003a: 51).

The third critical material was bitumen (Sum. **ésir**), which appears in the sources as refined, dry and crushed bitumen. This was used in large quantities to cover the outside of vessels, to waterproof and preserve them. Provenience analyses suggest that the famous bitumen seep at Hit became important after 2000 BC. Prior to that, other sources in northern Iraq were used (Connan and Carter 2007: 177, Table 11). Analyses of archaeological bitumens from boats reveals that the caulking did not consist of pure bitumen, but an amalgam of bitumen, chopped reed, and minerals, the latter perhaps being a deliberate additive rather than an impurity (Cleuziou and Tosi 1994: 775; Connan et al. 2005: 38, 53).

There is no chemical evidence for the addition of fish oil to the amalgam, as sometimes stated, but moderate quantities of fish oil appear in the boat-building texts, probably for coating and protecting the wood and cord of the watercraft (Widell 2009: 159). Texts show that rigging was made of palm fiber (**šu-sar-su$_6$**), palm leaf rope (**šu-sar-peš**), and halfa grass (Vosmer 2003b: 154; Zarins 2008: 212). Micrographs of bitumen impressions of cords from Ra's al-Jins showed a fibrous rope (either halfa grass or date palm fiber) and a smoother rope with a flat lay (palm leaf) (Vosmer 2003a: 51–2). Goat hair either provided high-grade cord or was used to caulk gaps between wooden elements.

The lexical texts and economic documents going back to the Early Dynastic III period (the Lagash timber texts) give an extensive list of technical terms for wooden boat parts, including floor ribs, side ribs, various planks, keelsons (the main plank running down the center of the boat), pegs or dowels, mast, railings, and accessories such as parts of paddles, punting poles, and mooring apparatus (Salonen 1939: 75ff; Landsberger 1957: 180ff; Zarins 2008: 214).

The sacred and epic texts also refer to boat parts and accessories, in particular *Nanna-Suen's Journey to Nippur*, and *Šulgi and Ninlil's Boat* (Klein 1990: 89–96). The former, an Old Babylonian text probably composed originally in the Ur III period (Ferrara 1973: 30), shows that the sacred **magur** boats sometimes combined reed with wood. According to the edition in the *Electronic Text Corpus of Sumerian Literature* (ll. 39–82), people were dispatched to retrieve reeds from Tummal, bitumen from the *abzu*, rushes from Du-ashaga, strakes (lines of planking) from the cypress forest, planking from the forests of Ebla, ribbing from the forests of Kug-nuna, beams from the mountain of fragrant cedar, fir wood from the fragrant cedar forest, and junipers from Langi. It is clear from the order here that reeds and rushes were an important component, while a wooden frame was clearly built, and probably a wooden superstructure. The wooden strakes and planks imply that the hull was of wood, but the glyptic evidence suggests that a reed hull was common on the sacred boats, so a composite construction remains possible (see below).

In *Šulgi and Ninlil's Boat* (Ur III), reeds were not used in the construction of the **magur** boat, except as mats. The hymn refers to large cedars, large reed-

mats, timbers, punting poles, oars, floor-planks, side-planks fastened with wooden rings, panels, bench, cabin, small reed-mats, rudder, tow-rope, mooring pole, longside beams, prow, and stern (Klein 1990: 88–94, 102–12). Other hymns reveal less about **magur** boat construction, but in *Enki's Journey to Nippur* we learn that the boat departs of its own accord, which recalls the God-Boat of the glyptic, while in *Nin Isina(k)'s Journey to Nippur* we read that the king sailed "in old reed rushes" (Wagensonner 2008: 285).

An Ur III economic text from Umma (TCL V: 5673) lists materials needed for building boats of various sizes. A translation of is available for the section giving requirements for a 120 **gur** boat (Zarins 2008: 214). No reeds are mentioned, but a variety of planks, beams, battens, bulwarks, and other wooden parts are listed, along with 204 talents of "dry" bitumen, being 6.12 tons (not 41 tons as stated by Zarins, who confused talent [**gu**$_2$] with **gur**), with much smaller amounts of crushed and refined bitumen. Thus, some wooden boats were coated with large amounts bitumen, but had no reed component except perhaps for sails.

As noted above, Nanna-Suen's sacred **magur** boat appears to have combined reed with wood construction. Additionally, an Ur III text from Girsu lists construction materials "for building the Magan boat(s) under the authority of the Girsu governor." This includes a very large quantity of both reeds and wood (see Table 19.2) (Zarins 2008: 216–17).

Table 19.2 Materials for boats of different sizes

Materials used (CT 7: 31a)	*Total*	*30* **gur** *(164 boats)*	*60* **gur** *(117 boats)*	*120* **gur** *(78 boats)*
Palm trunks	178	1.1	1.5	2.3
Pine trunks (**u-suh$_5$**)	1400	8.5	12	18
Tamarisk/cypress trunks	36	0.22	0.31	0.46
Large *sedu* tree trunks	32	0.20	0.27	0.41
3-cubit tamarisk/cypress trunks	10	0.06	0.09	0.13
Palm-fiber cord	8.28 tons	50.5 kg	70.8 kg	106.2 kg
Palm-leaf cord	1.02 tons	6.2 kg	8.7 kg	13.1 kg
Reeds/rushes (**ú-ninni$_5$**)	12.5 tons	76.2 kg	106.8 kg	160.3 kg
Halfa grass	6.21 tons	37.9 kg	53.1 kg	79.6 kg
Ox hides	753	4.6	6.4	9.7
Goat hair	1.34 tons	8.2 kg	11.5 kg	17.2 kg
Fish oil	1,600 l.	9.8 l.	13.7 l.	20.5 l.
?-oil?	310 **gur**?	1.9 **gur**?	2.6 **gur**?	4 **gur**?
šid reed bundles (**sa-gi-šid**)	4,260	26	36	55
izi reed/rush bundles (**sa-gi-izi**)	12,384	76	106	159
Purified bitumen (**ésir-é-luh**)	475.5 tons	2.9 tons	4.1 tons	6.1 tons

Note: Weight of bitumen is derived from **gur** and has been calculated using Gelb's estimate of 1 sila of bitumen = 500 g, with 1 sila = 1 liter and 300 sila/liters = 1 **gur**. Amounts of bitumen required to cover the boats of these sizes is derived from TCL V: 5673 (Potts 1997a: Table V.1).

Judging from the bitumen quantity, the materials in CT 7: 31a would have sufficed for c.117 boats of 60 **gur**, or c.78 boats of 120 **gur** capacity, or c.164 boats of 30 **gur** (Potts 1997a: 132). A boat did not have to be large to travel down the Gulf: one text (YOS V: 231) refers to Dilmun boats as small as 20 **gur**, only 6–8 meters long by Salonen's estimates, with perhaps a 6 ton capacity using Vosmer's estimate (Potts 1995: 568; Vosmer 2008: 230). Table 19.2 shows the division of materials per Magan boat in CT 7: 31a, according to whether boats of 30, 60, or 120 **gur** were being built. In all cases, although we do not know the size of a standard pine trunk, it is clear that significant quantities of pinewood were required per boat, with smaller amounts of other wood. It is possible that the pine was only required for the scaffolding frames to support the boats during construction, but it appears to be listed as a component of the boats. These boats are therefore best understood as composite wooden-framed vessels with reed-bundle hulls. Such a boat would have been cheaper to build than one with a fully planked hull and stronger than one without a wooden frame. Experimental reconstructions of a Magan boat in Ravenna and Oman, which proved unseaworthy, used very little wood (just 300 kilograms in the Ravenna example), and then only for frames on which to belay rigging, rudders, mast, and yard, with the rest of the frame provided by transverse reed bundles (Vosmer 2003a: 51–4, 2003b: 154). The use of wooden frames with reed-bundle hulls conforms to the archaeological evidence. At Ra's al-Jins 2 (RJ-2) in Oman (c.2300 BC) impressed bitumen slabs were discovered with both wood and reed impressions, while some bore reed bundle and mat impressions (Vosmer 1996: 227, Figs. 4–5, 12; Cleuziou and Tosi 2000: 64–5, Fig. 19).

Both wooden and composite boats were covered with bitumen. The RJ-2 slabs also suggest that matting was stitched onto the reed hull prior to coating (Cleuziou and Tosi 2000: Fig. 19.1). Texts detail bitumen deliveries and the quantities to be used on boats (Zarins 2008: 221 nn.44, 45, for a list of texts and references). According to some calculations, the amount of bitumen needed was inversely proportional to size of the boat in question (Potts 1997: 131, Table V.1), i.e. the larger the boat the less bitumen was needed per **gur** of capacity. Widell (2009: 159) considers this a misreading of the texts, but the inverse relationship is consistent with the mathematics of naval architecture, as "the displacement increases by the cube of the factor of change in length. The surface area, however, increases only as the square of this factor" (Vosmer 2008: 231).

10 Stitched Planking and Shell- or Frame-First Construction?

The impressed slabs from RJ-2 provide compelling evidence that stitching, rather than nailing or purely mortise-and-tenon jointing, was used to join wooden hull planks or elements of the frame. One impressed slab shows the point at which three cords pass through a hole cut into a plank, while another shows a reed

bundle apparently bound to a wooden element (Cleuziou and Tosi 2000: 64–5, Fig. 19.2–3). A huge number of wooden pegs or dowels (Sum. ^{giš}**gag**) are listed in the boat-building texts, with one Ur III text recording the provision of 59,290 to a boatyard of Umma (Widell 2009: 159; Potts 1997a: 127). Rather than all being used as dowels to peg the planks of a wooden boat together in the Mediterranean or Egyptian fashion (some would have been employed this way – see Vosmer 1996: Figs. 14, 16), these may have been used to plug the numerous stitching holes drilled along the edges of each plank (Vosmer 1996: 227, Fig. 13). The large quantities of cord used in boat construction also point to the use of sewn-plank technology. Widell (2009: 159) speculates that Sum. **si$_4$-sar**, an item measured by weight which is listed after the wooden pegs in the Umma texts, refers to the cords used to stitch the planks together. Pedersen interprets the boat-building sequence in the *Epic of Gilgamesh* (tablet XI) as shell-first construction, and the hammering in of "water-plugs" as the plugging of the stitching holes (Pedersen 2004: 234).

Stitched plank vessels were traditionally made shell-first, with the frame inserted afterwards, a fact unknown to Salonen when he wrote his pioneering work (Pedersen 2004: 231; Vosmer 2000: 237). For experimental reed boats, however, it was found easiest to build them upside down and (reed) frame first, much like reed houses are built up to the present day in the marshes of Iraq (Vosmer 2003b: 156). The high and coiled ends of the model and glyptic boats, however, calls this method into question.

11 Shipyards

The textual evidence discussed above implies the existence of large dockyards and boat-building facilities in southern Mesopotamia, with numerous personnel, sometimes under state control. The building of a fleet of Magan boats under the authority of the governor of Girsu reveals the vast scale of operations conducted by the Ur III state, which apparently included state-sponsored trading operations in the Gulf. Another Ur III text recounts a request by Ibbi-Suen to Ishbi-Erra of Larsa for grain to alleviate famine. For this he was asked to supply no fewer than 600 boats for transport (de Graeve 1981: 15).

No boatyard facility has been identified in excavation, though the possible location of harbors at Ur and Girsu is indicated by the sites' contour plans (Zarins 2008: Figs. 2–3). The Sumerian term for boatyard is elusive. Zarins identified it as **mar-sa**, though others translate the term differently – e.g., as "boat bureau" or "navigation post" (Zarins 2008: 210). Deliveries of raw timber and wooden boat parts were made routinely, and very large quantities were sometimes needed, with a shipment of 11,787 pieces, mostly identified by their intended part, listed in one Ur III text (Waetzoldt 1992: 140 n56; Potts 1997a: 126; Zarins 2008: 212;). The delivery of bitumen and reed bundles, sometimes in very large

amounts, was also recorded with reasonable frequency. One Old Babylonian text from Ur reveals how one man, Nabutum, delivered 26,230 bundles in three installments (Van der Mieroop 1992b: 150), though this was not necessarily for boat construction. Sails, thought to have been square, were sometimes delivered and sometimes made at the dockyards (Zarins 2008: 213–14). It is unknown whether they were made of reed matting or cloth. The Oman reconstruction of a Magan boat was expected to use 65–100 square meters of woven reeds or palm leaf for its sails (Vosmer 2003b: 54).

Zarins (2008: 210–11) identified several grades of personnel associated with shipyards, including Sum. **má-gín-me** and **má-a-dù**, which he translated as "shipwrights," **lú-mar-sa** or "unskilled dockyard workers," and **má-lah$_4$**, the latter sometimes translated as "sailor," but also apparently sometimes meaning shipwright. Also involved were specialist builders, carpenters, bitumen workers, and cloth/sail workers. The annual schedule of dockyard facilities may be inferred from the "kennelmen archive," a collection of Ur III texts unofficially excavated at or near Telloh (Girsu) in the 19th century, which relate to an industrial area south of the city (Zarins 2008: 215–16). The texts list rations for workers there. The chief Magan-boatwright was joined at certain times of year by fellow boatwrights or assistants. The time of least activity was late winter/spring (January–May) (Zarins 2008: 219). This suggests that boats used the northwesterlies which prevail at that time of year to sail down the Gulf. Evidence from the archive of Lu-Enlilla, an Ur III trader, concurs: he received goods destined for Magan in February/March, presumably to be sent out on the boats soon thereafter (Potts 1990: 147). If any of these boats were continuing on to the Indus region (thought to be Meluhha), they could have taken the southwest monsoon to travel east after April, returning (i.e. westwards) when the winds reversed in October.

The repair of boats is indicated by a reference to stripping a boat of bitumen, 900 kilograms of which was recovered (Cleuziou and Tosi, 1994: 754). The text details how a 60 **gur** boat was salvaged or repaired, taking 602 man days (cf. 1,800 man days taken to completely build a 120 **gur** ship in the Umma text, TCL V: 5673, mentioned above).

12 Long-distance Maritime Trade: Dilmun, Magan, and Meluhha

A late Early Dynastic inscription of Ur-Nanshe (1st Dynasty of Lagash) reveals that wood was brought to him on Dilmun boats, while Sargon claimed that he caused Dilmun boats, Magan boats, and Meluhha boats to tie up at the quay of Akkad (Oppenheim 1954: 15; Potts 1990: 183).Trade with Magan flourished thereafter and the Ur III merchant Lu-Enlilla received wool, plant products, fish, sesame oil, garments, and hides for the purchase of copper from Magan (Oppenheim 1954: 13–14; Potts 1990: 142–7). It is clear that very significant maritime shipping enterprises were taking place, with Magan providing timber, stone, and

copper (among other goods), in return for barley, garments, and low-grade textiles and wool.

The Dilmun trade was active from an early date. Early Dynastic economic texts from Lagash record the receipt of copper in modest quantities, and the export of wool and silver (Potts 1990: 182–3). Traders donated bronze models of Dilmun boats to the goddess Nanshe after successful expeditions (Potts 1990: 182). Trading relations continued in the Akkadian and Ur III periods, but was less significant than the Magan trade (Potts 1990: 184–6). By the early 2nd millennium, however, Dilmun dominated Gulf trade to the exclusion of Magan and Meluhha. Copper was again a major import, with one shipment of copper weighing 611 talents (18.33 tons), suggesting a major sea-trade in bulk commodities (Potts 1990: 219–24).

We learn of sea-trade with Meluhha chiefly from Gudea's inscriptions and the Ur III economic texts. Woods of various kinds were a major export from Meluhha, as well as carnelian. Meluhhan copper, lapis lazuli, and ivory bird statuettes (?) are frequently mentioned (Oppenheim 1954: 15, and n24; Possehl 1996: 139–44).

There is little to indicate that the Dilmun boats, Magan boats, and Meluhha boats mentioned in the 3rd millennium and early 2nd millennium texts originated in those regions. Indeed, the manufacture of Magan boats around Girsu in the Ur III period and the operations of Dilmun merchants based at Ur strongly imply that these were boats run out of Mesopotamia. The archaeological evidence mainly supports this interpretation.

13 Archaeological Evidence of Magan and Dilmun Boats

Archaeological evidence for Mesopotamian boats abroad comes from impressed bitumen slabs at RJ-2 in Oman (described above). A small number of other, similar reed-impressed bitumen slabs have been found at the port sites of Umm an-Nar (Abu Dhabi), Qalat al-Bahrain (Højlund and Andersen 1994: 409; Frifelt 1995: 76, 99, 117, 226, Figs. 133, 341–344) and recently Tell F6, on Failaka island (Kuwait), of probable Ur III date (pers. comm., F. Højlund). The evidence suggests that composite boats with reed hulls were common visitors to the ports of the region.

The material from Ras al-Jinz indicates a Mesopotamian vessel(s). Its construction materials tally with the Magan boats described in cuneiform sources, and the bitumen used was Mesopotamian (Connan et al. 2005: 52). The reed impressions on the Ra's al-Jins slabs are mainly bulrush (*Typha* sp.), a species which does not grow locally in Oman but is abundant in Mesopotamia (Cleuziou and Tosi 1994: 754). The presence of Mesopotamian pottery lined with bitumen does not indicate that bitumen was shipped to Oman to build a vessel there, as previously suggested (Cleuziou and Tosi 2000: 66). Several tons of solid bitumen were required to coat a boat, and it would have been uneconomical to ship the

materials to Oman. Foreign boats may have visited Mesopotamian shores, but they were not necessarily the subjects of Mesopotamian texts or glyptic.

On the other hand, Dilmun seals shows a distinctive design of boat absent from the Mesopotamian evidence, presumably representing the kind of boat built and used by traders from Dilmun (including Kuwait). There is no evidence for these boats prior to the early 2nd millennium BC and it is likely that they developed as Dilmun rose to prominence at the end of the 3rd millennium. Dilmun seems to have been the sole trading entity linking Mesopotamia and the late Harappan world of Pakistan and northwestern India (Carter 2001), and as such would have easily sourced the wood needed for these vessels.

Several vessel types can be seen on Dilmun seals from Failaka and Bahrain. The first and oldest, found on an Early Type seal from Saar (Bahrain), bears a strong resemblance to the boats with S-shaped ends on Early Dynastic (mid-3rd millennium BC) Mesopotamian seals (Figure 19.9[1]) which probably depict a masted vessel. A second unusual shape, with outwardly-turned ends, appears on a single seal (Figure 19.9[2]). The commonest type is highly distinctive. It is distinguished by inward pointed horns at one end, often accompanied by two outward pointing prongs, the whole resembling the head of a horned animal; the other end shows a thickened, triangular or box-like shape – it has a mast and a straight-edged hull (Figure 19.9[3–8]). One example shows a mast and square sail, and the position of the sail, as well as the alignment of the people on the whole design, indicates that the animal head is at the stern end of the boat. The straight lines of the hulls imply wooden construction. A similar type has the same horned end, but no mast and a curved hull (Figure 19.9[9–11]). One has vertical lines resembling lashings in the middle (Figure 19.9[11]). It is proposed that these two varieties are boats of Dilmun: one wooden, masted, and used for long journeys, and the other perhaps made of reeds or palm spines, with no mast, used for local or ceremonial purposes.

Three other boats have different, horn-like shapes at each end, deep hulls and masts (Figure 19.9[11–14]). One of them, which is difficult to read and may actually belong to the category mentioned above, was from a late tomb type (Type IV). It is double-sided and of a style typical of the Late City II period (c.1800 BC) (pers. comm. H. Crawford). The double-sided seals from Failaka (Figure 19.9[5–6]), with boats of the animal-headed type, may also be of this date. Within the whole corpus of fourteen Dilmun seals showing boats, one or two show double steering oars (Figure 19.9[1], perhaps [14]), eleven show masts and one clearly shows a square sail and mast supports (Figure 19.9[6]); two others may also show sails (Figure 19.9[7, 14]). The contraption resembling a tiller on one is actually a seat (Kjærum 1983: 143). Other evidence for boats of Dilmun is limited to possible stone anchors found at the Barbar Temple, though these are interpreted as "cult-stones" (Højlund and Andersen 2004: Figs. 107, 112–18). Similar stones were found at Qalat al-Bahrain, one of City IIb date, the other in a Hellenistic context (Højlund and Andersen 1994: 405, Figs. 2034–2035).

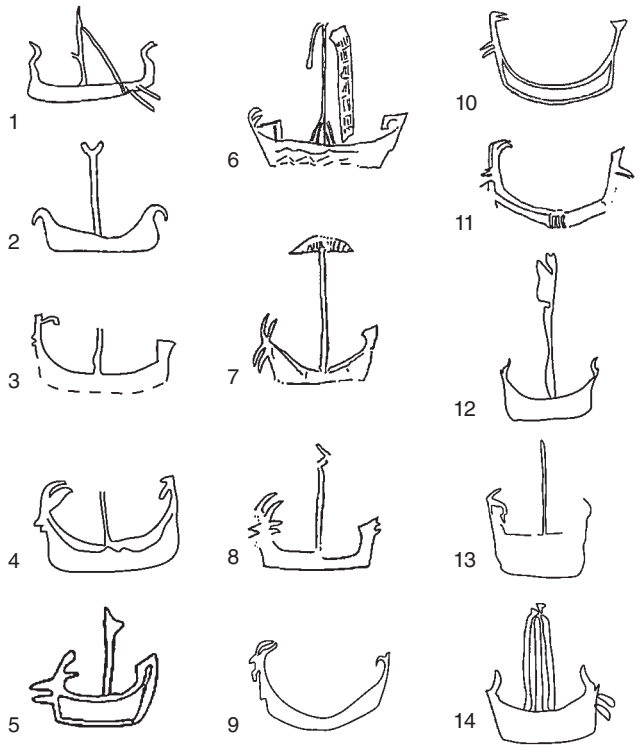

Figure 19.9 Boats from Dilmun Glyptic. 1. Saar, "early type" (al-Sindi), unknown if cemetery or settlement (Al-Sindi 1999: 50, no. 2); 2. Hamad Town (Al-Sindi 1999: 49, no. 1); 3. Failaka F3, redrawn since Potts 1995 (Kjærum 1983: cat. 263); 4. Failaka F6, redrawn since Potts 1995 (Kjærum 1983: cat. 266); 5. Failaka F3, double-sided seal (Kjærum 1983: cat. 343); 6. Failaka F6, double-sided (Kjærum 1983: cat. 351); 7. Failaka F6 (Kjærum 1983: cat. 264); 8. Failaka F6 (Kjærum 1983: cat. 265); 9. Saar settlement (Al-Sindi 1999: 54, no. 6); 10. Hamad Town (Al-Sindi 1999: 53, no. 5); 11. Failaka F3 (Kjærum 1983: cat. 262); 12. Hamad Town (Al-Sindi 1999: 51, no. 3); 13. Saar tomb S-267 (Type IV), double-sided (Ibrahim 1982: 81, Pl. 49.1); 14. Karranah (Al-Sindi 1999: 52, no. 4).

14 Watercraft of the Later 2nd and 1st Millennia BC

Kassite depictions in stone show that boats with a curved hull and inward-curled ends were still in use in the late 2nd millennium (de Graeve 1981: 35–6, Pl. 8.30–31). One appears to indicate the lashings on reed bundles. With the possible exception of the Early Dynastic rectangular models from Telloh, it is not until the Assyrian reliefs that we see any kind of Mesopotamian vessel other than double-ended wooden or reed craft. These may show classes of utilitarian craft used in previous centuries but absent from earlier sources.

The simplest craft consist of inflated skins on which a semi-immersed person could float (de Graeve 1981: 79–82, Pls. 10.5, 11.36ff.), a technique still used in the 20th century (Salonen 1939: Pl. 43.2). Several inflated skins could be lashed to a wooden frame, to make a larger raft on which people and goods could stand (de Graeve 1981: 82–5, Pls. 18.49, 19.50, and 22.54). Today this is known as a *kelek*, cognate with Akkadian *kalakku,* apparently from the Sum. **ka-lá** (de Graeve 1981: 82). The Sumerian etymology implies considerable antiquity. The 2nd and 1st millennium texts mention rafts of timber and several terms for rafts of inflated animal skins (Weszeli 2009: 161). Small, boat-shaped reed rafts are also depicted, including a flat variety and a type with a truncated end, as seen in the marshes into the 20th century (de Graeve 1981: 90, Pl. XXVII.60). A double-ended, boat-shaped raft is usually interpreted as a reed vessel (de Graeve 1981: 91, Pl. 27.60ff.). It resembles the *shasha* used historically in Iraq (Agius 2002: 127). In the Gulf the *shasha* was made of the spines of palm leaves, though many observers assume wrongly that it was made of reeds (e.g., de Graeve 1981: 90 n.46). Also seen are larger cargo boats with stubby ends, resembling the supposedly Ur III or Old Babylonian model fragment found on the Warka survey, and capable of carrying massive monumental statuary (de Graeve 1981: 119–22, Pl. 22.54 ff.). Finally, a circular coracle is depicted (de Graeve 1981: 85–9, esp. Pls. 19.50 and 47.110). This resembles the *quffa* of recent centuries, made by coiling a long bundle of reeds or straw into a hemisphere, and coating it with skins and/or bitumen. These could measure up to 5.5 meters in diameter and carry 16 tons (de Graeve 1981: 86). *Quffa* is cognate with Akkadian *quppu*, meaning basket (Weszeli 2009: 168). These appear in the Neo-Assyrian legend of the infant Sargon, who was set adrift in one, like the infant Moses, and the sons of the queen of Kanesh, who were cast adrift in "baskets made watertight with fat" (Beal 2009: 172). Neo-Babylonian texts refers to varieties of "basket boat" (Weszeli 2009: 161). There is no confirmed evidence for its use prior to the 1st millennium BC, though there are unconfirmed reports of an Old Babylonian tablet which apparently describes the vessel of Atra-hasis, the Sumerian Noah, as a boat "with a circular design" (http://www.guardian.co.uk/uk/2010/jan/01/noahs-ark-was-circular).

15 Mediterranean and Red Sea Watercraft

The earliest Mediterranean evidence comes from the 11th millennium BC, at a site recently discovered at Aetokremnos, on Cyprus (Ammerman 2010: 87). The distribution of obsidian from Melos, one of the Cyclades islands, indicates resource-collecting expeditions and maritime trade as early as the 11th millennium BC, continuing into the Neolithic, while obsidian used on Cyprus in the 9th millennium originated in Anatolia (Farr 2010: 180; Ammerman 2010: 84).

At this stage nothing can be said of the kinds of watercraft used, though reed rafts, coracles, and logboats are likely candidates.

Offshore Egyptian and Levantine pottery indicates sea-trade by the later 4th millennium BC, while sailing technology had certainly reached the eastern Mediterranean by the mid 3rd millennium, when the so-called Byblos run was in full swing, whereby Egyptian traders sailed to and from the northern Levant (Broodbank 2010: 251–2, 255). Incised, Early Bronze I sherds from Megiddo (Israel) suggest that reed or papyrus boats were known, and possibly larger wooden ones as well, both perhaps copied from Egyptian depictions (Marcus 2002: 405–7). Stylized clay models from Cyprus, beginning around the Middle Cypriot I period (c.1850 BC), may represent basketry coracles (Wachsmann 1998: 62, Figs 4.1–3). Late Cypriot I–II models (c.1600–1200 BC) with pronounced stem- and sternposts and rows of piercings along each edge represent some kind of local merchant vessel, as does a Cypriot I–II model from the surface of Enkomi. Egyptian tomb paintings of the 14th century BC at Thebes are thought to show Syro-Canaanite vessels (Wachsmann 1998: 39–50, 66). Mention must also be made of the two famous Late Bronze Age wrecks found off the south coast of Turkey. The Cape Gelidonya wreck and the Uluburun wreck are both thought to have been Levantine or Cypriot boats, and bore rich cargoes of Cypriot copper and other goods of varied Mediterranean provenience (Beal 2009: 173; Pulak 1998).

In the Red Sea, Egyptian Middle Kingdom expeditions, including the famous expedition of Hatshepsut, were sailing to Punt by the late 3rd and early 2nd millennium. The fleets left from Marsa Gawasis, where astonishing finds include hanks of rope, steering oars, ships timbers (mortise and tenon-jointed), halfa grass leaves (presumed for ropes), and cargo boxes (Fattovich 2007; Bard et al. 2007). Mastery of seafaring by local communities must also be assumed in the Red Sea between the 3rd and early 1st millennium BC, indicated by the use of obsidian sources in the Horn of Africa and Tihama plain of Yemen, with shared lithic technology (Khalidi 2007: 38–40).

16 Conclusion

Mastery of water transport played a role in several of the major transformative processes of the region, including the Ubaid phenomenon, state formation in the Uruk period, and the development of the 3rd–2nd millennium long-distance trading networks which enriched the states and empires of the ancient Near East. The great waterways, their tributaries, and their man-made extensions were highways, trade routes, and providers of sustenance, bustling with vessels carrying fishermen, hunters, reed gatherers, soldiers, laborers, traders, and officials. The ancient Near East was drawn together by its rivers and seas, but these would have had little significance without watercraft, their builders, operators, and passengers.

GUIDE TO FURTHER READING

McGrail (2001) provides a broad overview of watercraft, as do the papers in Anderson et al. (2010). For early Mesopotamian shipbuilding, the reader is directed to the chapter on watercraft in Potts (1997a). Qualls's 1981 PhD thesis on Mesoptamian boats prior to the 2nd millennium unfortunately remains unpublished, but is an invaluable compendium of the prehistoric data, which is not summarized elsewhere. Salonen's (1939) summary of the evidence for the texts is remarkable but dated, and the most comprehensive list of texts relating to boat-building is now provided by Zarins (2008). For the technicalities of reed boats see the series of articles by Vosmer (1996–2008), and also Cleuziou and Tosi (1994). An excellent review of evidence for boats of the Ancient Near East during and after the 2nd millennium is provided by de Graeve (1981). For Mediterranean seafaring, Wachsmann (1998) is recommended.

PART IV

Varieties of Early Village and Town Life

CHAPTER TWENTY

The Northern Levant

Karin Bartl

1 Introduction

Due to its geographical location as well as climatic and ecological conditions, the northern Levant is one of the optimal habitats of the western Near East and has demonstrably been used by man since the earliest times. However, for the time span between the beginnings of permanent settlements around 10,000 BC and the appearance of urban developments in the 4th millennium BC archaeological data are often scarce – especially if compared to neighboring regions such as the Jazirah in northeastern Syria and the Southern Levant – so that some reference to these regions needs to be made in order to better understand cultural developments in the northern Levant (Figure 20.1).

The coast of the eastern Mediterranean is often subdivided into three geographical units comprising several modern states: the southern Levant (Israel, Palestine, Jordan), the central Levant (Lebanon), and the northern Levant (Syria). In the following, the common subdivision into a southern and northern Levant – the latter including all of Lebanon, western Syria and a small portion of southeastern Anatolia – will be adopted. This area comprises a differentiated landscape c.450 kilometers long and 100–200 kilometers wide between the modern Lebanese–Israeli border in the south and the Gulf of Iskenderun in the north. The rather vague delimitation toward the east is defined by topography and climate. In the south the eastern slopes of the Anti-Lebanon and its spurs form the boundary with the steppes of inner Syria; in the north a line between the

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Figure 20.1 Archaeological sites mentioned in the text.

cities of Homs and Aleppo marks the eastern boundary of the northern Levant and the end of the region characterized largely by Mediterranean features. Archaeologically, however, the land east of Aleppo as far as the middle Euphrates is often included in the northern Levant (e.g., Aurenche and Kozlowski 1999: Fig. 3).

Moving from south to north, the landscape is structured, in the south, by the high ranges of Jabal Lubnan (Mount Lebanon) as well as Jabal esh-Sheikh (Hermon) and Jabal ash-Sharqi (Anti-Lebanon) running parallel to them. In the north, this mountainous region finds its continuation in Jabal al-Ansariyeh. In the frontier zone between northern Lebanon and Syria, the southern and northern mountain zones are separated by a depression running from west to east, the so-called "Homs Gap," the most important connection between the Mediterranean and the inner Syrian steppe. In the north, another route running west to east between Jabal Akra and the Amanus mountains via the Amuq plain connects the Mediterranean with the middle Euphrates.

The river valleys and plains of the region are characteristic topographical features. In Lebanon the plateau of the Beqaa between Mount Lebanon and the Anti-Lebanon with the rivers Litani and Nahr al-'Asi (Orontes) and the coastal plain are considered the main agricultural zones. In Syria, the most important agrarian areas, in addition to the coastal region, are the middle Orontes valley with its fertile fields and the wide depression of the Ghab as well as the *terra rossa* regions between Homs and Aleppo where annual rainfall is 400–1,000 millimeters. In the eastern region the transitional area toward the steppe of inner Syria and the 200–300 millimeters isohyet marks the limit of rain-fed agriculture with correspondingly lower yields (Wirth 1971: Map 3). The big bend of the Euphrates, the formerly fertile valley which is today largely flooded by modern reservoirs, is considered the boundary toward the north Mesopotamian Jazirah.

All of the northern Levant has experienced severe human interference, so that there is hardly any original vegetation left. For the early Holocene, however, pollen diagrams from the Hula Basin (northern Israel) and the Ghab valley near Jisr esh-Shoghur (Syria) allow us to reconstruct climate and vegetation c.15,000–5000 BC. At around 15,000 BC the Hula diagram shows late/post-glacial climatic amelioration with rising temperatures and increasing humidity favoring the extension of forests. Between 11,500 and 10,500 BC a renewed decline of temperature and precipitation accompanied an extension of steppe vegetation. In the 10th millennium a reverse trend is evident, again leading to more extensive forests. Some scholars believe the climatic optimum occurred between 10,000 and 6000 BC (e.g., Sanlaville 1996, 1998). More recent climate data from the Ghab valley, however, show a slightly different trend. Here, too, more humid climatic conditions favored the growth of oak forests, and pistachio and olive groves after 14,000 BC. Around 11,000 BC there followed a dry-cold phase. After an amelioration of the climate, another dry phase is registered around 8200 BC, manifested by a decline in oak. Dry-cool climatic conditions were again

characteristic of the period around 4000 BC (Yasuda et al. 2000: 127ff). Generally, it may be assumed that, between 10,000 and 5000 BC, the mountainous regions and the regions at the foot of the mountains were characterized by the growth of forests determined by elevation, while the plains featured scattered trees. The riverbanks were generally covered by dense vegetation (trees, bushes, and reeds).

The period from the beginnings of permanent settlement until the first urban centers comprises c.7,500 years: c.11,000/10,000–3500 BC (Table 20.1). Within this long period a gradual change in settlement structure may be observed in many parts of the Near East: from small agglomerations consisting of only a few units, to large, complex villages with solid, multi-roomed houses, special-function buildings, and numerous infrastructural features. The development of settlement can be divided into two periods: the first between c.11,000 and 7000 BC and the second from 7000 to 3500 BC. The occupation phases in the earlier time period – the Epipaleolithic era and the two Early Neolithic periods, Pre-Pottery Neolithic A (PPNA) and Pre-Pottery Neolithic B (PPNB), the designation of which harks back to the terminology used at Jericho (modern Tell es-Sultan) in the southern Levant (Kenyon 1981) – exhibit, in most of the western Near East, very similar features in architecture, funerary customs, and finds. Thus, they are often conceived of as a relatively homogeneous cultural complex (e.g., Kozłowski and Aurenche 2005). From c.7000 BC onwards, cultural developments in the various areas became increasingly diversified, with a strong regional or local character. The northern Levant, Lebanon, and northwestern Syria were characterized by different trends, as the latter began to have important connections with northern Mesopotamia. For southern Syria there exist hardly any data.

Based upon certain cultural markers as well as calibrated 14th century data, the individual components of the prehistoric periods of the Near East c.14,000–4500 BC were grouped by French researchers into a chronological framework of nine periods which continues to be accepted as the basis for classification (Hours et al. 1994). This schema supplements and partially replaces the Amuq sequence, defined on the basis of excavations at several sites in the Amuq plain and long in use for northern Syria and northern Mesopotamia, but not covering periods before the 7th millennium BC (Braidwood and Braidwood 1960; see also Table 20.1 above).

Archaeological investigations in the region began relatively late. Important, long-term excavations at sites known from historical sources – e.g., Ugarit (modern Ras Shamra) (Yon 1997), Byblos (modern Jbeil; Dunand 1972), Hama (Ingholt 1942), and the Amuq plain – began in the 1920s and 1930s, but were either terminated or interrupted by World War II. At Hama and in the Amuq plain, settlement sequences extending back to the 7th millennium BC were revealed for the first time in this region.

After Syrian and Lebanese independence, a new chapter in the history of prehistoric investigations here began in the 1950s. For the northern Levant, excavations in the 1950s and 1960s at Ras Shamra in particular yielded important,

Table 20.1 Main chronological periods in the Northern Levant, c.14,000–3300 BC

ASPRO absolute dates BP	*ASPRO absolute dates BC*	*ASPRO period*	*Definition*	*Amuq period*	*Definition*	*Sites*	*Syria*	*Lebanon*
						R. Shamra	Hama	Byblos
14000–12000	14,000–12,000	0	Kebaran					
12000–10300	12,000–10,200	1	Natufian					
10300–9600	10,200–8800	2	Pre–Pottery Neolithic A					
9600–8600	8800–7600	3	Pre–Pottery Neolithic B, early and middle					
8600–8000	7600–6900	4	Pre–Pottery Neolithic B, late			VC 1–3		
8000–7600	6900–6400	5	Pottery Neolithic/Early Late Neolithic	A	Pottery Neolithic	VB VAI		Néol. ancien/ inferieur
7600–7000	6400–5800	6	Hassuna/Samarra/ Halaf/Ubaid 1	B	Pottery Neolithic	VAII	M7–M4	Néol. ancien/ superieur
7000–6500	5800–5400	7	Pottery Neolithic A/ Late Halaf/Ubaid 2	C	Halaf	IVC	M3–M1	Néol. moyen
6500–6100	5400–5000	8	Pottery Neolithic B/ Ubaid 3	D	Halaf	IVB	L6–L4	Néol. récent
6100–5700	5000–4500	9	Ubaid 4	E	Ubaid	IIIC	L3–L1	Énéol. ancien
	4500–3300			F	Late Chalcolithic	IIIB	K 10	Énéol. récent

Note: ASPRO = *Atlas des sites du Proche Orient* (Hours et al. 1994).

stratigraphically secure data from the Neolithic and Chalcolithic periods (Contenson 1992), while for the corresponding periods in the Lebanese coastal zone, Byblos was the key site (Cauvin 1968; Dunand 1973). In the 1960s and 1970s soundings and surveys revealed further prehistoric sites – e.g., Dakerman near Sidon (Saidah 1979), and Labweh and Ard Tlaili in the Beqaa valley (Kirkbride 1969).

The construction of dams on the Euphrates in Syria and Turkey during the late 1960s initiated a new phase of archaeological research. Thanks to the many rescue excavations that were conducted, it became possible to trace developments in Syria for the entire period from the 11th to the 4th millennium and beyond, so that this area is the best explored part of the country today. Important sites of the late Epipaleolithic and Early Neolithic periods made it clear that, along with the southern Levant, the middle Euphrates and its environs constituted yet another center of Early Neolithic development. For the Chalcolithic, several sites yielded evidence of the Halaf, Ubaid, and Uruk cultures, formerly known only in the Mesopotamian heartland.

In western Syria, new investigations have been started up since the 1990s in previously unexplored areas – e.g., the Rouj basin, the Homs Gap, and the vicinity of Hama, searching for answers to questions about prehistoric settlement.

2 Earliest Settlements: The Initial Phase of Sedentarization

The Epipaleolithic began in the western Near East around 20,000 BC (cf. Ch. I.7). Based on data gathered in the southern Levant, it has been subdivided into two complexes: the Kebaran (c.20,000/14,500–12,000 BC) and the Natufian (c.12,000–10,300 BC). Each period is defined by certain lithic types, of which the geometric microliths are most striking. Whereas the Kebaran seems to be limited to the southern Levant, sites with Natufian characteristics are more widespread, extending even into the middle Euphrates, as shown by Abu Hureyra 1 and Mureybet III. Settlements of this period are situated in ecologically optimal habitats that offered a diverse range of resources.

In the earliest phase of occupation at Abu Hureyra 1, no solid buildings were detected, but circular structures set into the bedrock were recognizable by postholes. Roofing must have been made of perishable material (Moore et al. 2000). At Mureybet, no evidence of solid structures, other than hearths/ovens and pit ovens, has been found either (van Loon 1968; Cauvin 1979).

Contrary to the middle Euphrates, the southern Levant already manifested a differentiated settlement structure in this period. The complex of round buildings at Ain Mallaha/Enan on (former) Lake Hula in Galilee has the best-preserved architecture of this period found to date (Perrot 1966; Valla 1991). The solid buildings, including storage facilities, suggest the permanent presence of the

inhabitants. Without exception, subsistence was based on wild species, of which gazelles and pistachio nuts were particularly important. A striking characteristic of the Late Epipaleolithic phase in this region is the funerary custom of grave-gifts, as seen at, e.g., Ain Mallaha and Hayonim (Valla 1995).

As in the southern Levant, it has also been demonstrated in the Euphrates region that the origin of permanent settlements was probably triggered by the kind and volume of natural food resources. In the northern Levant, Epipaleolithic sites are found at, e.g., Yabrud (Rust 1950; Solecki and Solecki 1987–8), Jayrud (Cauvin et al. 1982), Qornet Rharra and Baaz (Conard 2006b) in the Qalamun region on the eastern slope of the Anti-Lebanon, and at Jeftelik in the Homs Gap (Ibáñez et al. 2008). In the northern and eastern parts of the area, sites include Dederiyeh Cave (northwest of Aleppo) and a number of sites on the middle Euphrates, among them – besides Abu Hureyra 1 and Mureybet – Kosak Shimali (Nishiaki and Matsutani 2001), Nahr el-Homr (Roodenberg 1979) and Dibsi Faraj (Wilkinson and Moore 1978). In many cases sites are assigned to a particular phase solely on the basis of the lithic assemblages found within extended stratigraphic sequences. Architecture has only been exposed at Baaz and Jeftelik. Baaz consists of a rock-shelter below which part of a round house with a *pisé* (packed mud) floor, a round fireplace, and a mortar were discovered (Conard 2006b: Fig. 9, photo 6). It is assumed that this was a temporary shelter on the edge of the resource-rich steppe region east of the Anti-Lebanon. Radiocarbon dates suggest that Baaz was used mainly in the late Natufian period (11th and possibly late 12th millennium BC) (Conard 2006: 15). The large number of Epipaleolithic sites around Baaz shows that this area was used intensively, probably because of natural resources (Conard et al. 2006: Fig. 5). The soundings at Jeftelik begun in 2008 are the first investigations of an Epipaleolithic site in this region. The site is located on the southern spur of the Syrian coastal mountains. The areas exposed so far show a sequence of stone agglomerations, floors, and a circular structure (Ibáñez et al. 2008). In this region, as well as along the middle Orontes, more Epipaleolithic sites have recently been discovered in the course of survey work (Dietl 2009; Dietl and Conard in press). Furthermore, Epipaleolithic sites were mapped during the 1960s in the course of several surveys in Lebanon. In addition to sites in the Beqaa valley settlements, such as Nachcharini, were discovered in the high mountains (Copeland and Wescombe 1965, 1966).

These data gathered suggest a differentiated system for the use of resources in the Epipaleolithic exploiting various natural units, including the foot of the mountains, river valleys, and the edge of the steppe. However, characterizing the nature of these sites is difficult and it is unclear whether the model developed in the southern Levant, namely the coexistence of larger, permanently settled base camps and – radially arranged around them – temporary camps for specialized activities, also applies in the northern Levant (Barth 2006: 84).

3 PPNA: First Permanent Settlements

In the western Near East the so-called Neolithization phase began around 10,000 BC. In the strict sense, this period comprises the time span until c.7000/6000 BC and is characterized by the transformation from hunting/gathering and a mobile way of life to productive forms of economy based upon domesticated plants and animals and permanent settlements.

In the western Near East, the primary phase of Neolithization, the Pre-Pottery Neolithic A, has only been documented in a few places. Two of these must be particularly emphasized because they currently dominate our image of that time span: Jericho (Tell es-Sultan) and Göbekli Tepe. The former is a rather large settlement, known since the last century and situated close to a spring north of the Dead Sea; its most impressive architectural features are a fortification wall and a tower. Lime-plastered skulls were deposited under house floors, probably indicating concepts of the afterlife linked to ancestor worship. The erection of a wall and tower at Jericho as protection for the settlement represent, at this early date, precocious achievements in construction and organization (Kenyon 1981; Bar-Yosef 1986).

Those two characteristics are even more distinctly visible at Göbekli Tepe (see Ch. I.8) in the Turkish Euphrates-Taurus region of upper Mesopotamia. Today, this area is often called the "Golden Triangle" as – according to recent paleobotanical and paleozoological data – Neolithic innovations such as the domestication of wild plants and animals occurred here for the first time (Aurenche and Kozłowski 1999). The stone circles exposed at Göbekli Tepe, with their monumental T-shaped pillars, the surfaces of which are covered with animal reliefs or full-sized animal figures, manifest an enormous technological and logistical knowledge and suggest a realm of ideas still based upon hunting traditions (Schmidt 2006).

Most PPNA sites in the northern Levant are concentrated in the middle Euphrates region. Mureybet (van Loon 1968; Cauvin 1979), Tell Sheikh Hasan (Cauvin 1980), Tell Abr (Yartah 2004) and Jerf el-Ahmar (Stordeur 1998, 1999, 2000; Stordeur et al. 2000) have relatively large architectural features prominent among which are so-called "communal" buildings. Subterranean round houses with a variety of floor plans may have served as storerooms or as meeting rooms. The complexity of Early Neolithic architecture is particularly obvious at Jerf el-Ahmar. Although the settlement is small (less than 0.5 hectares) it contains a wide range of building forms, including both rectangular and circular structures. The aurochs horns found in one of the round buildings point to possible cultic activity.

Subsistence at the PPNA sites on the middle Euphrates was based exclusively on wild species (Willcox 2002b; Stordeur and Willcox 2009). Concerning the domestication of plants, it is generally assumed today that, in favored locations,

the repeated, intentional use of the same wild cereals brought about a state of pre-domestication or pre-cultivation already in the early PPNA (Willcox 2004; see also Ch. I.9).

More sites belonging to this horizon have been discovered north of Aleppo (Matthers 1981). At Tell Qaramel several round houses have been exposed (Mazurowski 2007). As with Jericho, several of the buildings in the lower layers of Tell Qaramel have been identified, because of the thickness of their walls, as towers. However, the massive superstructure of the round structures at Jericho is lacking. Another important PPNA site is Tell Aswad, about 30 kilometers east of Damascus (Contenson et al. 1995) but it is striking that no other PPNA sites have been found in the entire region between north Syria and the Damascus basin. Despite many surveys in recent decades, very few traces of this period have been located, the exceptions being several sites near Aleppo, such as Berne and Kadim (Matthers 1981), as well as Nachcharini cave on the western slopes of the Anti-Lebanon. At an altitude of almost 2,000 meters, this site proves that the high mountains were used in this period, along with the lower elevations (Schroeder 1970).

The first phase of permanent settlement in the northern Levant is mainly known from sites in the Euphrates region, while in the entire area between that region and the southern Levant only a few settlements have been documented. The data as they stand today certainly do not reflect the original situation: this may be due to a lack of surveys and to the intensive cultivation of many potentially attractive settlement zones. The locations that are known so far show that the optimal habitat on the Euphrates, which had already favored Epipaleolithic usage, continued to be important. It fostered the diversification of wild food resources and was home to potential species suitable for domestication.

4 PPNB: The Full-Fledged Neolithic Period

In the initial phase of the Neolithic period permanent settlements in optimal habitats and subsistence based on hunting and gathering were characteristic. Only in the following Pre-Pottery Neolithic B period did the subsistence base undergo fundamental changes, with the domestication of wild cereals and legumes as well as wild sheep and goat. This process took place in the 9th millennium BC and resulted in the genetic alteration of the above-mentioned species. Covering almost two millennia, the PPNB was characterized by a clear increase in settlement, with the southern Levant again showing an especially high density of (known) sites.

A greater number of sites are now also found in the northern Levant, many of them from the Late PPNB, which roughly comprises the second half of the 8th millennium BC. Besides changes in subsistence, now mainly derived from domesticated species, the PPNB was also characterized by a change in

architecture, which now featured rectangular structures above all. The extensive use of lime mortar for plastering floors and walls and for the manufacture of vessels was an important technological innovation in this period. The massive consumption of wood in the production of lime may have caused environmental damage (Rollefson and Köhler-Rollefson 1989).

The PPNB sites of the northern Levant are concentrated on the north coast, in the hinterland of the coastal mountains, in the Beqaa valley, in the Anti-Lebanon and in the Damascus basin. Sites, such as Dja'dé (Coqueugniot 1999) and Tell Halula (Molist 1996, 2001; Molist and Faura 1999), are known in the Middle Euphrates. Soundings at Ras Shamra near Latakia brought to light rectangular, mudbrick buildings with lime plaster floors. Finds included a wide variety of bone and stone objects, including small palettes and bowls, as well as stone tools, such as large arrowheads (Ch. I.13; Contenson 1992). Similar finds have been documented in the Rouj basin to the east – e.g., at Tell Ain el-Kerkh and Tell el-Kerkh 2 (Iwasaki and Tsuneki 2003; Tsuneki and Hydar 2007), and at Qminas, south of Idlib (Masuda and Shaath 1983). No PPNB sites have yet been recorded between the Rouj basin and the Homs Gap. Recently, however, a PPNB site (Tell Ezou) was located in the Homs Gap (Ibáñez, Haïdar-Boustani et al. 2008). The sites in the Beqaa valley, such as Sa'ida II, Nachcharini Cave in the Anti-Lebanon (Schroeder 1970), and Baalbek, have only been explored in small soundings. The Baalbek data come from a stratigraphic sounding at the temple of Jupiter and show that the core of the site was situated there since the beginning of settlement (van Ess 2008b). At Labweh the existence of an aceramic stratum has been assumed (Kirkbride 1969). In the coastal zone of Lebanon no settlements belonging to this period have been discovered yet (Haïdar-Boustani 2001–2).

The most important sites in the Damascus basin are Ghoraife, Tell Ramad, and Tell Aswad. At Tell Ramad, houses with one or more rooms were exposed. These were built on stone rubble foundations with mudbrick walls and lime plaster floors. Several groups of lime-plastered skulls are among the latest evidence of that funerary custom (Contenson 2000). Tell Aswad and Ghoraife (Contenson et al. 1995) have similar architecture. Very impressive lime-plastered skulls have been discovered at Tell Aswad (Stordeur and Khawam 2008). The southernmost settlement sites in Syria – culturally belonging to the southern Levant – are Taibe (Cauvin 1973) and Qarassa (Braemer et al. 2008). Taibe can be assigned to the PPNB on the basis of its lithics: architectural evidence is otherwise lacking.

At present, the available data on the PPNB in the northern Levant presumably represents just the tip of the iceberg of evidence that must exist from that period. Because of the distribution of settlements in the coastal region, inland basins, zones at the foot of the mountains, high mountains, and desert steppe, one might assume that all usable habitats were once settled. The few places investigated thus far, and even then only on a small scale, do not allow for an estimate of settle-

ment sizes and structures. But looking at the settlements on the middle Euphrates, especially Tell Halula, some relatively large sites can be expected alongside the substantial number of small settlements with just a few buildings (Akkermans and Schwartz 2003). Tell Halula covers c.7–8 hectares and is characterized by a differentiated infrastructure with communal features such as a wall surrounding the settlement and buildings that appear to be planned, with rich interiors and painted walls and floors (Molist 1998). However, it is uncertain whether Halula may be regarded as the "center" of a more extended area containing other, smaller settlements. To date, the survey results have not yielded any relevant information in this point.

At any rate, the relative "richness" of many of the finds from this period is noteworthy. Assuming that some of the above-mentioned sites in the northern Levant were small settlements of 1–2 hectares, the effort put into the construction and furnishing of buildings – best expressed in the intensive use of lime plaster – is remarkable. The large number of excavated buildings with lime plaster, a building material that is only produced at considerable expense (in terms of fuel and labor), might indicate that everyone had access to the required resources, especially wood. "Imported goods" from distant regions like Anatolia and the Red Sea – in the form of obsidian and shell objects – prove the existence of trade networks that supplied all known settlements. These supra-regional contacts presumably served to transport not only raw materials but also ideas.

5 The Early Late Neolithic: The Close of Neolithic Development in the 7th Millennium BC

In the southern Levant the late Early Neolithic period ends with the so-called Final PPNB or PPNC (6900–6400 BC). This short period has only been documented at a few large sites. Because of certain architectural characteristics, it has been called a period of "decay" (Rollefson and Köhler-Rollefson 1993). There followed a longer phase without permanent settlement, the so-called "Palestinian hiatus" (*hiatus palestinien*) (Perrot 1968; Nissen 1993c). It was not until c.6500 BC that, in the so-called Yarmoukian, new settlements appeared that differed from those of the PPNB (Garfinkel and Miller 2002; Garfinkel and Ben-Schlomo 2009).

In the northern Levant a hiatus between layers without and with ceramics is only apparent at Ras Shamra. Elsewhere – e.g., at Tell Ain el-Kerkh, Tell el-Kerkh 2 (Iwasaki and Tsuneki 2003), and possibly also at Labweh (Kirkbride 1969) and Tell Ezou (Ibáñez 2008) – no corresponding gap in settlement has been observed. Around 7000 BC the aceramic Early Neolithic was followed by the Pottery Neolithic, or Late Neolithic, which is mainly characterized by the appearance of the first ceramic vessels. At the same time, a relatively large number of new settlements were founded. Outstanding among them are Byblos, Tell Sukas (Riis and

Thrane 1974), Hama (Thuesen 1988), Tell Frach, Tell Marj (Haidar-Boustani et al. 2007) and Shir (Bartl and Haidar 2008; Bartl et al. 2009). These sites date completely to or begin in the 7th millennium BC. A considerable number of settlements dating to the Pottery Neolithic period have also been found by surveys in the Beqaa valley (Copeland and Wescombe 1965, 1966), without the possibility of assigning them an absolute date. In the southern Beqaa valley Tell Kroum, near Kamid el-Loz, appears to be of particular interest (Marfoe 1995, 1998). Development in the Euphrates region was heterogeneous. At Mureybet, occupation ceased after the late PPNB, whereas occupation continued at Halula, Abu Hureyra 1, and Mezraa Teleilat (Özdoğan 2003) and at Akarçay (Özbaşaran and Molist 2007) in Turkey.

Contrary to the southern Levant, the data in the north indicate continuity in material culture. This is demonstrated in architecture, the continued use of lime mortar for plastering and for the manufacture of vessels, and in lithic forms, among other things. For the early 7th millennium BC generalizations about architectural developments are necessarily limited by the small size of excavation exposures. Multi-roomed, rectangular structures with lime-mortar floors continued to be dominant – e.g., at Tell el-Kerkh, Ras Shamra, Tell Sukas, and Shir. Continuity is, at least partially, attested in funerary customs as well. Alongside separate, extramural "cemeteries" as at Tell el-Kerkh, the tradition of intramural, sub-floor burial persisted as well, e.g. at Shir (Figure 20.2).

Figure 20.2 Sub-floor burials at the Late Neolithic site of Shir (photo T. Urban, German Archaeological Institute, Orient-Abteilung).

Figure 20.3 Storage buildings at the Late Neolithic site of Shir (photo T. Urban, German Archaeological Institute, Orient-Abteilung).

Large-scale excavations at Byblos yielded a great volume of data from the late 7th millennium BC showing relatively dense occupation, with obviously standardized, one-room houses with stone walls and carefully prepared, partly polished floors of lime mortar. Burials in flat grave pits and child burials in ceramic vessels were usually placed close to the houses (Dunand 1973). Complex architecture with multi-roomed houses containing several rooms, and food storage installations, were exposed at Shir near Hama. In the last occupation phase before the site was abandoned, toward the end of the 7th millennium BC, several planned buildings with cell-like rooms were excavated, the inventories of which indicate their function as storerooms (Figure 20.3) (Bartl in press). At Tell el-Kerkh a building with cell-like rooms was also exposed, emphasizing the increasing importance of storing goods, especially food (Miyake and Tsuneki 1996). The size and structure of such buildings might indicate their use by the entire community.

Communal buildings had existed since the PPNA, but these seemed to be either houses with multiple functions or meeting houses. An exclusive or predominantly economic use of standardized, special-purpose buildings seems to have been an innovation of the Late Neolithic. Certainly, evidence from Tell Sabi Abyad (Akkermans and Verhoeven 1995) in northern Syria and Umm Dabaghiyah (Kirkbride 1974, 1975) and Yarim Tepe (Yoffee and Clark 1993) in northern Iraq points in that direction.

Ceramic vessels were a new cultural marker at this time. As shown by the earliest occurrences at Tell el-Kerkh and Shir, the earliest ceramic vessels were dark and mineral-tempered with a fine texture and brightly polished surface. These are attested from c.7000 BC, initially in only small numbers. This ware, known as dark-faced burnished ware (DFBW), is characteristic of the 7th millennium, although it became rare toward the close of the millennium (Balossi 2004). Work at Shir has shown that, since the second third of the 7th millennium BC, larger amounts of coarser ceramic types with vegetal temper appeared, exemplifying the transition from ceramics as a "special object" to a mass ware (Nieuwenhuyse 2009a). Within the ceramic assemblages of the various sites dating to this period, it is obvious that, besides the general tendency just described, local wares and shapes developed. From the mid-7th millennium at the latest, developments in ceramics, architecture, and funerary customs all point to a stronger regionalization within the material culture. It is striking that formal characteristics at this time show hardly any connection to the southern Levant. Instead, the northern Levant had contacts with northern Mesopotamia, as is evident from finds of so-called "husking trays," a coarse ceramic shape first discovered many years ago at Tell Hassuna in northern Iraq (Lloyd and Safar 1945). This eastern orientation remained characteristic of the following periods in the northern Levant as well and the reasons for the almost complete absence of influences from the southern Levant after 7000 BC are unclear. With respect to technological developments it appears for the moment that ceramic production in the southern Levant only began around 6500 BC. The seeming lack of technology transfer between the northern and southern Levant from 7000 to 6500 BC might reflect sharp socio-economic differences between the two regions which cannot as yet be more precisely defined.

The late 7th to the early 6th millennium BC marked the close of the initial phase of the Late Neolithic and, broadly speaking, of the phenomenon of Neolithization. Several sites, including Shir, were abandoned, never to be resettled. Recently, changes in the intensity of settlement have been connected to global climate changes in this period. This so-called RCC (rapid climate change) spread from the North Atlantic, where it was first dated to a period c. 8200 BP. Hence it is referred to in the literature as the "8.2 ka event" (Weninger et al. 2006). Recently it has been re-dated to c.8.6–8.0 ka BP. It is thought to have brought a cooler, dryer climate to the eastern Mediterranean with a negative impact on settlement density.

Cooler and dryer climatic conditions are also assumed for the southern Levant, but there an additional climatic phenomenon is thought to have been the cause of changes in the occupational record of the area. Examination of stalagmites in Soreq Cave led to the hypothesis that the clash of cold winds from Siberia with humid air from the Mediterranean brought about more frequent, very heavy precipitation. The floods caused are thought to have buried Yarmoukian settlements under masses of rubble at the end of the 7th millen-

nium BC (Weninger 2009: 8ff.). Research on these so-called rubble slides, observed at several Late Neolithic places in the southern Levant, is just beginning (Rollefson 2009). This phenomenon has so far not been documented in the northern Levant.

6 Late Neolithic Period/6th Millennium: Contacts with Mesopotamia

In the southern Levant the 6th millennium is characterized by the appearance of the Late Neolithic Wadi Rabah culture, which is not found in the northern Levant, while in northern Mesopotamia the Halaf culture developed. The material culture of the latter has two particular characteristics: the renewed appearance of circular building structures, so-called *tholoi*, and the diffusion of bichrome and polychrome painted ceramics. This culture was centered in northern Mesopotamia/northeastern Syria. The most important complex of finds for understanding this time span is the sequence from LPPNB to Late Halaf in the Balikh valley (northern Syria) at Tell Sabi Abyad I (Akkermans 1996), Tell Sabi Abyad II (Verhoeven and Akkermans 2000), and Khirbet esh-Shennef (Akkermans and Wittmann 1993). The "classic Halaf culture" spread as far as the Middle Euphrates region, where Shams ed-Din (Gustavson-Gaube 1981), Tell Amarna (Tunca and Molist 2004), and Kosak Shimali (Nishiaki and Matsutani 2001) are amongst the most important sites.

West of the Euphrates, Halaf-related ceramics have been found in soundings at quite a number of places, while architecture has only been exposed on a small scale. Relevant, excavated sites include Tell Judeidah, Tell Kurdu and Tell esh-Sheikh (Braidwood and Braidwood 1960) in the Amuq basin; the coastal sites of Ras Shamra (de Contenson 1992), Tell Sukas (Oldenburg 1991) and Tell Daruk (Oldenburg and Rohweder 1981); the inland sites of Tell Aray 1, Tell Abd el-Aziz and Tell Ain el-Kerkh in the Rouj basin (Iwasaki and Tsuneki 2003; Tsuneki and Hydar 2007); and Hama K-L (Thuesen 1988). The southernmost Halaf-related ceramics come from Ard Tlaili in the northern Beqaa valley (Kirkbride 1969).

Sites on the Lebanese coast, such as Byblos, where the phases *Néolithique moyen* (middle Neolithic) and *Néolithique récent* (late Neolithic) are assigned to this horizon, and Dakerman near Sidon, cannot be connected with the Halaf horizon, even if some ceramic shapes from Byblos are occasionally said to resemble Halaf type (e.g., Hours et al. 1994: 89). At Byblos the middle Neolithic is represented by two-room buildings with mud floors made of lime grit. Generally, a decrease in occupation over the earlier period is postulated. Overall, the excavated exposure of this phase is only about 1,500 square meters. The most striking architectural feature is the *maison des morts* (house of the dead), where a great number of skulls and parts of skeletons were found. Burials in small pits appear

as well. The following late Neolithic phase is also characterized by rectangular, multi-roomed houses, numerous working platforms, and silos outside the buildings.

Among the southernmost sites, Arjoune, southeast of Homs, must be mentioned. No architecture was discovered at this large site, only pits. According to the excavators, the pits must be interpreted either as semi-subterranean dwellings or as the substructures of *tholoi*. Among the finds, the large number of heavy basalt instruments, including grinding-stones, mortars, and pestles, is striking. It is also possible that the pits may have been the lodgings of a transhumant population that inhabited the place only seasonally. In view of the extensive groundstone industry, the processing of plant products, possibly for another settlement, has also been considered (Parr 2003: 279f.). However, no other contemporary site has so far been detected in the vicinity.

Overall, it must be said that the data from the northern Levant allow only a few general statements to be made concerning the type of settlement and structure of occupation in the latter part of the Late Neolithic. Based upon data from northern Syria and northern Mesopotamia, it can be suggested that these were villages within a fairly non-hierarchical settlement system. The existence of regional centers with administrative or sacral installations is rather improbable. As P.M.M.G. Akkermans showed at Tell Sabi Abyad, relatively simple social structures with "hierarchies" along generational lines might be expected. But the findings at Sabi Abyad also suggest that those social structures were able to perform relatively complex administrative activities. Besides houses, special-purpose buildings were documented that were probably meant to store goods. These have been taken as indicators of a complex relationship between resident villagers and mobile, external pastoralists. According to this interpretation, the storage buildings could have temporarily held the goods of the latter group. Personal markers, as represented by the numerous sealings found in these buildings, might support this thesis (Akkermans and Duistermaat 1997). The Arjoune evidence also suggests a differentiated structure of resident and mobile or partially mobile groups. However, the absence of large-scale excavations at 6th millennium settlements and the almost complete absence of this horizon in surveys conducted west of the Euphrates make interpretation difficult.

7 Early Chalcolithic Period/5th Millennium: Ubaid Influence

Toward the close of the 6th millennium BC the Late Neolithic Halaf culture and the Halaf-related cultural complexes of the northern Levant were replaced by new influences originating in southern Mesopotamia during the Ubaid period. Here, too, the most striking new cultural marker consists of ceramics. This material is characteristically light in color and straw-tempered. Simple shapes, particularly bowls, and dull, dark painting in geometric patterns, mostly horizontal

stripes, are typical. Vessels were made on a slow wheel, the so-called tournette (cf. Ch. I.15), which allowed more efficient production. Along with the simplified painting on vessels and the use of closed kilns, which allowed the production of large amounts of vessels under controlled conditions, there are several ceramic hints of quasi-industrial mass-production that obviously responded to new needs. The geographical range of these ceramics is striking – from southern Mesopotamia (see Ch. I.24) to the northern Levant and southeastern Anatolia, thus exceeding that of the Halaf period.

In Mesopotamia this horizon is characterized not only by changes in the ceramics, but by changes in architecture. Instead of rectangular and circular buildings (*tholoi*) appearing side by side as in the Halaf period, only rectangular buildings appeared. A major innovation was the tripartite building, a building form with a large, central room and rows of smaller rooms, serving different domestic needs, on either side. Its occurrence is, however, mainly restricted to Mesopotamia.

In the northern Levant the early Chalcolithic Ubaid horizon is known from soundings at Hama, Qalat Mudiq (Collon et al. 1975), and Ras Shamra, sites already occupied in the earlier periods. Further finds come from more recent soundings at Tell Afis and Tell Abd el-Aziz in the Rouj basin. Excavations have also taken place at Tell Kurdu in the Amuq plain as well as at Kosak Shimali and Tell Abr (Yamazaki 1999) on the Euphrates. Tell Kurdu is one of the sites that R.J. Braidwood investigated in the 1930s, from which data used to establish the Amuq sequence was derive. The Amuq E period comprises the Ubaid horizon.

Tell Kurdu consists of two parts, the southernmost of which covers 2–3 hectares and includes the Ubaid sequence. Excavations conducted there since the 1990s have brought to light, for the later Ubaid phase, a building with small, cell-like rooms; and for the earlier Ubaid phase, a grill-plan building, the foundation of which was formed of rows of parallel walls (Yener and Edens 2000; Özbal et al. 2004). Both structures may be interpreted as storage buildings for agricultural produce. Kosak Shimali on the Euphrates covers an area of only 0.5 hectares but has a long sequence (Nishiaki and Matsutani 2001). The most striking feature is a rather large, rectangular structure with many vessel fragments in situ. It functioned, on the one hand, as a storage place for goods and, on the other, as a place for the production of ceramics. Several kilns are known from the post-Ubaid phase. Kilns and buildings with grill plan substructures are also known from Tell Abr on the Euphrates. South of the Homs Gap on the coast Dakerman and Byblos (*Énéolithique ancien*), however, 5th millennium structures have been found that have no affinity to the Ubaid culture. The one-room buildings exposed at Byblos are large but poorly preserved. Some have cell- or container-like installations. Amongst the buildings were numerous burials with grave-goods in large vessels made for grain storage.

The data retrieved so far suggest relatively small village structures and some larger settlements like Tell Kurdu, pointing to the possibility of a two-tiered

settlement system. The southern boundary of the Ubaid horizon seems to be around Hama, where "classical" Ubaid ceramics were retrieved in Phase L. It must, however, be noted that recent surveys south of the Rouj basin found practically no Ubaid-related sites.

The few 5th millennium sites in the Northern Levant do not provide many clues as to occupation structure or social organization. Thus, it must remain an open question whether here – as is supposed for Mesopotamia –"chiefdoms" already existed, a more developed form of society compared with the less hierarchized societies of the Halaf period.

8 Late Chalcolithic/4th Millennium: Uruk Expansion on the Euphrates

So far, the transition from the Early to the Late Chalcolithic has only been documented at a few sites in the northern Levant, such as Tell Judeidah, Hama, and Abd el-Aziz in the Rouj basin. The primary cultural marker is again ceramic, and the pottery repertoire is dominated by simple, unpainted shapes such as cooking pots and bowls made of mainly vegetal-tempered wares. The architecture is not very diagnostic, as is obvious from the structures at Hama that have been exposed on a rather large scale (Thuesen 1988: Fig. 25). At Byblos (*Énéolithique récent*) this period has also been examined on a large scale without revealing any stratigraphically consecutive structures. Dakerman, near Sidon, has a number of oval, one-room structures that probably formed a small village (Saidah 1979). Formally and structurally speaking, the evidence from Dakerman differs markedly from contemporary sites on the Middle Euphrates and in Mesopotamia.

In Mesopotamia the Late Chalcolithic – called the Uruk period after the important site of that name in southern Iraq – is considered the beginning of the phase of urbanization, characterized, for example, by increasing settlement size, complex settlement structures with large official buildings, and the rise of differentiated administrative systems and tools, including writing (Nissen 1988).

Several sites in the Middle Euphrates region show close connections to southern Mesopotamian sites of this period. Building forms and ceramic shapes so faithfully reflect those of southern Mesopotamia that these settlements, obviously implanted in strange surroundings, have been called "colonies" (Algaze 1993). The most important example is the Habuba Kabira together with the neighboring religious center of Jabal Aruda. The structures there were obviously planned. The predominant, tripartite building type ("*Mittelsaalhaus*") and certain formal aspects such as niches in the outer wall façades, mirror southern Mesopotamian forms. The same applies to the finds, especially cylinder sealings and clay bullae, found at both sites (Strommenger 1980; van Driel and van Driel-Murray 1983).

The picture is complemented by evidence from other settlements such as Jerablus Tahtani (Peltenburg 1999a), Tell Sheikh Hasan (Boese 1995), and Tell Abr, each of which displays only a few of the typical Uruk characteristics. The genesis of the so-called Uruk colonies, examples of which are also situated on Turkish territory, is a phenomenon of the Late Uruk period – i.e., from the mid-4th millennium. The fact that contacts between southern Mesopotamia and the Middle Euphrates already existed in the early 4th millennium is demonstrated by Early Uruk finds from Tell Sheikh Hasan and Tell Abr (Yamazaki 1999).

According to archaeological evidence, the Euphrates seems to have been the boundary of this expansion. This may have been due to economic reasons and, certainly, west of the Euphrates no more sites featuring definite Uruk characteristics have been found (Schwartz et al. 2000). Rather, the few sites there with Late Chalcolithic layers – e.g., Tell Afis with a massive fortification wall (Cecchini and Mazzoni 1998) – are characterized in their material culture, especially ceramics, by local styles. But connections between the Euphrates region and the West must have existed, as is proven by the occurrence of bevel rim bowls (Ch. I.15), a characteristic type of mass-produced vessel of that time, which have been frequently interpreted as ration vessels. Examples have been found at Hama (Thuesen 1988: 252, no. 7; 256, no. 1; 269, no. 5; F. 272, no. 7) and Tell el-Judeidah (Braidwood and Braidwood 1960: Pl. 24.2). In these western settlements, however, other typically Uruk vessel shapes – e.g., spouted bottles and spouted pots – are absent. It is not clear why the easily recognizable but unattractive bevel rim bowls appear in the West.

Interestingly, the western boundaries of the "Uruk contact zone" correspond to those of the Ubaid period, when Hama was already the southernmost site at which painted Ubaid pottery has been found. In addition to eastward contacts, Hama may also have had connections toward the south. Evidence of this is provided by apsidal buildings that were documented at Hama as well as Byblos (*Énéolithique récent*) and Dakerman. Fan-scrapers, a Chalcolithic tool made of tabular flint and especially frequent in the Ghassulian culture of the southern Levant (Ch. I.13; Rosen 1983), also suggest contacts between Hama and the south (Thuesen 1988: Pl. 60.3–6).

Thus, the presently available data shows diverging developments in the Euphrates region and the western part of the northern Levant. The "Uruk expansion" attested on the Middle Euphrates may not be detected further west, but occasional contact is probable. The available data do not answer the question whether, in this region as in southern Mesopotamia, increasing differentiation within individual settlements and within the settlement hierarchy of larger areas occurred. However, in the southern Levant, true urbanization only started later, in the Early Bronze Age II–III, and similarly late development may also be assumed in the northern Levant.

9 Conclusion

Ecological conditions and geographic location made the northern Levant an optimal habitat and contact zone in the prehistoric past, but the present state of our archaeological data often allows for only vague statements about developments both within and between settlements. It seems that the early periods between 11,000 and 7000 BC were characterized by a low density of sites. At the same time, it is unlikely that this picture corresponds to the original settlement situation. Slightly more data are available for the Late Neolithic period beginning c. 7000 BC, but here too the amount of surface finds that would allow us to estimate the distribution of occupation is strikingly small. In the region south of Idlib, the Chalcolithic periods are scantily represented and are only manifested at a few larger *tell* settlements. Thus, the relatively small number of settlements known and their irregular distribution make it difficult to characterize the occupational structure of individual periods and their development over time. It looks, however, as if the period up to the early Chalcolithic (Ubaid period) was mainly characterized by small- to medium-sized sites of 1–3 hectares with relatively few inhabitants.

Two-tiered settlement systems with larger places dominating a number of smaller settlements did not appear before the Early Chalcolithic period. Possibly here, as in Mesopotamia, the key to later developments is to be found in this period. But evidence is scarce. Up until now urban installations have only been documented on the Euphrates, where the late Chalcolithic "Uruk colonies" are alien centers that were implanted in a foreign environment. These have no parallels in those areas of the northern Levant that lie west of the Euphrates, where urbanization did not begin until Early Bronze Age II–III at the earliest.

The changing constellations of interregional contacts constitute an interesting aspect of the settlement history of the northern Levant in prehistoric times. It seems that the PPNA of the northern Levant was a rather closed contact zone largely limited to the Taurus and Euphrates regions, without a direct connection to the find complexes of the southern Levant. In the PPNB, however, the finds suggest numerous contacts with the south. The Pottery Neolithic in the Northern Levant is firstly characterized by local development, until contacts with Mesopotamia began toward the close of the 7th millennium BC. Those contacts became more intensive in the 6th and 5th millennia BC, as demonstrated by Halaf and Ubaid influences. The 4th millennium BC continued to feature these connections – less, though, the further away the settlements are from the Mesopotamian "heartland." In the Halaf period influences are attested as far as the northern Beqaa valley; in the Ubaid and Uruk periods only as far as the middle Orontes. So far, the reasons and causes for the genesis and limitations of these contact zones remain unknown.

Overall, it can be stated that, over a very long time span, settlements in the northern Levant were largely rural structures that only began to change rather

late, at the earliest from the mid-3rd millennium BC, with the beginnings of urbanization.

GUIDE TO FURTHER READING

The comprehensive review of the archaeology of Syria by Akkermans and Schwartz (2003) presents the best overview of the current state of research in the region. It includes several maps showing the distribution of sites in various periods, chronological charts, and photos of some of the most spectacular finds, as well as a detailed bibliography. The proceedings of a conference held at Barcelona in 1998 are still the best source for the archaeology of the Upper Euphrates region – e.g., the area of the dam at Tishrin near the Syrian-Turkish border: see del Olmo Lete and Montero Fenollós (1999). Almost all sites excavated in the 1990s and later are presented, together with short articles, including maps, plans, and photos. Although it is well over a decade since the Barcelona conference, the proceedings are still useful since some of the excavations presented there have since finished but final publications have not yet appeared.

For bibliographical information on the archaeology of Syria and Lebanon, see Lehmann (2002), particularly for older literature which is often difficult to find. It lists a huge amount of titles with short comments. However, sometimes the names of the archaeological sites are difficult to recognize, since the transcription of the Arabic names follows strict philological rules and not the common spelling. For current research, the following periodicals are important: *Syria*; *Annales Archéologique Arabes Syriennes*; *Chronique d'Archéologique en Syrie*; *Levant*; *Bulletin du Musée de Beyrouth*; *Berytus*; *Mélanges de l'Université St Joseph*; *Bulletin d'Archéologie et d'Architecture Libanaises*; *Damaszener Mitteilungen*; and *Zeitschrift für Orient-Archäologie*.

CHAPTER TWENTY-ONE

The Southern Levant

E.B. Banning

1 The Beginnings of Village Life in the Southern Levant

Although the relatively high density of research in the southern Levant has probably contributed to its importance, the region unquestionably provides critical evidence for the beginnings of village life and the development of early farming societies that is almost unparalleled internationally. While there is no consensus about the chronological terminology of "cultures" relevant to early village life in the southern Levant, this chapter employs the scheme presented in Table 21.1. The dates for the beginnings and ends of the periods in most cases represent the 68 percent confidence intervals (1-sigma) for a probability analysis of reliable radiocarbon dates at key sites, assuming for the most part that each period in the region succeeds its predecessor in a sort of "layer-cake" model. The case of Early Pre-Pottery Neolithic (PPN) B is controversial – not everyone agrees that it occurs in the southern Levant – and current evidence does not allow us to define the boundary between Late PPNB and PPNC reliably, or to determine whether or by how much Jericho IX overlaps with Yarmoukian or Wadi Rabah, so in these cases the dates are subjective estimates.

The following sections will detail aspects of economy, social life, and ideology in each of the major periods. Over the entire six millennia, however, the major themes concern the gradual adoption of a sedentary existence, with increasing reliance on food production in place of foraging; concomitant adjustments in social institutions and socioeconomic networks; and the development and elabo-

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

Table 21.1 A schematic of the culture history of the southern Levant during the Neolithic and Chalcolithic

Major Period	*Period or culture*	*Estimated beginning*	*Estimated end*
Pre-Pottery Neolithic (PPN)	PPNA	9950–9750	8500–8350
	Early PPNB	8500–8350	8300–8000
	Middle PPNB	8300–8000	7580–7450
	Late PPNB	7580–7450	7000–6700
Late Neolithic	PPNC	7000–6700	6500–6410
	Yarmoukian	6500–6410	5850–5750
	Jericho IX	6200?	5800?
	Wadi Rabah	5850–5750	5290–5100
Chalcolithic	Middle Chalcolithic	5290–5100	4550–4400
	Qatifian	5400–5100	4750–4570
	Besorian	4750–4570	4500–4300
Late Chalcolithic	Ghassulian and Beer Sheba cultures	4550–4400	3900–3600

ration of ideologies that may, according to some researchers, have either helped village communities to cope with all these changes or masked some of those changes in the interest of emerging elites. It is important not to assume, however, that the technological, economic, social, and ideological changes over this long period constituted a progressive or inexorable evolution of increasing elaboration and complexity. Both complex and dynamic, the social systems that we attempt to categorize with the crude labels found in Table 21.1 no doubt fluctuated in seemingly unpredictable ways around various "attractors." Some of these attractors emphasized high degrees of sedentism, population density, and intensity of food production, while others show greater roles for settlement variety, seasonal or nomadic residential mobility, and exploitation of wild plants and animals. Communities sometimes shifted quite rapidly from one attractor to another – in the so-called "collapse" of the PPNB for example – and archaeologists have long debated the factors that may have contributed to these sometimes catastrophic state changes. Because social systems are so complex and interconnected, however, large shifts can occur even without large external inputs, such as rapid climate changes, even though these external forces can sometimes be implicated.

Other contributions in this volume detail early steps toward the management and eventual domestication of the plants (Chs. I.9 and 10) and animals (Ch. I.11) that provided the economic basis for most villages in the southern Levant. Here, suffice it to say that initial reliance on these crops and animals appears to have been tentative and selective, early villagers perhaps being reluctant to abandon the tried and well-understood hunting and foraging economies of their predecessors. By PPNB, cultivation of domesticated wheat, barley, peas, and

lentils was widespread, but the only domesticated animals in this part of the Near East were dogs and goats, and even the latter were still in the process of domestication (Köhler-Rollefson 1989; Bar-Gal et al. 2002). Other domesticates gradually joined this group, so that the village farming economy was well established by the Late Neolithic.

It is not so easy to identify any trends in social changes over this long period. Archaeologists have tended to assume that the earliest Neolithic communities continued to exhibit social institutions similar to those of their hunter-gatherer predecessors, especially those of the Natufian, whom they have sometimes called "complex hunter-gatherers." Some signs of social continuity include architecture and settlement organization that many archaeologists interpret as evidence for small, basic social units – probably nuclear families (Byrd 2000) – occupying small huts with associated outbuildings, although Flannery (1972) notably interpreted these huts as components of a larger social unit that practiced polygyny. Along with other evidence, the "built environments" of settlements seem to suggest that Neolithic communities were, for the most part, more sedentary than their Late Natufian predecessors and tended to restrict the sharing of resources and productive tasks to relatively small households. As we shall see below, however, this was not a simple or uniform trajectory.

The social changes that took place during this period probably affected relationships among families, households, age groups, and genders. Archaeologists have often assumed that changes in the division of labor along gender lines, for example, led under the new constraints of a food-producing economy to institutionalized gender inequities from this time onward. However, skeletal evidence for habitual activity and occupational stress, albeit from small samples and at fairly coarse resolution, indicates that the physical demands of the new agricultural economy took their toll on both men and women and, despite some gendered division of tasks, there is little evidence of a privileged position for males (Peterson 2002, 2010).

There has also been a recent resurgence of interest in intercommunity relationships in this period, and specifically whether these included warfare (Bar-Yosef 2010). On the one hand, extensive distribution of some valued materials, such as obsidian from Anatolia, along with widespread sharing of basic technologies, some artifact styles, and even house types, suggests that communities in at least some periods of the Neolithic and Chalcolithic participated in well-connected social networks. However, it is likely that archaeologists have also "pacified" these periods by ignoring or downplaying potential evidence of interpersonal violence (LeBlanc 2010). It has been especially tempting to assume that the weaponry evident was only used for hunting or to point to the rarity of evidence of arrow wounds or blunt-force trauma in skeletal samples. Yet maces and large caches of points and sling projectiles are quite likely to reflect warfare, most fatal injuries will not show on the skeleton, and, in any case, our skeletal samples are clearly too small to be representative of the entire population in these periods.

Continuity from the Natufian to the Neolithic is also notable in some aspects of mortuary practice that highlight the memory of certain deceased individuals or suggest social differences (Kuijt 1996a). The most notable of these is skull curation, which appears to have begun in the Natufian and reached its zenith in the PPNB. Most authors who have discussed this practice treat it as evidence of ancestor veneration and sometimes specifically for the veneration of male elders, although, as discussed below, there is increasing dissent about this (Bonogofsky 2002, 2003, 2004), and Testart (2008) has even resurrected the hypothesis that the skulls were war trophies. Iconography shows both similarities and differences between the Natufian and early Neolithic, with the former emphasizing depictions of animals, such as gazelles, mostly on potentially utilitarian artifacts (at least among our preserved sample) and the latter emphasizing clay figurines of both animals, especially cattle, and humans, especially women. Jacques Cauvin (1994) famously characterized this shift as a "revolution of symbols" and saw it as the most important marker of the beginning of the Neolithic.

2 Village Life in the Pre-Pottery Neolithic A (PPNA)

Quite early in the Neolithic, in the PPNA, small groups of rounded huts that recall in some ways the base camps of the Early Natufian may constitute the remains of the first small village communities. Many of these are concentrated on the margins of the Jordan Valley, often occupying alluvial fans near water sources, but they also occur near the Mediterranean coast and in the valleys of Jordan Valley tributaries. Their florescence seems to coincide with a climatic period (the Preboreal) that was both wetter and warmer than that of the Late Natufian, and this may have made the Jordan Valley more attractive for settlement. The lower parts of the valley were the swampy remnants of Lake Lisan and unavailable for settlement.

A number of sites (Dhra', Gilgal, Netiv Hagdud, and Nahal Oren) have characteristics that archaeologists consider fairly typical of the period. These include loose clusters of individual huts, either oval or subrectangular in shape, built of fieldstones and mud or mudbrick. Each hut is typically c.10–15 square meters in size, with few or no internal features or partitions. More unusually, some structures at Dhra' that might be large granaries appear to have had raised floors, their floor joists supported by upended and notched disused grinding slabs (Kuijt and Finlayson 2009). The sizes of these sites and numbers of huts suggest that most settlements had only 30–150 inhabitants.

However, not all PPNA sites fit this typical profile. The "type site," Jericho, is unusual in that it exhibits, in addition to simple huts like those just described, large walls that may have enclosed the entire community as well as an enormous stone tower with an internal staircase. Interpretation of these apparently communal structures varies, some seeing them as potential defensive features (Kenyon

1981: 6–7; LeBlanc 2010: 45–6), others as terrace walls and a cultic structure (Bar-Yosef 1986), or even as symbolic or magical features (Ronen and Adler 2001). Preserved to a height of 8 meters even today (its original height is unknown), the tower is particularly impressive. Toward the end of its use life, its stairwell served for the interment of a dozen deceased individuals, their bodies apparently inserted through a hole after the door had been mostly blocked up (Cornwall 1981: 403–4; Kenyon 1981: 32–4; Kuijt 1996a: 324–5). Another unusual site, at the other end of the spectrum from Jericho, perhaps, is 'Iraq ad-Dubb (Kuijt 2004). This is a cave site, high on the south cliff of Wadi Rayyan (or Wadi Yabis) in northern Jordan. At least two stone-built huts stood inside the cave, each associated with food-processing features. Despite its isolated location and rather difficult access, the botanical remains include what may be some of the earliest domesticated einkorn/emmer and barley in the region (Colledge 2001).

This variation in PPNA sites has led Kuijt (1994) to infer a settlement hierarchy, the smaller sites being somehow dependent on larger ones, such as Jericho. However, it is not obvious that smaller sites were in any way dependent on larger ones or, indeed, what relationships of any kind they may have had with them. Overall, the southern Levant was apparently only sparsely populated during this period, with some regions, such as the Negev and Sinai, particularly devoid of settlement, and others – e.g., the margins of the Jordan Valley – more populated. While some of the smaller sites could have been logistical camps where residents of PPNA villages stayed for short periods while on resource-gathering sojourns, there is no very convincing evidence for a hierarchical relationship between the villages themselves.

The inhabitants of these PPNA communities subsisted by hunting and gathering, but also seem often to have cultivated and protected valued plants, such as barley, even though the plant remains found in archaeological excavations typically show no morphological signs of domestication. As just mentioned in the case of 'Iraq ad-Dubb, there are rare examples with morphologies consistent with the domestic species; on the other hand, we can expect such forms to occur in small numbers as mutants within wild stands. More telling, perhaps, are increases in the occurrence of species that typically occur in crop fields as weeds (segetals), such as small-seeded legumes (e.g., clovers), grasses (e.g., *Hordeum murinum* and *Eremopyron* spp.) and stony-seeded gromwells (Hillman 2000: 384–5). Somewhat surprisingly, our best evidence for PPNA domestication involves fig (*Ficus carica*) (Ch. I.10). Stored (probably dried) figs found at Gilgal and Netiv Hagdud come from the mutant and embryo-less female (or parthenocarpic) type of fig tree. This has soft, sweet, and edible fruits, but would quickly die out in the wild because the mutants produce no seeds. It appears that PPNA gatherers recognized the value of this fruit and that it did not reproduce itself, and took the step to reproduce it vegetatively from cuttings (Kislev et al. 2006).

Equipment for pounding and grinding, most likely for processing plant foods, is very common on PPNA sites. As in the Natufian, this tends to include a lot of

mortars, presumably for pounding, yet there are growing numbers of querns (horizontal grinding slabs) that were likely used to grind seeds into flour, and which became the dominant grinding equipment in PPNB. PPNA also shows evidence of flat slabs with several small pocket-like mortar surfaces, and groups of such mortars can also occur in bedrock outcrops near PPNA sites. Wright (1994) noted that grinding seeds exposed more of their surface area to digestive processes, increasing nutrient availability. However, there were also costs in terms of labor, repetitive stress to parts of the skeleton of people doing the grinding, and increases in dental caries due to the chewing of stickier foods (Molleson 2000; K.E. Wright 2000; Eshed et al. 2004b, 2006; Peterson 2010). Although there are some claims for domesticated plants, most archaeologists agree that PPNA villagers cultivated wild seed plants, such as barley and emmer, that were not yet morphologically domesticated (Nesbitt 2002). Although recognizable storage facilities are small at most PPNA sites, Dhra‘ exhibits large, circular granaries with floors raised on joists that would have accommodated quite substantial stores (Kuijt and Finlayson 2009).

Distinctive notched projectile points (al-Khiam points) and other lithics (see Ch. I.13), which are probably the components of composite projectiles, reflect the continued importance of hunting in PPNA. Faunal remains from PPNA sites tend to indicate intensive exploitation of gazelle, with fallow deer, ibex, and wild boar, along with various small animals such as hare, hedgehogs, and tortoises. Some sites (e.g., Gilgal, Netiv Hagdud) show fairly high frequencies of birds or fish and some sites show mollusks (e.g., freshwater *Melanopsis praemorsa* at Netiv Hagdud; Bar-Yosef et al. 1991: 418). There are also animals such as fox that could have been trapped or hunted for non-food purposes and the house mouse (*Mus musculus*) is common, suggesting a fairly high degree of sedentism in the PPNA. The seasonality of the migratory birds found at some PPNA sites also suggests year-round (or nearly so) occupation of sites.

As in the fields of technology, architecture, and subsistence practices, PPNA communities show considerable continuity with the earlier Natufian and later PPNB in ideology. This includes the burial of select community members in and around houses and often the removal and curation of their skulls, a practice that became even more prevalent in the following millennium.

3 Village Life in the Pre-Pottery Neolithic B (PPNB)

The PPNB appears in the literature as the epitome of the Neolithic in the southern Levant. At PPNB sites we find clear evidence of domesticated plants and the management of goats, and the built environment typically consisted of fairly dense agglomerations of well-built, long-lasting structures, sometimes exhibiting streets and what may be communal buildings. These were clearly villages – some would even say towns – and in some cases they could have had resident populations of well over 1,000 people, although estimates vary greatly.

There is some debate over how the PPNB established itself in the southern Levant. Most PPNB sites in the region date to the Middle or Late PPNB, and there are few that exhibit characteristics (and early dates) relating them to the Early PPNB in more northerly regions. The best such candidate is Motza (Israel), which exhibits stone tools and lithic production techniques similar to those found at Early PPNB sites in the northern Levant. The evidence of radiocarbon dates is not greatly helpful here, as it is difficult to be certain whether the substantial overlap between later PPNA dates and dates from Motza is due to coexistence of Early PPNB immigrants in a region still populated by PPNA communities, or a function of imprecision in dates caused by problems with "old wood" among the charcoal samples dated and wiggles in the radiocarbon calibration curve (a "plateau" around 9300–9200 BP). For similar reasons, it is difficult to be precise about when Middle PPNB began in the southern Levant, but it seems to have been well established and completely replaced PPNA by the beginning of the 8th millennium BC. Thanks in large part to substantial excavations at Jericho, Beidha, and Ain Ghazal, along with smaller bodies of evidence from dozens of other sites, our knowledge of this period is greater than that of any other phase of the Neolithic.

Throughout the PPNB, the climate of the southern Levant was relatively warm and humid, with greater mean rainfall than today, and possibly even summer rains. This climate supported extensive forests in the highlands, mostly dominated by oak, pistachio, and almond, but there were also open areas with wild grasses and pastures and, increasingly, the cultivated fields of PPNB farmers. PPNB settlements are widespread throughout the Levant, and with variations extend as far as southern Turkey, northern Iraq (see Chs. I.20, 22, 23) and possibly northern Arabia (Ch. I.25).

In contrast to the ambiguity we saw in PPNA, there is abundant evidence of domesticated wheat, barley, peas, lentils, and chickpeas in PPNB, while goats were managed and in the process of domestication (Köhler-Rollefson 1989; Zohary and Hopf 2000; Bar-Gal et al. 2002; Abbo et al. 2003). At the same time, hunting, especially of gazelle, and the gathering of wild plants continued to be economically important. Hunting gear, including finely made projectiles, is well represented in the archaeological record. The evidence from musculoskeletal stress markers in the fairly abundant skeletal samples from this period suggests that the new agricultural tasks and other aspects of village life imposed considerable physical burdens on both men and women (Peterson 2002: 133).

Although the situation was quite different in the more arid margins of the southern Levant, in the regions that today enjoy more Mediterranean climate a range of Middle PPNB settlements from small through very large permanent villages can be found. At the small end of the range were Beidha and Ghwair I, each of which was a dense agglomeration of buildings in a village well under 1 hectare in size. At the larger end, especially in Late PPNB, were Ain Ghazal, Ain Jammam, Basta, and as-Sifiya, among others. It is difficult to estimate their sizes

very precisely, but some estimates are as high as 12 hectares. Although there may have been significant open spaces within these large sites, and they may even be palimpsests of occupation that shifted within them (Hole 2000; Verhoeven 2006), they were at least in part densely covered by rectangular houses and must have had much larger populations than the smaller ones. This variation in size has led some authors to infer that the large sites were central places in a settlement hierarchy. However, as Hole (2000) points out, there is really little evidence that the large settlements were functionally any different from the small ones, and we also lack any analyses of possible economic, social, or political relationships between nearby settlements.

Some Middle PPNB communities, including Shakarat al-Musay'id (Jensen et al. 2005), Ain Abu Nukhayla (Henry et al. 2003), and the lower levels (phases A and B) at Beidha (Byrd 1994, 2005a), had clusters of round structures. At Beidha, structures of sub-phase A1 were semi-subterranean, built into pits. In all these cases, structures were constructed by erecting a circle of posts at about 25 centimeter intervals around the periphery of a leveled area or pit and then building a double-leaf, dry-stone wall whose inner leaf filled the area between the posts, leaving a small opening for a doorway. The form of roofing is uncertain, but most archaeologists reconstruct flat roofs (Jensen et al. 2005: 121). Well-made plaster floors were common, as were small, internal storage features. These small, hut-like structures were often interconnected and grouped in such a way as to suggest that a single household may have occupied several of them, the huts effectively being round rooms of an irregularly shaped house. However, analysis of the uses of the huts at Ain Abu Kukhayla (Kadowaki 2006; Portillo et al. 2009) indicates that each larger hut was the main room of a household unit, where food-processing took place, with one or two associated smaller huts or features used for storage.

More typically, however, Middle PPNB houses were rectangular, 4–5 meters wide, and perhaps twice as long, usually with a finely made plaster floor and central hearth and often with a porch or anteroom at one end, where we usually find the main entrance (Byrd and Banning 1988; Banning 2003: 7–11). Given their size, small storage features, and the way they are organized, apparently side-by-side, at sites like Ain Ghazal and Jericho, it seems likely that their occupants were nuclear family households. In the upper levels (C2 and C1) at Beidha, we instead find the stone foundations of "corridor buildings," each with a narrow, central hall flanked by three very small chambers on either side. However, these are the basements of houses whose main floors were much like those at Jericho and Ain Ghazal (Byrd and Banning 1988; Byrd 1994, 2005b).

In addition to houses, excavations at some sites have revealed evidence of unusual buildings that may have had communal purposes. The best examples of these come from the relatively complete excavations at Beidha, where, in each Neolithic level, we find a single building that appears to be considerably larger than the other buildings that presumably constitute ordinary houses. In a lower

level, which Byrd called phase A2, is a rounded hut that looks much like the others but covers c.33 square meters (as compared with an average of about 11 square meters for other likely residential huts in levels A1 and A2) and unusually had a cobbled rather than the usual plastered floor. Byrd (1994: 652) points to three examples of large, possibly non-domestic, buildings in level B, some 28–38 square meters in area and each with a central raised-rim hearth and evidence of frequent replastering. Given the very small size and low frequency of the remaining huts, and the similar size of the level B "large" buildings to the total areas of the later corridor buildings, it is possible that these are houses, although they apparently lack clear evidence of domestic activities. In level C1, a large, rectangular, one-room building near the center of the site featured a stone-lined pit and basin. In level C2 was a very large (105 square meters) rectangular building with a plan like that of a typical Middle PPNB house, with an enormous central hearth. Both buildings also had a band of red paint along the interior base of the walls and outlining the rims of the hearths. Neither seems to have had domestic artifacts on its floor, and Byrd (1994: 657) points to apparent storage features attached to the adjoining open space or courtyard to suggest that this indicates communal storage outside the control of individual households. Given this evidence, it is tempting to interpret the C2 building, and possibly its predecessors, as the focus of community-level festivities or rituals. In addition, the extremely unusual structures and features at c.40 meters outside the main settlement area at Beidha, on its eastern periphery, are also suggestive of some ceremonial function. These include three cobble- or gravel-paved buildings and a huge stone slab or basin. Byrd (1994: 657) has speculated that these features may have functioned in mortuary rituals, but the purpose of this part of the site is far from clear.

By the Late PPNB, large settlements like Ain Ghazal, Ain Jammam, Basta, and as-Sifiya became densely covered with multi-room, two-story houses that tended to be larger and more complex than their Middle PPNB predecessors (Kuijt 2000a). Such buildings may have housed larger residential groups than in Middle PPNB and almost certainly accommodated more storage and allowed more functional division of space. Some at Basta and Ain Ghazal that seem to display the "ideal" plan show a large number of small, cell-like rooms on the ground floor, arranged either side of a corridor or around a central room or small courtyard. At Basta there is fairly clear evidence that there was also an upper story, where most of the living space was probably located, the ground floor being used mainly for storage. Whatever the details of the domestic arrangements, it is clear that Late PPNB houses were much more compartmentalized and at least to some extent larger, and they probably had considerably more storage capacity than their predecessors. This might suggest greater accumulation of goods by autonomous and somewhat extensive households (Banning 2003). As Kuijt (2000a) argues, social crowding associated with growing populations in Late PPNB villages reduced privacy and put stress on existing social structures

for organizing labor and mitigating conflicts. This may have contributed to the development of more segmented architectural spaces and two-story buildings with greater control over storage facilities, as well as changes in mortuary practices and social organization.

There are also claims for special, possibly cultic, buildings, in the Late PPNB, particularly at Ain Ghazal (Rollefson 2000). Here the evidence is not as clear-cut as at Beidha because some of the candidates differ little from ordinary houses in terms of size or organization, but rather in construction details (such as use of clay floor rather than plaster) and in the use of large stones, described as "orthostats." However, two circular buildings with sub-floor channels leading to a central pit at Ain Ghazal do stand out remarkably from the typical Late PPNB houses and could have had a cultic or other unusual function. Some of the other buildings at this site that have been identified as "shrines" could have had a religious or ceremonial function, but would only have accommodated small groups of worshippers or celebrants and would not necessarily have been "temples" in the sense of later Bronze or Iron Age examples. However, fairly large statuary at Ain Ghazal seems meant to have been seen by larger groups and could relate to community-wide rituals (Schmandt-Besserat 1998).

Overall, despite the intensity of research and, in some cases, fairly wide exposures of sites, the character of social life in PPNB villages is rather obscure. There is some agreement that nuclear family households were the basic socioeconomic unit throughout most of this period, and the small scale of some ritual activities (mortuary and involving figurines) seems to indicate that they reinforced social alliances within and between small groups of households (Kuijt 2000a, 2000b). Archaeologists have tended to emphasize the lack of differentiation among houses as evidence of an "egalitarian" society, yet it is quite possible that there was actually competition among households, leading to some larger houses by Late PPNB that may have had more wealth, more residents, or both. We have much less indication of the nature of community-scale or intercommunity social relationships, but the recent renewed interest in warfare (e.g., Testart 2008; Bar-Yosef 2010; LeBlanc 2010) is redirecting attention to potential evidence of intra- and intercommunity conflict. As noted above, there is actually very little convincing evidence of settlement hierarchy; nor do we have any evidence of territoriality or ownership of land in this period, such as investment in rural infrastructure.

Early research seemed to suggest that the Pre-Pottery Neolithic came to a very abrupt end, or "collapsed" around 7000 BC. Current research supports the idea that some large Middle PPNB and Late PPNB sites, mainly between the Mediterranean and the Jordan river, were abandoned in the late 8th millennium BC, but others, especially east of the Jordan Valley, continued to be occupied and even thrived into the Late Neolithic. However, there were indeed changes in technology, architecture, settlement pattern, and probably social arrangements and ideology, about this time, and the causes for these shifts remain elusive.

4 Village Life in the Late Neolithic

Sites of the two millennia following the PPNB have received much less attention than their predecessors. As a result, our knowledge of their social arrangements, ideology, and even their chronology is relatively murky. However, it has become clear that an older hypothesis according to which the southern Levant was almost completely abandoned in this period was incorrect. Instead, the low intensity of investigation, combined with a relatively low visibility of the sites, poor preservation of the pottery, and lack of recognition of its lithics appear to account for the lower rate of discovery of sites of this period (Gopher and Gophna 1993; Banning et al. 1994; Field and Banning 1998).

In addition, research since the 1990s has rectified the impression that sites of this period were necessarily small or ephemeral. Despite the fact that, at some sites, the Late Neolithic is represented mainly by pits and perhaps pit-houses, along with its distinctive pottery, excavations at Ain Ghazal and Sha'ar Hagolan have demonstrated that there were also large settlements with street systems and substantial houses, indicating a relatively high degree of social complexity and technical skill.

For several reasons this chapter somewhat unconventionally includes the Pre-Pottery Neolithic C (PPNC or Final PPNB) within the Late Neolithic. First, despite flaws in the old collapse hypothesis, it is true that there was a major reorganization toward the end of the PPNB that resulted in the abandonment of many settlements, especially west of the Jordan river. Second, at sites that show continuity from the PPNB, such as Ain Ghazal, the PPNC level shows marked discontinuity from its predecessor in mortuary practices and lithic industry, and some differences in economy and other aspects, while showing considerable similarity to these aspects as they appear in the succeeding Pottery Neolithic (Yarmoukian) period. Third, it appears that at least small amounts of pottery were used at some PPNC sites and perhaps even earlier (Banning 1998: 206; Nissen 2004: 41–2; Gebel et al. 2006: Pl. 45A–C), arguably making the introduction of pottery a poor choice as the major "*fossil directeur*" for the Late Neolithic.

As in the PPNB, Ain Ghazal provides some of our best evidence of village life in this period, showing apparently continuous occupation from Late PPNB through the Yarmoukian Pottery Neolithic. In PPNC, Ain Ghazal's population may have contracted but it still would have been substantial. The site shows fairly dense clusters of architecture, in some cases reusing walls or floors of PPNB buildings within newer structures that, as in Late PPNB, frequently show many small, internal subdivisions and good plaster floors. There were also fairly well-built streets at Ain Ghazal. Portions of two of these have been excavated in the southern and central portions of the site that ran downhill toward the bottom of the *wadi*, bounded by courtyard walls and houses (Rollefson 1997: 298; Banning 2004: 226).

During PPNC, Ain Ghazal's community became more fully entrenched in an agricultural and pastoral lifeway. Most of the Neolithic founder crops continued to be exploited, although chickpea seems to have disappeared about this time (Abbo et al. 2003). Domesticated livestock included goats, cattle, pigs, and perhaps sheep (Rollefson and Köhler-Rollefson 1993: 36). The diversity of wild fauna fell markedly and hunting gear probably declined in importance, even though the frequency of projectile points did not fall as much at this site as at some others. Rollefson and Köhler-Rollefson (1993: 39–40) suggest that there were pastoral specialists who resided at the site only seasonally, spending the rest of the year with their herds in distant pastures and thus setting the groundwork for the pastoral nomadic culture that would one day come to typify the arid margins of the Levant. Other authors also see pastoral nomadism originating about this time or slightly earlier in the southern Levant (e.g., Ducos 1993).

PPNC technology also underwent a major change in focus. Lithics became generally less standardized and more "expedient" as the PPNB's technique of producing blade blanks from bidirectional, "naviform" cores went out of fashion. Clearly some PPNC flintknappers were still quite adept, as shown by the finely made, bifacial axes and knives of this period, but for many tasks in this and the rest of the Neolithic, people more often made do with rapidly formed and unstandardized flakes and the proportion of blades among debitage declined (Rollefson and Köhler-Rollefson 1993: 34–5; but see Nissen 1993c). There is also evidence that some people were experimenting with the production of pottery vessels (Banning 1998: 206), although widespread use of pottery awaited the Yarmoukian period.

The practice of interring some deceased individuals under house floors and later decapitating them and curating their skulls also went out of fashion in PPNC (and even Late PPNB in some sites). Burials were now either fully articulated and primary or secondary ones of bundled bones that some authors interpret as those of the more nomadic segment of the population (Rollefson and Köhler-Rollefson 1993: 38–9). Interestingly, at Ain Ghazal skulls or other body parts of pigs sometimes accompanied burials, perhaps in connection with mortuary feasting or in the making of a symbolic connection between the deceased and this new domesticate.

In the Yarmoukian, pottery became ubiquitous at Ain Ghazal, and the houses that have been excavated show less internal subdivision than previously, almost returning to the linear plan of two or three interconnected rooms found in Middle PPNB (Rollefson 1997: 298–301; Kafafi 2006; Banning 2010). Strikingly, good lime plaster was no longer used for floors; instead we find pounded earth (Arabic *huwar*) made of limey earth. Some circular structures at Ain Ghazal may even be the floors of tents (Rollefson and Kafafi 1994; Rollefson 1997: 301).

Another Yarmoukian site that shows remarkable evidence of architecture and the internal arrangements of a large village is Sha'ar Hagolan (Garfinkel and Miller 2002; Garfinkel and Ben-Shlomo 2009). Here, the standard domestic

arrangement appears to have been a series of chambers or two-room buildings arranged around a central courtyard, each courtyard group quite plausibly corresponding to an extended family social unit. The basic building block in each of these groups usually consisted of two rooms side by side, one of which had a cobble pavement and was probably a storage facility. The courtyard groups appear to have been clustered into *insulae* (lit. "island," a Latin term used for Roman housing blocks) separated by well-made streets and alleys, and some *insulae* had wells. Garfinkel (2006) interpreted this as evidence of a three-tiered sociopolitical hierarchy of nuclear family, extended family, and community leadership.

A good deal of Yarmoukian technology was connected with the now paramount farming economy. While many lithics were expediently made flake tools, sickle elements were the most common exception, each carefully made, standardized to fit easily into bone or wooden hafts, and with denticulations along the cutting edge that improved cutting efficiency and longevity. Ground-stone tools were most commonly large grinding slabs (querns) and their accompanying upper milling stones, along with mortars and pestles, for processing grain and other seed crops, which included wheat, barley, peas, lentils, and other legumes (K.E. Wright 1994; Garfinkel 2002). Hunting was markedly on the wane and the smaller, lighter projectile points that began to displace older point types in this period suggest that hunting gear was mainly used for smaller animals killed with arrows (Banning 1998: 204).

We have relatively little evidence of mortuary practices in the Yarmoukian, and most adults appear to have been buried in off-site cemeteries that have almost completely escaped detection. Two fairly large, slab-covered cist graves at Tabaqat al-Buma in Wadi Ziqlab (northern Jordan) likely represent part of one such cemetery. In one of these were the badly preserved skeletal remains of two individuals, both apparently adults, accompanied by grave goods that included several complete bowls and jars, a pierced stone disk, and a sort of stone palette (Banning et al. 1989: 50–1, 370). The other contained the skeleton of a young woman suffering from a disease, possibly treponemal, that had enlarged her *tibiae* and *femora*, and that of a newborn wearing a dentalium-shell necklace. At settlements such as Ain Ghazal, Jericho, and Sha'ar Hagolan, Yarmoukian-excavated burials are extremely rare, but include child burials encircled by stones, tightly flexed adults with or without skulls, and secondary adult burials (Garfinkel 1993: 126–7; Kafafi 1993: 112; Rollefson 1993: 97; Banning 2009).

However, we have considerable evidence for some other aspects of Yarmoukian ideology. Most notable are the abundant clay and stone figurines, for which Sha'ar Hagolan again provides our best evidence (Garfinkel et al. 2002). The clay ones are typically seated figures with wide hips and thighs, pointed head, diminutive arms, and "coffee-bean eyes," similar in some ways to figurines found at Samarran, Halaf, and Ubaid sites in Mesopotamia (e.g., Oates 1966b). Alongside this tradition was another of much more stylized human representations made from river cobbles, typically with an incised slash for each eye and often a drilled

circle for a mouth. While these are almost a hallmark of the Yarmoukian, examples are found as far away as Cyprus (Stewart and Rupp 2004).

Jericho IX, named after material from Garstang's 1930s excavations at Jericho, is a body of cultural material, or "culture," that is very similar to that of the Yarmoukian, and probably roughly contemporary with it or, at least, overlapping with it in time. In general, it is found at somewhat more southerly sites than the Yarmoukian, although it is reported quite far north at the site of Hagoshrim, where Wadi Rabah material overlies it. It is not at all well dated, although the evidence from Hagoshrim strongly suggests that it is earlier than Wadi Rabah. One of its principle distinctions from the Yarmoukian is in its general preference for burnished, red or brown painted bands and light slip as pottery decoration, over the "herringbone" incised decoration and burnished red slip more commonly found at Yarmoukian sites. However, they are otherwise quite similar in their material culture. At Jericho, for example, we find well-built rectilinear and curvilinear architecture (Kenyon 1981: 94) that might not be out of place at Sha'ar Hagolan, while at Lod there were circular pit-houses, 2–3 meters in diameter, with mudbrick walls lining the pits and rising above their rims. Overall, however, Jericho IX is relatively poorly understood.

Sites of the later Wadi Rabah culture are also somewhat poorly known, but rather distinctive burnished pottery with sometimes distinctive forms ("bow-rim" jars, carinated bowls, etc.) and decoration (combing and impressed decoration) make it easier to identify, although it also exhibits considerable variability over its region of distribution, which is mainly in northern Israel. There are some indications that small farmsteads and hamlets, rather than larger villages, were more common at this time, as indicated by several small sites in Wadi Ziqlab of northern Jordan (Kadowaki et al. 2009). However, there were also villages, as at Munhata and the submerged coastal site of Neve Yam. Individual sites show rectangular buildings that, in some cases, appear to be the precursors of "broad-room" houses found later in the Chalcolithic (Banning 2010). The lithic technology is mainly expedient, depending to a large degree on casual use of flakes, but also includes well-formed sickle elements and occasional bifacial axes, adzes, and knives that show considerable skill. Projectile points are rare from this period, and also considerably smaller than in PPNB, consistent with the declining economic importance of hunting, and perhaps with a focus on smaller game as well. There are also indications that maces, usually associated with the Chalcolithic in this region, had begun to become an important weapon of interpersonal violence, as well as prestige item, in the Yarmoukian, Jericho IX, and Wadi Rabah, while slingstones also appeared in Wadi Rabah (Rosenberg 2010a; 2010b).

Although we do not have much information about the ideology of Jericho IX or Wadi Rabah, it is interesting that the figurines so common in Yarmoukian deposits do not appear here. There are burials of children, sometimes in jars or cist graves, but the general lack of adults suggests off-site cemeteries, and indeed a cemetery has been found on the southern periphery of the submerged Wadi

Rabah village at Neve Yam (Galili et al. 2009). This last contained a number of substantial stone cist graves, some covered by large slabs, and installations that may have been associated with funerary ceremonies. Otherwise, there are no strong candidates for specialized ritual sites, but somewhat unusually a building from Stage XXXI at Jericho exhibits three "standing stones" arranged enigmatically around a sort of pier (Kenyon 1981: 95).

5 Village Life in the Chalcolithic

Although the Chalcolithic of the southern Levant (here defined as following Wadi Rabah and dating c.5000–3800 BC) has enjoyed a greater intensity of research than the Late Neolithic, it too remains surprisingly under-examined. However, several decades of research, along with a few rather spectacular finds, have helped us identify the broad outlines of social, economic, and ideological developments during this period.

Originally, and especially in Europe, the Chalcolithic was defined as the period when copper metallurgy appeared. Indeed, some south Levantine sites of the later Chalcolithic (Ghassulian/Beer Sheba cultures) show copper artifacts – even gold ones – and evidence of ore processing and casting of copper tools. However, few Late Chalcolithic and no earlier Chalcolithic sites have yielded metal finds or evidence of metal-working. Despite considerable continuity from the Late Neolithic and regional variation, these sites do show stone tools, stone maceheads, economy, and architecture that allow us to conceive of a fairly distinct culture during the 4th millennium BC.

Over the course of the Chalcolithic, stone tool production continued to include a large component of expedient manufacture, consisting mainly of the unspecialized use of unmodified flakes struck from unpatterned cores for a wide range of domestic tasks. At the same time, however, it exhibited increasing specialization in the production and distribution of certain categories of stone tools, such as blade and bladelet tools (including sickle elements), axes, adzes, chisels, and tabular scrapers. These last were highly formalized, flat, and often fan-shaped scrapers made from tabular flint found in the arid peripheries of the southern Levant (Rosen 1997: 103–6). This indicates, even aside from copper-working and other crafts, that the Chalcolithic economy was becoming much more complex than previously, with some people working as full- or part-time specialists.

The least understood portion of the Chalcolithic, sometimes called "Middle Chalcolithic," is now better represented by excavations at Abu Hamid, Tel Ali, and Tel Tsaf. At Abu Hamid, the middle levels date to this time and show rectangular buildings that were probably grouped with walled yards. This pattern is even clearer at Tel Tsaf, where rectangular houses, circular animal pens, and large circular platforms that are almost certainly the floors of grain silos are grouped

within walled enclosures. At this site, the size and number of silos also indicate a great increase in storage capacity over the preceding periods (Garfinkel et al. 2009), suggesting a jump in the scale of surplus production and accumulation of wealth by at least some households.

The Ghassulian and Beer Sheba cultures of the Late Chalcolithic are rather well investigated and exhibit a level of complexity that has led some authors to describe them as chiefdoms (Levy 1998). Some sites, such as Teleilat Ghassul, Abu Hamid, and Shiqmim, appear to have been large villages with large, sometimes multi-roomed, two-story buildings. This suggests economic differentiation, with some households larger and wealthier than others. Regional studies in the Negev have identified distributions of large and small settlements that could be interpreted as a "two-tier" settlement system (Levy 1986; Levy et al. 2006: 54). Some artifacts also hint at differences in rank and wealth, most notably the hoard of gold ingots associated with a burial at Nahal Qana Cave (Gopher and Tsuk 1996; Levy 1998). The much more common maceheads, typically pear-shaped and made of polished hematite or other hard stone, may well reflect the use of maces as badges of rank. In rarer instances, such maceheads were cast from copper, using the lost-wax method (see Ch. I.16); many such maceheads were found in the Nahal Mishmar hoard (Bar-Adon 1980). However, there are also indications that Late Chalcolithic elites never achieved the degrees of economic inequality, ideological machinery, or political power that their peers in Egypt and Mesopotamia were beginning to accumulate, leading some authors to suggest that they "were essentially shamans and not chiefs" (Joffe et al. 2001: 17).

Late Chalcolithic villages ranged from quite small to very large, with the largest sites located in the Jordan (e.g., Ghassul, Abu Hamid) or other large valleys (e.g., Shiqmim). Their economies were quite complex, with intensive agriculture of einkorn and emmer wheat, barley, peas, chickpeas, and lentils that may often have relied on simple floodwater irrigation and possibly on plowing with oxen, along with considerable focus on arboriculture, especially of olives (Kislev 1995; Liphschitz et al. 1996; Bourke 2001; Rowan and Golden 2009: 23–4). It seems fairly clear that there was pastoral specialization to raise sheep and goats and more localized husbandry of pigs and cattle. There was also trade over long distances in copper and copper artifacts, stone and shell beads, stone vessels, perhaps olive oil, and, as noted above, certain classes of stone tools (Philip and Williams-Thorpe 1993; Bar-Yosef Mayer et al. 2004; Rosenberg et al. 2007; Goren 2008). Some indications of the use of domestic donkeys for transport, including figurines of laden donkeys (Epstein 1985), show that long-distance trade in fairly heavy goods was now much more feasible.

The layouts of many Late Chalcolithic villages suggest that they were occupied mainly by farming families, each in a walled compound with a fairly large one- or two-roomed house and several storage facilities. However, there is a good deal of variability and fairly clear evidence that some households were considerably wealthier than others (Bourke 2001: 120; Banning 2010: 75–6). There are also

varieties of Chalcolithic settlement that do not fit this profile. For example, in the Golan, we find "chains" of houses that are quite similar to ones in more typical villages, but in stretched-out, linear arrangements (Epstein 1998). On the other hand, a number of sites in the Negev, like Abu Hamid in the Jordan Valley, have cave-like chambers and tunnels dug into the loess soil (or, at Giv'at Ha-oranim, rock), which many authors interpret as a "troglodytic" phase of occupation (Perrot 1955; 1984; Scheftelowitz and Oren 2004). These unusual arrangements suggest considerable variability in Late Chalcolithic social and economic arrangements, and perhaps different concerns over security. Mace-heads, even if badges of status, would also have been useful weapons in close combat, as depicted on the Egyptian Narmer palette.

For most Late Chalcolithic families some aspects of daily life were very similar to those of their Late Neolithic ancestors. They grew most of the same crops, had much the same suite of domestic animals and spent a good deal of time tilling and harvesting crops and grinding flour with heavy groundstone querns. However, it is possible that they were now subject to more complex and more coercive power structures than before, even if these did not reach the levels of political inequality found in Egypt or Mesopotamia. Hints at status symbols in the form of maces (with their implicit threat of violence) and metal prestige items, including gold, accompany clearer evidence of economic inequalities among houses. We might expect the emerging elites of this time to have employed ideology to justify their privileged status and, indeed, we have evidence of ritual and even substantial cultic infrastructure at some sites.

Archaeologists have identified a number of Late Chalcolithic buildings at 'En Gedi, Gilat, and Teleilat Ghassul as likely cult structures. The 'En Gedi sanctuary is unusual in standing, isolated from any Chalcolithic settlement, on the edge of a bluff with an expansive view of the Dead Sea (Ussishkin 1980). Its main building is a large "broad-room" temple, about 20 meters wide with a bench around its interior and a semi-circular platform opposite the central entrance. Pits in the room's floor contained animal remains and fragments of cups and bowls, possibly the remains of offerings, but otherwise there were relatively few finds at the site. It is fronted by a large, walled courtyard with a gatehouse, another gate, and a subsidiary building. A circular feature about 3 meters in diameter near the center of the courtyard may have been a pool, or, since the bottom of its basin was unpaved, perhaps the location of a sacred tree.

The likely temples at Gilat in strata III and II consist of an atypical building in which considerable equipment of probable cultic significance was found, including violin-shaped and more naturalistic figurines (notably the "Gilat woman" – Joffe et al. 2001), fenestrated stands, stone palettes, and "torpedo" vessels. Many of the artifacts found in these rooms appear to have been brought from a variety of distant sources, much as we might expect of a site of pilgrimage (Alon and Levy 1990). The stratum II building had a large courtyard with a standing stone in its center (Levy 2006).

Teleilat Ghassul's Tell 5 has a probable sanctuary complex that, somewhat like 'En Gedi, appears to have had an enclosed courtyard (*temenos*), a main broad-room shrine ("Sanctuary A"), a secondary building ("Sanctuary B"), and a semi-circular installation in the courtyard with an "altar stone" and a paved avenue leading to the central doorway of Sanctuary A (Bourke 2001: 130–2). Given the very real likelihood that some rituals took place in domestic contexts as well, other buildings at Teleilat Ghassul are candidates for cult structures, but none is as convincing as this complex. One of these candidates is a multi-room complex incorporating Building 78 on Tell 3, where the Pontifical Biblical Institute's excavations uncovered a remarkable wall painting depicting masked figures around a large star (Mallon et al. 1934). While it is quite plausible that this mural depicts a ritual, it does not necessarily follow that the building was a temple, especially as murals and mural fragments occur in many other buildings at the site.

Village life inevitably included accommodation of death, and mortuary practices in the Late Chalcolithic seem to have been quite variable. In some areas, especially coastal Israel, secondary deposit of bones in decorated ceramic ossuaries, sometimes shaped like houses, was common. Such ossuaries were placed in caves, and the remarkable cave site of Peqi'in in the Upper Galilee had hundreds of them, as well as burial jars; fenestrated bowls and tall stands; basalt, copper, and ivory objects; and violin figurines among the colorful stalactites and stalagmites (Gal et al. 1999).

6 Conclusions

As a general, sweeping theme, the Neolithic and Chalcolithic of the southern Levant witnessed the establishment and eventual flourishing of village life based, at first only tentatively, on the cultivation of cereals and pulses and raising of goats and sometimes sheep, cattle, or pigs. There were some incremental additions to this way of life, including an increasing reliance on and eventual domestication of tree crops, notably olive, although figs were already exploited quite early. However, it is simplistic to view this as just an evolutionary progression. While the basic economic resources changed only slowly, other aspects of village life varied both over time and across space. The size, organization, and architecture of villages, in combination with other evidence, suggest that Neolithic and Chalcolithic communities varied widely in their independence, political organization, and degree of socioeconomic inequality. At no time during these millennia do they appear even to have approached a state-type of political organization, with institutionalized leadership, strongly coercive tools of persuasion, or large-scale, redistributive economy. However, this does not mean that they were completely egalitarian either. The opportunities that an agropastoral economy and high population densities provided for disparities in wealth, institution of private

ownership and territoriality, and heightened social tensions probably led to a variety of strategies whereby individuals, households, and communities could negotiate advantages to themselves, resolve conflicts or engage in open conflict, sometimes including intercommunity warfare. Our evidence for these strategies is not as clear as we might like, but includes isolated cases of huge storage capacity, trade in luxury items, the growing use of maces, variety in the size and arrangement of houses, and, by the Chalcolithic, new ideologies that seem to have involved more public performances of rituals led by elites.

GUIDE TO FURTHER READING

An excellent source for recent research on the origins of agriculture and animal husbandry in the earlier Neolithic of the Near East is Zeder et al. (2006). Another is Colledge and Conolly (2007). Simmons (2007) is an excellent introduction to the Neolithic, with emphasis on the southern Levant. Kuijt and Goring-Morris (2002) and various papers in Kuijt (2000c) are also quite useful. For the Chalcolithic, Rowan and Golden (2009) is an excellent synthesis of recent research. Bourke (2001) is a good synthesis of the Chalcolithic east of the Jordan river, as is Levy's (1998) chapter on the Chalcolithic west of the Jordan and on the Golan.

CHAPTER TWENTY-TWO

Northern Mesopotamia

Stuart Campbell

1 Introduction

There are many ways of outlining the prehistory of northern Mesopotamia, depending principally on what longer-term narrative is being stressed. This overview is no different. It is impossible to attempt any summary without making arbitrary choices to include particular evidence or emphasize particular explanations. This chapter attempts to draw attention to patterns of long-term change, while emphasizing elements of continuity through time. It should, however, be approached as only one narrative, something which may act as an introduction to the much richer series of interpretations toward which the bibliography points.

Conventional summaries of this period tend to use terms such as Halaf, Ubaid, and Uruk. These are often presented as though they mean something in themselves, as though they refer to cultures or peoples sharing a distinct ethnicity or periods that mark important stages of social development. Unfortunately this is not the case. These names are taken from some of the first archaeological sites excavated in the region, which, by the mid-20th century, provided a chronological skeleton on which to hang archaeological descriptions. It can be argued that the terminology and system of naming periods have increasingly become a barrier to understanding broader patterns of change, creating a superficial appearance of understanding (Campbell 2007; Watkins 2008). In this account, period names will sometimes be used, simply because they provide useful links in understanding the archaeological literature, but the main discussion will be structured

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differently. Three broad periods will be presented. The first roughly corresponds to the spread of permanent settlement into northern Mesopotamia. The second covers the increasing complexity of the material culture and social organization of these settlements. The third outlines the way in which larger groups of people became integrated in embryonic states.

This period starts with small communities which often left only scanty archaeological remains. It ends with very large settlements, perhaps amounting to more than 10,000 people in the largest centers, which had monumental architecture. The story of this period, however, is not a simple narrative of social development. There was no inevitable pattern of change in social organization moving from simple to complex, or from small-scale to large-scale. Instead, there is a whole series of local changes. There are large sites early in the period, which did not lead to more general, centralized control. Small, mobile social groups certainly persisted to the end of this period, c.3000 BC. Similarly, although this is one of the areas in which farming first appeared, some settlements in particular environmental niches relied on mainly wild resources even into the 4th millennium BC. The broad pattern of change which this chapter describes is imposed on a much more complex pattern of local change and continuity, in which the detail is as important as the more general picture. Again, the reader is encouraged to use this summary as a starting point for exploration rather than as a conclusion.

The first chronological section outlines the early stages of human activity in northern Mesopotamia. The region has certainly been inhabited and exploited for a long period. In northern Iraq, Qermez Dere on the outskirts of the modern town of Tell Afar was occupied by 8000 BC. In the Euphrates valley of northern Syria and southeastern Turkey, sites of similar date such as Jerf el-Ahmar provide a rich picture of life prior to 8000 BC. Such settlements, however, are rare and humans left only a light impression on the landscape prior to c.7000 BC. Settlement prior to this date was mainly found in particular locations, often in major river valleys or close to perennial water supplies. Initial population density was probably very low indeed, although it is important to remember that more mobile communities may have only made seasonal use of much of the region; their archaeological impact may be very minor and their importance easily underestimated. This started to change from about 7000 BC. Although population density remained low, settlements started to appear across the full range of landscape types, in plains as well as river valleys. By the end of the 7th millennium BC most of the wetter areas of northern Mesopotamia had some level of permanent settlement.

The second section starts c.6100 BC and ends just before c.4400 BC. It was marked, first, by slowly increasing population density. Although absolute levels of population remained low, communities were in more regular contact with a much wider range of people. Encounters may have taken place with both permanent villages within easy walking distance and with mobile, nomadic, and semi-nomadic groups moving through the landscape. These communities gradu-

ally adopted an increasingly rich material culture. Although this is seen especially in the often extravagantly painted pottery which characterizes the archaeological remains, this may have only been part of a much more complex material culture, perhaps also seen in dress, food, body decoration, and so on. In this time period, there are examples of individual sites that became very large, but they probably did not form the centers of larger, territorial communities.

The third chronological section focuses on the late 5th and 4th millennium BC. This period saw a significant change in the way in which society was organized. Much larger settlements appeared that must be considered substantial towns or perhaps even cities, controlling the territory around them and integrating a wide range of smaller sites into a more tightly defined and persistent social and political unit. In this millennium, northern Mesopotamia was also drawn into much closer interaction with neighboring regions. Although it had never been isolated, the dramatic social and political developments that were taking place in southern Mesopotamia at this time had an important impact in the north. The powerful, centralized southern society appears to have been able to exert economic and, probably, political influence. This is seen particularly in a series of settlements in the north which have been interpreted as colonies of southern Mesopotamian states, driven by primarily economic motives. For the first time, local developments toward more centralized society in northern Mesopotamia did not evolve as fast as those further south, and the region may be seen as on the periphery of a stronger neighboring power.

2 Landscape and Subsistence

The landscape of northern Mesopotamia was an important factor in the changes that took place there in human society. While northern Mesopotamia remains defined by the Tigris and Euphrates valleys as they flow from southeastern Turkey through northern Iraq and Syria, these are physical features not cultural barriers. In all prehistoric periods there are strong cultural similarities with the regions to the immediate east of the Tigris and the west of the Euphrates. This extends the region under discussion into a greater Mesopotamia that borders the foothills of the Zagros mountains to the east and the plains of north Syria, at times almost as far as the Mediterranean, to the west. To the north, the plain runs up to the hills of eastern and central Turkey.

Northern Mesopotamia is dominated by a wide plain but has few permanent water resources. The expansion of permanent settlement out of the major river valleys was probably only possible with the development of water holes and wells that could access the water table several meters below the plain. It is not surprising that wells are a frequent characteristic of early village sites, including Khirbet Garsour (Campbell 1998) and Arpachiyah (Mallowan and Rose 1935) in northern Iraq, dating to c.6200 and 5500 BC, respectively.

The northern part of this plain is well suited to rain-fed agriculture, which must have been an attraction to many of the early settlers. Further south, however, rainfall becomes increasingly unpredictable, not necessarily making farming impossible but certainly making settlement vulnerable to crop failure. The boundary between the two zones has never been either clear or consistent and the need to adapt to potential failure of subsistence crops is probably a key characteristic of the ways in which society developed in prehistory. This was compounded by the vulnerability of this area to even minor climate change. Changes to either the overall rainfall or the amount of rain at critical times of year could make rain-fed agriculture unviable in the southern margins of northern Mesopotamia. Although broad climate trends can now be traced, the effect on the year-to-year environment is much less clear. What is certain is that for prehistoric societies, this is an area in which adaptation to a changing and unpredictable environment was an essential feature.

From the mid-8th millennium BC, settlements in northern Mesopotamia, in the majority of cases, relied on domesticated plants and animals for their primary subsistence. A full range of domestic plant species was present, including emmer and einkorn wheat, barley, lentils, and chickpeas, and this must have formed a critical element in the economies of communities throughout the period (McCorriston 2002). In this area, however, prehistoric societies were rarely dependent on a single subsistence economy.

In most excavated village communities, herding of animals usually complemented agriculture. Pigs were probably kept within or close to settlements, while cattle were certainly utilized by the 7th millennium BC and would have required more careful management to ensure access to shade and water. These animals were probably kept relatively close to permanent settlements. The increasing importance of sheep- and goat-herding throughout the period was probably based on seasonal movement of flocks to follow the availability of pasture, leading to parts of communities at least moving over long distances on an annual basis. Communities indeed can be seen as complex and multi-sited social entities rather than simply as sedentary villages (Bernbeck 2008a). The herding component of these communities not only allowed an alternative source of subsistence, one less vulnerable to variations in rainfall; it also provided one of the mechanisms of regional integration. Through the movement of flocks, contact would be maintained with more distant communities. This created an obvious mechanism through which social change could be spread. It may also have had a role in the acquisition of distant raw materials, which could be embedded in annual cycles of movement.

Wild resources were also used by prehistoric communities. Often these were simply complementary to domesticated plants and animals. They may have been important and provided an alternative set of resources which could be used in the event of a poor harvest. In specific locations, however, much richer local resources were sometimes available, typically on a seasonal basis, which would

have allowed for a type of intensification, very different from the adoption of farming. A good example is provided by the site of Umm Dabaghiyah in northern Iraq (Kirkbride 1982), which was occupied for a short time just after the middle of the 7th millennium BC. Contemporary settlements were heavily dependent on farming and herding. Other northern Iraqi sites, like Tell Sotto and Yarim Tepe I, are situated where there is higher rainfall and where streams run seasonally from the hills of the Jabal Sinjar. In contrast, Umm Dabaghiyah is situated on the open plain to the south of these settlements, in an arid area with little prospect of adequate harvests. The animal bones from the site, however, are dominated by the bones of wild onager and gazelle, especially the latter (Bökönyi 1986). The success of the site seems to have been tied to a location which allowed the large-scale hunting of wild animals, probably in a location where migrating animals would have been attracted to the limited water supplies of a marginal zone. Although to our eyes, Umm Dabaghiyah seems to be situated in a hostile environment, it was able to exploit a locally rich niche, which allowed the successful, intensive exploitation of wild resources. A later example of similar exploitation of a "marginal" zone is Umm Qseir in Syria in the mid-6th millennium BC, in a similar location on the southern edge of the zone in which farming was possible (McCorriston 1992).

3 Technology and Material Culture

From the establishment of permanent villages to the development of more complex social organization in the 4th millennium BC, there are constantly shifting patterns in the material items which were used. Some of this was driven by technology, itself often a product of the needs of contemporary society. Styles also changed as a result of the need of individuals and groups to express their identities and to reflect the ways in which material culture could be used to help structure, differentiate, and integrate society.

Stone provided a primary material for the manufacture of tools, even into the 4th millennium BC. Presumably wood was also used ubiquitously, but rarely survived. For chipped stone artifacts, like arrowheads, sickle blades, piercers, and other tools, various types of chert were commonly used, with better-quality raw material often imported over long distances. Obsidian was also widely used, although it had to be imported from much greater distances. It not only produced a much sharper edge, but may also have had important symbolic meanings. In northern Iraq and northeastern Syria, most obsidian came from eastern Anatolian volcanoes, particularly Bingöl and Nemrut Dağ. Further west, obsidian was also brought from Cappadocian volcanoes in central Anatolia (Cauvin et al. 1998). The exchange networks through which this type of material was obtained were probably an important factor in linking distant communities together and transmitting new ideas, as well as offering emerging elites the opportunity to augment

their power through the control of important resources. As indicated by the recent discovery of an obsidian chalice at Tell Brak (Karsgaard 2010) and the importance of obsidian in the economy of Tell Hamoukar (Khalidi et al. 2009), obsidian probably had an important role to play as late as the 4th millennium BC.

Metal was actually in use as early as the 8th millennium BC (see Ch. I.16) and continued as a rare item through the 7th and 6th millennia BC. Copper was found extensively at the aceramic Neolithic site of Çayönü Tepesi, for example, while lead was found at Yarim Tepe I and silver at Domuztepe soon after 6000 BC. At these early dates, however, the metal that was used occurred natively; it did not have to be smelted from ore. The critical technological advance of smelting may not have occurred until the 5th millennium BC. But by the 4th millennium BC, metal was becoming an important resource for tools, although they remain rare in the archaeological record. The use of precious metals, along with exotic stones and marine shells, also increased markedly in the 4th millennium BC, presumably as they became more useful to display social differentiation. As with obsidian, the sources of these materials were few in number and northern Mesopotamia occupied an important position through which raw material could be transferred from resource rich areas such as eastern Anatolia to areas of growing demand such as southern Mesopotamia.

Prior to c.7000 BC no pottery was used for containers; instead, wood, stone, and leather would have been used. Pottery initially appeared as a specialist item, often of surprisingly high quality (Le Mière 2009; Nieuwenhuyse et al. 2010), but rather rapidly became very widespread so that at sites of c.6750 BC it was an extremely commonplace item. This may partially have reflected the gradual exploration and development of an innovative technology which became used for a wider range of tasks. It probably also reflects other changes in social behavior, such as the way in which food was cooked and presented. There is other evidence for changes in food preparation in northern Mesopotamia during this time period. The study of patterns of microwear on the teeth of skeletons from Abu Hureyra 1 in north Syria has suggested that there was a change from eating cereals in the form of coarse bread to consuming it in cooked form such as porridge (Molleson 1993) between the late aceramic Neolithic and the ceramic Neolithic in the early 7th millennium BC.

Although, from its inception, pottery was sometimes decorated, it became the focus of highly complex painted designs from c.6100 BC (Cruells and Nieuwenhuyse 2004; Campbell 2007; Nieuwenhuyse 2008). This elaboration and enrichment of material culture was a significant development; it can also be seen in other classes of material such as figurines, stamp seals, pendants, and beads, and may even be reflected in areas as diverse as building types and mortuary behavior. This may reflect a changing role for material culture, perhaps increasingly being used in a symbolic way to negotiate and reinforce individual and group identities.

Painted decoration on pottery remained common into the 5th millennium BC. After this, pottery became increasingly simple and standardized, both in decoration and shape. This evolution in simplicity has been identified as an important shift in the role of material culture (Wengrow 2001). It may partially reflect production moving away from the household. As manufacturing was carried out by specialists, the possibility of decoration reflecting individuality declined, and there may also have been a move to less time-consuming decoration. As importantly, however, the potential for individuals to use material culture to signal and change their status declined as society became more hierarchical and rigid during the late 5th and early 4th millennia BC.

4 The Initial Phase of Settlement

Although scattered across northern Mesopotamia, early aceramic Neolithic sites are rare and population densities would have been very low. There is a series of sites along the Euphrates valley in Syria, which would have had access not only to water but also to the fertile river valley and the seasonally lush plains adjacent to it. Some sites were already quite large, although this was unusual. The total area of Abu Hureyra 1 is substantial, although it was probably not all occupied at the same time (Moore et al. 2000).

In northern Iraq, the initial stages of settlement were restricted to small sites in very specific locations. Sites like Qermez Dere and M'lefaat were situated close to year-round water supplies and tended to be on the boundary of several environmental zones, which provided access to different food supplies at different times of the year (Watkins 1995; Kozłowski 1998). The populations of these villages were small, and settlement was very sparse. At Qermez Dere, subsistence seems to have relied on the collection and hunting of wild resources. At the slightly later site of Nemrik, on the edge of the Tigris valley, settlement continued longer (Kozłowski 2002). At the end of the 7th millennium BC there was a more substantial settlement at Maghzaliyah, overlooking the plains from the southern fringe of the Jabal Sinjar (Bader 1993). This settlement was larger, but still contained only a few hundred people, although it may have been surrounded by a wall.

During the 7th millennium BC, in the ceramic Neolithic, there was a gradual expansion of population. Although the plains of northern Mesopotamia had previously been used for seasonal exploitation, permanent settlements started to spread into the plains between the major river valleys. Population density was still extremely low, and individual villages remained small. In this time period, more marginal zones were also occupied, with sites such as Umm Dabaghiyah flourishing in very specific environmental niches that may have allowed an alternative form of intensification to agriculture.

Individual houses were generally not large. Initially, they were mainly circular with only a single room, but during the 8th millennium BC larger rectangular houses with two or three rooms predominated. Even in the early aceramic Neolithic there were special purpose communal buildings, which must have provided a centralizing focus to the community. Thus at Jerf el-Ahmar, on the Euphrates in north Syria, there were a series of large, circular buildings up to 9 meters in diameter with carved stone decorations (Stordeur et al. 2000). The appearance of special-function buildings within villages continued to develop in the later aceramic Neolithic. This is most marked in southeastern Turkey, where there was a series of such buildings at Nevali Çori (Hauptmann 1993) and Çayönü Tepesi (Schirmer 1990), of which the skull building was the most spectacular (Özdögan 1999; Croucher 2006).

The dead were treated in a range of ways. At Qermez Dere, several skulls were found in one of the houses, possibly curated for a considerable period of time (Watkins 1990). At Tell Halula, on the Syrian Euphrates, burials occurred under the floors of houses (Guerrero et al. 2009). Communal burial was not unusual, often involving disarticulation or secondary burial. In the skull building at Çayönü, the crania and bones of hundreds of individuals were stacked in cells within a building which was maintained over many generations. The remains of c.38 individuals were found in a small, four-roomed building at Dja'de al-Mughara, the *maison des morts* (house of the dead) (Coqueugniot 1998), and a small building at Abu Hureyra 1 contained the remains of at least 50 individuals (Molleson 2000).

Symbolism was perhaps less extensively employed, or at least less obviously, in the later aceramic Neolithic and the ceramic Neolithic than at slightly earlier sites such as Göbekli Tepe and Jerf el-Ahmar. At Nemrik, a remarkable range of birds' heads, carved on the ends of stone rods, was found (Kozłowski 1997). These seem to have been important symbols within the community. In one case a house had been burnt and a human skeleton was found buried beneath the burnt remains, its hand apparently outstretched toward one of these bird figurines. While this could have been a desperate attempt to retrieve a socially valued item, it might also have been an elaborate ritual in which a body was entombed in a house with a valued artifact.

Until the end of the 7th millennium BC, these Neolithic sites lacked pottery. Pottery initially appeared in very small quantities, perhaps as a prestige item (Le Mière 2009; Nieuwenhuyse et al. 2010). Soon, however, it started to be used for a wide range of items. Its gradual introduction seems to have happened at the same time over a wide area of northern Mesopotamia. In many respects this new material did not make an immediate difference. At Seker al-Aheimer, in northeastern Syria, where we can track the introduction of pottery very precisely, no other changes happened at the same time; the same individual houses continued to be built and rebuilt in exactly the same locations (Nishiaki and Le Mière 2005).

Pottery also provided a new form of symbolic expression, perhaps more powerful for its use in the socially significant arena of consumption. This is most striking in the use of decoration applied to the surface of pots, sometimes including human and animal figures in a way that seems to merge pottery and figurines. This is always rare, but occurs widely across northern Iraq and southeastern Anatolia. Although most vessels were utilitarian, finer wares also appeared and decoration was sometimes used. In northern Iraq, in particular, painted and especially incised decoration became common after the mid-7th millennium BC.

5 Intermediate Villages

During the later 7th millennium BC, in the pottery Neolithic, there are distinct regional differences across northern Mesopotamia. Different types of pottery are found in different locations. In northern Iraq, for example, the Hassuna style had evolved, which included some painted pottery but especially large amounts on incised decoration. In northern Syria, in contrast, decoration was rare. Around 6100 BC this started to change rapidly (Cruells and Nieuwenhuyse 2004; Campbell 2007; Nieuwenhuyse 2009b). At this time, very similar new types of pottery started to appear at a wide range of sites across northern Mesopotamia. This was being paralleled more generally at about this time as painted decoration in a variety of styles was adopted over a much more extensive region, including southern Iraq and western Iran. While these changes in ceramics can be seen as a series of essentially localized transitions, the spread of new techniques also suggests that regional interaction was increasing.

This transformation in the use of decorated pottery is best documented at Tell Sabi Abyad, on the Balikh river in northern Syria, where the new styles came to dominate in just a few generations (Nieuwenhuyse 2008). These new types of pottery were better fired and tempered, as well as being more elaborately decorated with complex painted patterns. The earliest styles can be linked to the Samarran tradition in Iraq and evolved into what is known as the Halaf style. This broadly uniform style of painted pottery remained a characteristic of the material culture of northern Mesopotamia until the mid-5th millennium BC when, during the Ubaid period, the complexity of decoration declined and then gradually disappeared.

From about 5200 BC the type of pottery used in northern Mesopotamia changed and was manufactured in the Ubaid style. This used a different range of decorative motifs and tended to be more highly fired than the Halaf pottery of the early 6th millennium BC. Stylistically, the Ubaid pottery of northern Mesopotamia was closely linked to the pottery of the same period in southern Mesopotamia. This has often been interpreted as indicating a spread from south to north, due to the technological superiority of a more developed southern Mesopotamia society (e.g., Breniquet 1987). Although, in the past, this change

in pottery style has been associated with actual population movement, it has more often been seen as the spread of a new ideological system (Stein and Özbal 2007). More recently, alternative explanations have suggested that internal changes in the north may have been equally significant and that this unification of pottery style may have simply reflected regional integration, without implying the cultural dominance of the south (Karsgaard 2010; Campbell and Fletcher 2010).

This change in pottery is not just significant as a chronological marker. It also indicates changes in the intensity of regional interaction and the way that people chose to mark their identities through the material they used in everyday life. Since much of the decorated pottery was used in the presentation and eating of food, it was probably also associated with changes in the ways that food was cooked and consumed. It perhaps reflected a growing need to communicate and symbolize differentiated roles within society.

Small stamp seals with incised patterns on one face and a hole for suspension on the other had started to appear during the 7th millennium BC at sites such as Tell el-Kerkh in western Syria (Tsuneki et al. 2000). During the Halaf period, they spread to become a significant, although always quite rare, category of artifact (von Wickede 1990). They may have been associated with personal or group identities. Seals could also be used to impress wet clay, which could be used to cover the contents of vessels or applied around knots on string that secured the contents of vessels, probably as a sign of ownership. In the Burnt Village of Sabi Abyad, at the very beginning of this period, hundreds of burnt clay sealings were found, probably kept as records (Akkermans and Duistermaat 1997, 2004). While this may have marked a more general concern with controlling the circulation of goods, perhaps by emerging elites, the excavators suggested that, in this case, it had to do with regulating the relationship between the settled, permanent village and nomadic groups who needed to mark their rights to material in their absence.

Population continued to increase during this phase, with increasing density of settlement in all parts of the north Mesopotamia plain (e.g., Wilkinson and Tucker 1995; Lyonnet 2000; Ur 2010b). Although it is difficult from survey data to disentangle which sites were exactly contemporary, it seems clear that villages would have had several neighbors within a day's walk. Interaction with other groups would have been more frequent, and the need to establish identities and territories would have increased considerably.

As well as the predominant small village, which covered an area of perhaps 1–2 hectares and consisted of, at most, a few hundred people, larger sites also started appearing during this period. Domuztepe, for example, on the extreme edge of northern Mesopotamia, reached a size of 20 hectares in the mid-6th millennium BC (Campbell et al. 1999; Carter et al. 2003). Other sites like Kazane may have reached a similar size (Bernbeck et al. 1999) and it is notable that there is Halaf occupation of unknown extent under many of the great mounds of northern Mesopotamia, including Tell Brak and Nineveh. Although

the population of Domuztepe may have reached 1,500–2,000 people, there is little evidence that these sites should be considered proto-towns. Domuztepe may have been the agglomeration of several smaller communities, tied to the same location. It certainly does not seem to have led to a permanent shift in the way society was organized. After its abandonment, no large sites were found in its region for more than 1,000 years.

These large sites do provide some evidence of the increasing integration of society into larger social and political units. The most direct evidence for this, in fact, comes from a very small site, dating to c.5500 BC. Although Arpachiyah in northern Iraq is only c.1.5 hectares in extent, evidence suggests that it was a focus of regional power, at least at a low level. In 1933, Max Mallowan excavated a burnt house at the center of the site (Mallowan and Rose 1935; Campbell 2000). This was probably rebuilt over the ruins of earlier phases of similar architecture, which was on a relatively grand scale. The house, which may have been deliberately burnt, perhaps as a ritual action, contained a remarkable range of exceptional material. Some of the pottery is amazingly fine, with decoration in intricate patterns using three colors of paint. Large numbers of seals, sealings, figurines, stone bowls, and other artifacts were also found. One thing that makes it unusual is that there were also quantities of obsidian artifacts and large amounts of waste from the processing of obsidian brought from eastern Turkey. At other Halaf sites in northern Iraq, up to 50 percent of the chipped stone used for tools was obsidian, partly because of the sharpness of volcanic glass, but probably also for cultural reasons. However, at these sites there is little sign of the waste products produced by working obsidian from raw material; instead, it seems that obsidian at most sites was obtained from local centers, such as Arpachiyah, which had direct access to the sources many kilometers away. The Burnt House, therefore, suggests that regional centers were starting to emerge that were involved in the distribution of resources as well as sources of power to individuals or groups.

Slightly later, during the Ubaid period, larger sites also seem to form emerging centers, albeit on a local scale. Tell al-Hawa in northern Iraq reached a size of about 20 hectares (Ball et al. 1989). Unlike earlier examples of large sites like Domuztepe, Tell al-Hawa was not isolated but was surrounded by smaller settlements that seem to form a local site hierarchy, an important step in the formation of a more complex and integrated settlement pattern. Nonetheless, it is difficult to argue that there was an extensive system of social integration based on non-kin relationships at this date.

Domestic buildings changed markedly during the 6th millennium BC, and with them possibly important aspects of household organization as well. By the mid-7th millennium BC houses in northern Iraq and Syria were typically large, rectangular, multi-room structures. The details of these houses varied between sites, but the buildings at Tell es-Sawwan and Bouqras provide particularly good examples (Akkermans et al. 1981; Breniquet 2000). The houses from the very

beginning of the Halaf at Tell Sabi Abyad probably belong to a very similar tradition. In the first half of the 6th millennium BC, however, circular structures became common, and these have often been seen as a signature of the Halaf phase as a whole. This was neither an abrupt change nor a complete one. Circular buildings had started to appear earlier (Akkermans 2010) and some rectangular buildings occur throughout the Halaf tradition. The circular buildings were much simpler and generally consisted of only a single room. The functions of the household were probably not contained within a single building, but were provided by a small cluster of buildings.

By the mid-6th millennium BC this trend in house shape changed, and rectangular structures predominated again. The Ubaid phase can be associated in particular with large, multi-roomed structures, often arranged on a tripartite plan, with a large central room or hall. Subsidiary rooms on either side of the central hall were often symmetrical (Roaf 1989). While this can be seem most clearly at sites like Tell Abada in the Hamrin basin in north-central Iraq (Jasim 1985), less well-preserved examples have been found at sites in northern Iraq, such as Tepe Gawra. Echoes of this building type can be seen as far north as Değirmentepe in Anatolia (Gurdil 2010).

In the earlier part of this phase, the treatment of the dead was complex. Perhaps the most striking feature was simply the variety of mortuary practices, often within the same site (Akkermans 1989b; Hole 1989). There are simple inhumations within settlements, usually accompanied by a small number of grave goods. At other times, bodies were disarticulated and sometimes skulls seem to have been given special treatment. At Arpachiyah, for example, several skulls were found buried with a ceramic vessel (Hijara 1978). Burial must also have taken place away from settlements, although evidence for external cemeteries is slim. There is a possible example at Yarim Tepe in northern Iraq, where burials were sited on the top of the abandoned mound of Yarim Tepe I at a time when Yarim Tepe II was the focus of settlement (Merpert and Munchaev 1993).

More elaborate treatment of the dead also occurred. The Burnt Village at Tell Sabi Abyad included two skeletons which seem to have been lying on the roof of a house when the village was deliberately burnt down (Akkermans 1995; Verhoeven 1999). This can been seen as a very elaborate ritual, in which the dead had a central role (Verhoeven 2000). At Domuztepe, there was a very complex funerary deposit called the "Death Pit" in which portions of at least 40 individuals were found (Campbell 2007–8; Kansa et al. 2009). In this case the bodies had been highly processed with deliberate disarticulation and fragmentation, perhaps transforming the dead into a more general and less individual ancestor. There are strong indications of cannibalism, and sacrifice may also have been a feature.

During the latter part of this phase, burial patterns gradually appear to have changed. In the Ubaid period, burials seem to have become more standardized. Bodies were generally buried in simple graves accompanied by a small number

of pottery vessels. At Tell Arpachiyah, there is a small Ubaid cemetery distinct from the area with domestic housing, which perhaps parallels the larger, contemporary cemetery at Eridu in southern Mesopotamia. Burial within settlements seems to have been largely limited to the burial of infants beneath floors. This can be seem most strikingly at Tell Abada in the Hamrin basin in north-central Iraq, where a single building (Building A) had 59 burials beneath the floors of the house, each contained in a pot (Jasim 1985; Chiocchetti 2007). No adult burials were found in the settlement at all. This seems to suggest subtly shifting patterns in society, both in terms of the critical link between the living and the dead, but perhaps also in ideas about the human body and the ways in which it could be treated (Croucher 2010).

6 Developing Centralization

From the late 5th millennium BC onward there was a shift in the scale and nature of social integration in northern Mesopotamia (Ur 2010a). New political and economic institutions developed, including territorial states with population concentrations, ideologically underpinned hierarchies, and religious organization. This was associated with new administrative systems and increasing craft specialization. Transregional integration supported these developments, but also modified internal north Mesopotamian developments markedly by the mid-4th millennium BC.

The chronological terminology used here follows Rothman, who used Late Chalcolithic to describe developments between c.4400 and 3000 BC in five subphases, LC1–5 (Rothman 2001). Around 4000 BC, substantial settlements became increasingly prominent. Tell Brak had reached more than 55 hectares by LC2 (Oates et al. 2007). The unexcavated site of Khirbat al-Fakhar in northeastern Syria reached 300 hectares, although settlement density may have been low (Wilkinson 2002; Ur 2010a). By the early 4th millennium BC, Tell Brak had increased to as much as 130 hectares (Ur et al. 2007). Other sites on the northern Mesopotamia plain, such as Nineveh and Tell al-Hawa in north Iraq, also reached impressive sizes (Ball et al. 1989). Each of these sites was surrounded by smaller satellite communities, which would have been integrated into small-scale, political bodies. Each of these sites was also located on trade routes, which ran across northern Mesopotamia or, alternatively, allowed trade with the emerging states in southern Iraq.

The increasing size of these sites was paralleled by the appearance of more monumental architecture. At Tell Brak, there is excavated evidence for monumental architecture during LC2 (McMahon and Oates 2007). This is contemporary with the equally impressive building at Hammam et-Turkman, on the Balikh river in northern Syria, with walls 2 meters thick and a niched and buttressed façade (van Loon 1988). Monumental architecture was also associated

with institutionalized religion. The earliest phases of the long-lived Eye Temple at Tell Brak, with its many hundreds of small, votive "eye idols," date to the early 4th millennium BC (Mallowan 1947; Emberling 2002).

Developments in administrative practice and institutional control are also clear. Seals became increasingly complex in design. They were used to seal a wide variety of portable items, including sacks, baskets, and jars to mark the authority under which the contents were placed. Sealings were also used around doors, allowing access to storerooms to be controlled. At the small (c.1.5 hectare) site of Tepe Gawra, in northern Iraq, extensive excavations in the 1920s and 1930s documented emerging institutional control (Rothman 2002). In LC1, clay sealings used in controlling the movement of property appear to have been associated with several residential units, but by LC2 they had become concentrated around newly emerged temple institutions.

Burials in the early 4th millennium BC also show evidence of hierarchies. While at many sites there is a decline or disappearance of adult burials, at Tepe Gawra and Grai Resh in northern Iraq there was a series of very rich graves containing both gold and silver objects, sometimes associated with infant burials (Forest 1983b; Rothman 2002; Kepinski 2009). Recent excavations at Tell Majnuna, a subsidiary mound of Tell Brak, have produced evidence of a mass burial of partially articulated individuals, probably associated with evidence for feasting (McMahon and Oates 2007). This may represent a massacre, suggesting a violent imposition of power; certainly it contrasts with the burials of the Ubaid tradition, implying a loss of individual identity.

The growth of these large centers in northern Mesopotamia seems to have been largely an indigenous process, although one that was being broadly paralleled or succeeded by developments in the south. The growth of integration in the north, however, stalled from the mid-4th millennium BC, with sites ceasing to grow in size or even contracting (Algaze 2008). At this time, contact with southern Mesopotamia became more intense and the relationship appears to have grown increasingly unbalanced.

A series of possible colonies from southern Mesopotamia has been identified since the 1970s at various locations along trade routes in northern Iraq, northern Syria, and southeastern Turkey. These suggest a period of strong regional interaction during the mid- to late 4th millennium BC. The dominant interpretation has been that this represents an informal, southern Mesopotamian, economic empire that exploited asymmetric trade relationships with the north (Algaze 1993, 2001a; Stein 1999; Rothman 2001, 2004; Postgate 2002).

The potential colonial sites have generally been recognized by the dominance of grit-tempered pottery in a range of forms characteristic of the Uruk period in southern Mesopotamia. Sometimes these types of pottery may have been specific to particular cultural practices, especially the characteristic, low-quality bevel-rim bowls. Alongside pottery, at some sites distinctive building types, seal designs, and sealing practices can also be recognized. It has generally been concluded that

these intrusive assemblages of material indicate groups of people from southern Mesopotamia living in ethnically distinct communities.

The form of settlement in which these southern Mesopotamian colonies occur varies considerably. At Haçinebi Tepe, on the Turkish Euphrates near the modern town of Biricek, people using the southern Mesopotamia types of pottery seem have lived alongside other groups using local ceramic types (Stein 1999, 2001). In other locations, such as Jerablus Tahtani on the Syrian Euphrates, small settlements seemingly using entirely southern Uruk assemblages were established in strategic locations (Peltenburg 1999a). Perhaps the most striking of the apparent colonial sites is Habuba Kabira South on the Euphrates in northern Syria (Strommenger 1980). This is a substantial town, surrounded by an extensive wall with impressive gateways. The buildings within the settlement appear to follow southern Mesopotamia models. At the nearby site of Jabal Aruda, temples laid out in a southern Mesopotamia style suggest that the adoption or importation of southern lifestyles was extensive (Vallet 1998; van Driel 2002). However, in other locations the southern Uruk pottery seems to appear alongside local styles. In these cases it is possible that other processes were at work, including trade and emulation.

The motivation behind the foundation of these colonies from the south appears to have been economic. Southeastern Turkey has rich metal resources as well as stone and wood that was unavailable in southern Mesopotamia. Exploitation of wooly sheep, which were probably coming into use across northern Mesopotamia, may also have been an important factor, providing a valuable raw material which could be processed into cloth.

The political dominance of the south, however, was not always overwhelming, and it can be argued that it has been overstressed (Frangipane 2001, 2002). In southeastern Turkey, the site of Arslantepe, near modern Malatya, was also substantial by the mid-4th millennium BC. It provides an example of a site that continued to flourish on the edge of the area impacted by the southern colonies, while still maintaining a distinctive local identity and both political and economic independence. Excavations at this settlement have uncovered substantial temples. These not only had extensive storerooms, but also clearly had an important role in controlling the circulation of commodities. Goods were sealed and unsealed as a way of restricting access, and broken sealings appear to have been retained as a way of maintaining records of transactions over time (Frangipane 2007a).

The system of tight regional integration between north and south finished toward the end of the late 4th millennium BC. The colonial sites were abandoned and the use of southern-style pottery in the north declined and then disappeared. This did not result in a simple, immediate reassertion of local political structures, however. At Tell Brak, the site contracted significantly, with the abandonment of the lower town (Ur 2010a), while at Arslantepe a new type of political elite seems to have emerged, marked by different types of pottery and based less on the presence of temple institutions than on personal power (Frangipane et al. 2001).

GUIDE TO FURTHER READING

Good regional overviews for this period are available for southeast Turkey (Sagona and Zimansky 2009) and northern Syria (Akkermans and Schwartz 2003). Northern Iraq has had fewer recent summaries, but good accounts of the evidence from the key sites can be found in Matthews (2000) and Charvát (2002). Comprehensive period summaries are rare for the earlier part of the period, although Frangipane (2007b) gives a very valuable broad perspective. Detailed information on the important late 6th millennium BC Burnt Village at Tell Sabi Abyad provides a detailed example of early village life (Akkermans 1995; Verhoeven 1999). The Ubaid period in the north has had an excellent recent summary in the articles contained in Carter and Philip (2010a). The fourth millennium BC is also well summarized in articles in Rothman (2001), while Ur (2010a) also provides a valuable overview, incorporating some of the most recent discoveries. The evidence for large, centralized settlements in the early 4th millennium BC is discussed in Oates et al. (2007) and Ur et al. (2007).

There are also useful thematic treatments. The evidence for the appearance of pottery in northern Mesopotamia is summarized in Le Mière (2009), with discussions of its appearance at specific sites in Nishiaki and Le Mière (2005) and Nieuwenhuyse et al. (2010). The subsequent spread of painted pottery is outlined in detail in Nieuwenhuyse (2008). The burial evidence presented in Akkermans (1989b) and Hole (1989) still provides a useful summary for much of the earlier part of the period, but more recent treatments include Campbell (2007–8) and Pollock (2011). The impact of early farming practices and the important of wild resources is discussed in McCorriston (2002).

The impact of emerging southern Mesopotamia states on the north during the 4th millennium BC has its own extensive bibliography. Algaze (1993) remains a key interpretation, and it is supplemented by later articles and books (e.g., Algaze 2001a, 2001b, 2008). Other perspectives are highlighted in Stein (1999), Rothman (2001) and Postgate (2002).

CHAPTER TWENTY-THREE

The Late Epipaleolithic, Neolithic, and Chalcolithic of the Anatolian Plateau, 13,000–4000 BC

Douglas Baird

1 Introduction

For the purposes of this chapter, the Anatolian plateau is defined as that part of southwest Asia north and west of, and including, the Taurus–Anti-Taurus ranges, bounded to the west by the Aegean, to the north by the Marmara and Black Seas, and to the south by the Mediterranean. It is an area that can be contrasted with the adjacent Levant and Mesopotamia in consisting of highland plateaus, plains, mountains, and high hills, bounded by narrow coastal plains. These largely upland areas are dissected by numerous, mainly modest-scale, water systems, including on the plateau a number of areas of inland drainage and thus extensive lakes, especially in a Lakes District in the southwest and south of the Marmara to the northwest. This region provides, therefore, constructive contrasts to other areas of southwest Asia and encompasses major land and adjacent sea routes between southeastern Europe and other parts of southwest Asia. The configuration of the main mountain ranges and fault-lines means major communication routes run east–west, with occasional mountain passes providing north–south access onto and off the plateau, notably the "Cilician Gates" in the southeast, the Göksu in the south, and the route north of Antalya and the Kizilirmak valley in the north.

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

2 Key Issues

There are key issues in relation to the Neolithic and Chalcolithic of the Anatolian peninsula which are of significance to researchers interested in areas well beyond Anatolia. At a global level, environmental change has been seen by some researchers as having played an important role in changing human behavior, not least because of the high altitude of the Anatolian plateau and because the period of interest spans the end of the last glacial period and the dramatic climate changes of the beginning of the Holocene, as well as the supposedly significant 8.2 kyr BP (8,200 years ago) climate "event." We can evaluate the possible role of climate change in the distinctive Anatolian context. An understanding of the development and character of early sedentism still eludes us and Anatolia offers one such early example. The nature of the spread of farming is much debated on a global level and the Anatolian plateau evidence is key to understanding the spread of farming into Europe. Much debate still oscillates between polarized interpretations of colonizing farmers and adoption of farming by indigenous foragers (e.g., Bellwood 2009). More nuanced models with elements of both are sometimes suggested (Zvelebil 2009: 701) but rarely empirically investigated; the Anatolian evidence now provides key insights into these processes and a chance to understand what was involved for communities engaged in these developments. Debates continue about the nature of early social complexity and how much this was a response to the development of sedentary farming communities of increasing scale. The Anatolian evidence allows us to understand whether and how social complexity might have operated in environments that contrast with those where the developments have been more fully studied, especially the Levant, but also northern Mesopotamia. The richness of the evidence base provides significant potential for insights into the nature of Neolithic and Chalcolithic social life and the way in which these communities engaged with their landscapes and built their own worlds. In addition, because of the nature of Neolithic sites in Anatolia, the region has become important in debates about the nature of development of early religion (Hodder 2010).

3 Chronological Sequence

The chronological and culture historical terminology used here is outlined in Table 23.1. Because terms like Late Neolithic and Early Chalcolithic are used differently in different parts of the Anatolian plateau and immediately adjacent areas, calibrated radiocarbon dates will be referred to whenever possible. The Epipaleolithic is only known at Pinarbaşi on the plateau and at a handful of sites in the Antalya region. Assemblages from these sites have many distinctive features when compared with those from Levant. There is, therefore, little value in transferring Levantine terms to Anatolia.

Table 23.1 Chronological schema used in this chapter

Absolute chronology	*Culture historical terminology*
c.20,000–9,700 BC	Epipaleolithic
c.8500–7000 BC	Aceramic Neolithic
c.7000–6000 BC	Ceramic Neolithic (including "Early Neolithic" in the Lake District and Early Fikirtepe in the northwest)
c.6000–5400 BC	Early Chalcolithic: (in the Lake district, and northwest some sites/phases dating to this period are called Late Neolithic)
c.5400–4500 BC	Middle Chalcolithic
c.4500–3200/3000 BC	Late Chalcolithic

In Cappadocia, the Konya plain, and the Lake District, and possibly the Antalya region, there are a number of sites dating to c.9000–7000 BC, a period coterminous with the later PPNA–PPNB (Pre-Pottery Neolithic A and B) in the Levant. However, the Anatolian sites share few, if any, features with PPNA and PPNB sites, especially in the earlier part of the period. For example, at Pinarbaşi, Boncuklu, and the early phases at Aşikli, oval buildings and, in the first two cases, microlithic chipped stone assemblages predominate. In addition, Pinarbaşi has no evidence of cultivated or domestic plants in the 9th millennium BC (Baird 2007, in press). Ultimately it may be possible to divide the 9th and early 8th millennium BC across much of the Anatolian plateau into two broadly distinct units, but it would be premature to do so on current evidence.

Aceramic sites dating to c.7500–7000 BC in Anatolia and the Levant share some features. Musular (Özbaşaran 1999) in Cappadocia, Çatal Höyük, later phases at Boncuklu, Sancak (Baird 2010), Çan Hasan III, and Suberde all show PPNB influences in their chipped stone, such as point types similar to Byblos and Amuq points in the Levant. A notable point type across central Anatolia known as the Musular/Çan Hasan point, an elongated oval point with unifacial pressure flaking (Özbaşaran 1999: 152), is related to Amuq points, a distinctive element amongst contemporary Late PPNB points in the Levant.

In the 7th–6th millennia BC (ceramic Neolithic to Early Chalcolithic) there is no terminological correspondence between different regions within Anatolia. Thus, whereas the term Early Neolithic has been used for Lake District sites like Kuruçay, Bademağaci, and Höyücek (Duru 2008: 11–19), contemporary levels (IX–VI) at Haçilar have been called Late Neolithic (Mellaart 1970; cf. Duru 2008: 11–19). These levels are also contemporary with the early phases at Ilipinar, Menteşe, Barcin, and Early Fikirtepe sites in the Marmara coastal areas (Düring 2010: 179–95), and Ulucak and Neolithic sites on the Aegean.

The Neolithic–Chalcolithic transition at Çatal Höyük and Çan Hasan I occurred around 6000 BC. Early Chalcolithic is dated to c.6000–5500 BC (Gérard and Thissen 2002: 303). In the Konya basin this period is characterized by much

painted pottery. Despite the fact that it is contemporary with Early Chalcolithic in the Konya plain and Haçilar and has some painted ceramics reminiscent of the painted pottery elsewhere in the Early Chalcolithic, Kuruçay Level 11 in the Lakes area is still considered Late Neolithic (Duru 2008). Similarly in the northwest, sites called Neolithic extend into the 6th millennium BC. All this suggests the need for caution when making comparisons between different areas based on culture historical terminology and emphasizes the importance of absolute dates in developing comparative perspectives.

4 The Significance of Environmental Changes 13,000–3000 BC

According to Greenland ice cores, the so-called Bølling-Allerød Late Glacial climatic amelioration commenced around 12,700 BC (Rasmussen et al. 2006). On the Anatolian plateau this is indicated by multiple proxy environmental indicators, such as sediments, isotopes, diatoms, and pollen from lakes like Eski Acigöl (Roberts et al. 2001: 731). It probably involved increased moisture and, consequently, extensions to lake areas and fresher waters, leading to increased biomass. Grasslands may have expanded into artemesia/chenopod steppe areas, with significant implications for larger grassland and wetland mammals and lacustrine resources. In the southern Levant woodlands seem to have expanded significantly, with associated cereals and legumes evoking a notable response in early Natufian settlement (Byrd 2005b) and more regular, increased investment in site fixtures and facilities, such as habitations, reflecting frequently repeated visits or continuous lengthy occupations. On the Anatolian plateau woodland responses may have been more muted above 1000 meters above sea-level, but even modest expansion may have had a significant impact on human settlement, though not necessarily promoting sedentary behavior. Oak is present in the Late Glacial at Eski Acigöl (Roberts et al. 2001: 731) and it is likely that other trees, such as terebinth, are underrepresented in many pollen sequences. It is telling that Pinarbaşi, the only excavated and dated Epipaleolithic site on the Anatolian plateau (Baird 2007; in press), is contemporary with the transition to the Bølling interstadial. This may indicate that humans responded to such climatic and environmental changes on the Anatolian plateau. In contrast to the southern Levant, there is little indication of "sedentary" responses. Rather, highly mobile communities seem to have exploited the lacustrine settings of the Anatolian plateau and associated grasslands, with an emphasis on fishing and fowling and exploitation of grazers and browsers such as sheep and goat at Pinarbaşi.

Because of an absence of sites, the impact of the cool, arid Younger Dryas on human settlement is unclear. While this itself may be a consequence of the Younger Dryas, there are reasons to question such an interpretation. The Antalya Caves area continued to be occupied (Otte et al. 1995). Although increasing coolness and aridity may have reduced occupation on the plateau, the absence

of sites is just as likely to be a result of the relatively low intensity of archaeological work aimed at detecting and exploring these periods. Nevertheless, one suspects some use of the Anatolian plateau during the Younger Dryas, if only in the warmer months, by groups from the Taurus fringes, because obsidian from Central Anatolia reached Abu Hureyra in the northern Levant and Ain Mallaha in the southern Levant during the final Natufian (Cauvin and Chataigner 1998). It is likely that groups from the Taurus fringes were responsible for the initial acquisition of obsidian during this period. In addition, microlithic tool assemblages dominated the plateau's earliest Holocene sites like Pinarbaşi and Boncuklu. If the early Holocene populations of the plateau had originated amongst the lower-lying communities in the north Levantine rift region, and/or the Upper Euphrates, then it would be reasonable to assume that they would have used more PPNA-like assemblages rather than Epipaleolithic type toolkits and technologies. In the Early Holocene, populations may have spread from the southern coasts – e.g., from the area around Antalya. However, circumstantial evidence suggests that the occupation of the plateau continued throughout the Younger Dryas.

Judging by the Greenland ice cores and proxy environmental indicators from lake cores, the transition to the Early Holocene c.9700 BC was both rapid and dramatic, with a significant rise in temperatures, increased precipitation (Roberts, Reed, et al. 2001: 732), and slightly delayed expansion of some woodland species like oak. The increase in moisture was probably most influential in the spread of steppe woodland (terebinth and almond, with juniper at higher elevations). As these are all poor pollinators, however, they are probably underrepresented in pollen diagrams. They are, however, present in excavated charcoal assemblages – e.g., at Pinarbaşi (Asouti and Hather 2001). Roberts (2002) suggests that woodland spread was inhibited by early farmers burning woodland, but there is little clear evidence for this. The debate about woodland spread is significant because wild cereals and nut resources may have been associated with it. Woodland distribution would also have affected the distribution of animals.

At c.6200 BC a significant short-term, cool, arid episode occurred at the global level lasting about 160 years (Maher et al. 2011: 8), which may have impacted significantly on human behavior (Weninger et al. 2006). However, the Late Neolithic was comparatively stable, with little settlement or other disruption at c.6200 BC and the transition to the Early Chalcolithic only occurred two centuries later (contra Weninger et al. 2006). This involved changes in pottery decoration coupled with continuity of settlement location (e.g., Çan Hasan and Çatal Höyük, Haçilar and Kuruçay, and Tepeçik-Çiftlik and Köşk in Cappadocia) and of settlements with highly clustered buildings. Some change in settlement distribution is apparent on the Konya plain after 6000 BC (Baird 2006), but these changes appear related not to the climatic event, one to four centuries earlier, but to local social factors. Indeed the period c.6400–6000 BC witnessed an abundance of sites across western Anatolia from south to north, which suggests

an expansion rather than a contraction of Neolithic settlement at this time. The 6200 BC cal event does not seem to have impacted negatively on permanent settlement in this area.

The period around 4500 BC in central Anatolia may mark a more significant, though gradual, period of environmental change on the plateau. At Eski Acigöl this saw the beginning of a shift to a more saline lake and the decline of mesic-adapted deciduous trees in the pollen record (Roberts, Reed, et al. 2001: 733). There seems to have been a significant climate change and, in culture historical terms, an important point of transition to the Late Chalcolithic. The period following c.4500 BC was one of disruption and gradual transformation, suggesting that human response to climate change was typically gradualist in character, at least in the early-mid Holocene.

5 The Development of Sedentism, Cultivation, and Herding in Anatolia

Until excavations were conducted at the rock shelter of Pinarbaşi by the author, the late Epipaleolithic of the Anatolian plateau was unknown. Pinarbaşi (Figure 23.1) was first occupied c.13000 BC at the start of the Bølling interstadial by a

Figure 23.1 Pinarbaşi, rock shelter and open site.

Figure 23.2 Epipaleolithic burial with skull removal at Pinarbaşi.

highly mobile group, as suggested by thin occupation lenses with much interleaving of natural deposition, ephemeral hearths without other site fixtures, highly curated tool kits, little deposition of tools or knapping debris, and many tools arriving on site in finished form from distant sources. While sedentary habitation may not have been important to Anatolian plateau groups in the late Epipaleolithic, elaborate art, ritual and symbolic practices, including skull removal, were (Figure 23.2). These features, and the dominant lunate microliths found at Pinarbaşi, suggest links to contemporary Levantine Natufian communities (Baird in press) rather than to the Antalya Late Epipaleolithic sites, which have different microlithic assemblages and show little (if any) use of plateau obsidian (Otte et al. 1995). Thus, important connections between the plateau and the northern Levant area pre-date sedentism in Anatolia and influenced subsequent developments. In short, and as hinted by the obsidian making its way into the Levant in the Epipaleolithic (Cauvin and Chataigner 1998), a network of interactions with areas to the south and east may have played an important role in the development of communities on the Anatolian plateau.

While ritual and symbolic practices and exchanges may have been shared by populations on the central Anatolian plateau and the Levant in the late Glacial, sedentary behaviors were not, and population density appears to have been low

on the plateau. Presumably, this influenced the character of early Holocene developments on the plateau. Despite the rapid onset of favorable conditions for woodland and vegetation spread, sedentary behavior, defined here as long-term commitment and investment in specific places, including substantial habitations, rather than strictly year-round, continuous occupation, seemed to emerge only after the beginning of the Holocene, presumably reflecting both the mobility and low density of plateau communities.

Our evidence has provided unique insights into the distinctive character of sedentarizing behaviours on the Anatolian plateau. When and how did sedentary practices emerge? The earliest "sedentarizing" settlement in Anatolia appeared at Pinarbaşi, c.9000–7800 BC, long after analogous behaviors are documented in the Early Natufian (Byrd 2005b) and the PPNA and significantly later than the beginning of the Holocene. The open site at Pinarbaşi gives us some of the earliest indications of a long-term commitment to key settlement locales that presage, or indeed represent, early instances of sedentism. The small mound at Pinarbaşi projects into the early Holocene lake and marshes that existed on the southeastern edge of the Konya basin. In contrast to the late Epipaleolithic, we see evidence of oval, plastered, semi-subterranean structures; the employment of large, low portability ground stone; and burials. The commitment to a specific location was founded upon the hunting of large wild mammals (aurochs and equids) and nut gathering (especially of almond and terebinth). This suggests that the appearance of sedentarizing behaviours *pre-dated* cultivation and herding and, in contrast to the Levant and northern Mesopotamia, were not based on the intensive, large-scale exploitation of cereals or legumes (Baird in press) but rather on the intensification of distinctive, pre-existing Anatolian plateau behaviors, in which sedentary practices became important. The spread of sedentary behaviors via well-attested exchange networks may be envisaged. In the 9th millennium BC Pinarbaşi had many marine shells from the Mediterranean and much obsidian, as well as stone axes and incised stones (Figure 23.3) like those found at 10th and 9th millennium BC north Levantine sites (Cauvin 2000: Figs. 19–20). Ideas and materials circulated intensively on the Anatolian plateau in this period (Baird 2007; in press) and sedentism may have been adopted as a social strategy for furthering exchanges amongst neighbors, particularly for reproductive partners and materials like obsidian, especially if neighboring communities had themselves adopted sedentary behaviors. As long-term settlement locales (whether or not occupied year-round) became key settings for both partner and material exchanges, commitment to fixed settlement locations offered clear advantages. At Pinarbaşi there was at best limited interest in wild grasses or their cultivation, even though these practices are already well attested before 8500 BC in the northern Levant. This may suggest the importance of the continuance of traditional ancestral patterns of landscape exploitation and understanding and that sedentarizing behaviors may often be an extension of such.

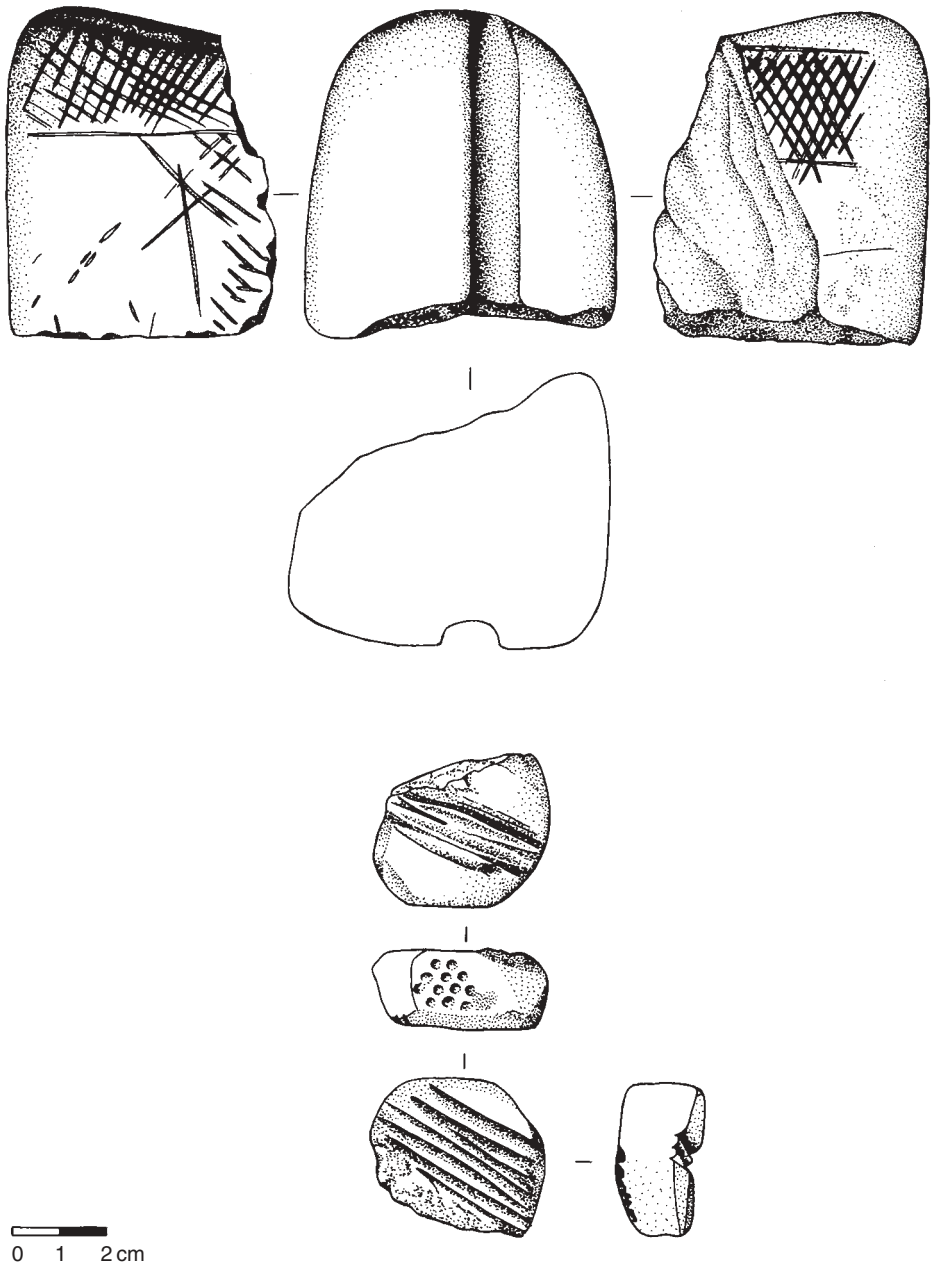

Figure 23.3 Incised plaques and shaft-straighteners from Pinarbaşi and Boncuklu.

The earliest unequivocal evidence for the appearance of domestic cereals seems to be at Boncuklu and possibly Aşikli where, in the early phases of these sequences (c.8300 BC), we see morphologically domestic cereals including emmer wheat and barley, probably as an imported package (Baird et al. in press). The management of wild-sized caprines, mainly sheep, has been suggested based on the presence of dung, culling strategies, and large numbers of perinatal sheep at Aşikli (Buitenhuis 1997). The early management and herding of sheep occurred perhaps only slightly later than in southeastern Anatolia. At Boncuklu on the Konya plain sheep and goat seem to have been of little importance (Baird et al. in press) and even at 9th millennium BC Pinarbaşi they occurred in only modest numbers, so the appearance of large numbers of domestic sheep by c.7300 BC at Çatal Höyük appears to have been a relatively sudden event that may mark the introduction of domesticates from Cappadocia, probably shortly before the foundation of the site.

6 The Spread of "Farming" Through Anatolia and into Europe in the Neolithic

In central Anatolia, the evidence suggests that the spread of cultivation involved local, indigenous, sedentary foragers who adopted imported domestic plants. Continuity in microlithic obsidian chipped-stone traditions, attested from the earlier and later 9th millennium BC hunter-gatherer community at Pinarbaşi to the farming community at Boncuklu c.8300 BC (Baird et al. in press), as well as the significant presence of related microlithic traditions in the earliest levels at Aşikli (Balkan-Atli 1994), indicate the clear involvement of local populations in the uptake of farming. Aşikli Level 4 and Boncuklu share sub-oval building traditions (Figure 23.4) that contrast with PPNB buildings in the nearest contemporary, early/mid-PPNB sites on the Upper Euphrates, such as Cafer (Cauvin et al. 1999). Many local traditions persisted in the central Anatolian early farming communities that adopted domestic cereals and legumes from the south and east. Indeed, this is one of those rare (even in global terms) opportunities where we can begin to understand the transformation of foragers who adopted agriculture. The introduction of cultivation to a wetland-steppe mosaic at sites like Boncuklu suggests that groups strived to maintain many traditional practices and that site locations and territories were of considerable social and ideological significance. The Boncuklu project is currently investigating the manner in which domestic plants were adapted beyond their natural habitats into a wetland, a process that must mark one of those early experimentations and adaptations that allowed agriculture to spread to the wetter and more temperate northwestern areas and Europe. It is clear that early farming communities on the Konya plain continued wetland-adapted exploitation practices combined with much fishing, fowling, and hunting of boar and aurochs.

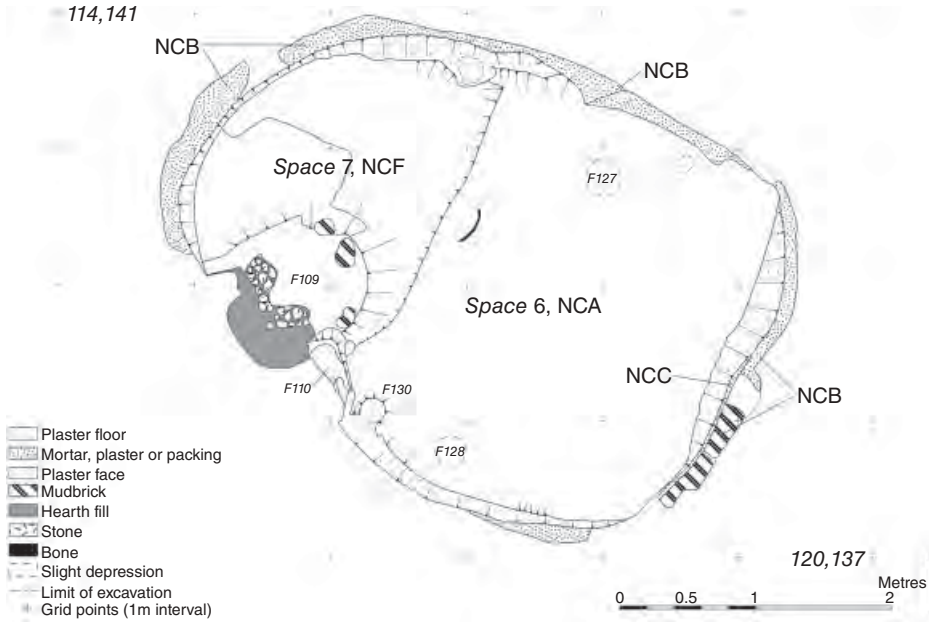

Figure 23.4 Boncuklu sub-oval building.

Interaction between central Anatolia and the Levant, seen in the late Epipaleolithic, continued into the early Holocene, involving shared ritual and symbolic practices (e.g., decorated stone plaques and shaft-straighteners: see Figure 23.3) (Baird in press), the spread of technologies (e.g., ground stone axes and knapping strategies, like opposed platform blade production), and movements of material such as obsidian. Judging by the specialized workshops of Kaletepe at the Göllüdağ obsidian sources (Figure 23.5), where non-local knappers from the south and east of Cappadocia using Levantine techniques are believed to have worked, people probably moved in order to access obsidian (Binder 2002). The Kaletepe knappers produced specialized products (naviform pointed blades and pressure blades) for export to the Levant, Euphrates valley, and Cyprus, rather than producing for local communities, like Aşikli, where only a few examples of these products have been found. Small groups, including people from central Anatolia engaged in their own exchange and procurement activities, intermingling with knappers and others from the "Levantine" area, may have brought domestic plants and a knowledge of animal herding to central Anatolia. This characterization of the spread of farming contrast with simple polarized models previously offered. Complex factors of interaction and indigenous adoption were clearly in play.

This process may have rippled across the rest of the Anatolian peninsula, with local foragers adopting cultivation and then sheep, but this cannot currently be

Figure 23.5 Kaletepe obsidian workshop areas.

documented. It seems likely that these features spread to the west and north of the Konya basin and Cappadocia in the 8th millennium BC. The more numerous Neolithic sites of the 7th millennium BC in the west and northwest presumably relate to the expansion of communities based on the successful integration of a cultivation and herding package that suited these areas, but that may not have typified the earliest farming and herding communities there. Düring (2010: 124) has argued that farming was initially restricted to a steppe zone in central Anatolia, similar to the natural habitats of farmed species in the "Fertile Crescent," from which it exploded outward to other areas at 6500 BC. As argued elsewhere in this chapter, the wetlands of the Konya plain at 1,000 meters above sea-level were not like the natural habitats of wild cereals in the "Fertile Crescent."

The absence of evidence pre-dating 6500 BC in western and northwest Anatolia is based on extremely limited exploration. There are indications of earlier developments to the west and north of the Konya plain and Cappadocia, some of which indicate the gradual uptake of domesticates in phases by indigenous foragers. Certainly there are later aceramic sites in the Lake District west of the Konya plain, such as Suberde, and possibly the even earlier aceramic levels at Haçilar, which has a single C14 date of c.8000–7500 BC (Gérard and Thissen 2002: 318). The presence of an aceramic Neolithic at Haçilar is, however, contested (Duru 2008: 12). Mellaart (1970) excavated seven aceramic levels with distinctive red-painted floors and evidence of skull removal. These are all features

of the 9th–8th millennium BC at Boncuklu, for example. The aceramic status of the earliest phase at Haçilar has been questioned because, in small soundings made around the mound by Duru (2008: 11–12), early levels with red-painted floors have been found with pottery embedded in them. However, nothing links these stratigraphically with Mellaart's levels and, given the absolute date, an aceramic phase at Haçilar remains plausible. It is also possible that there was an aceramic Neolithic level at Ulucak (Çilingiroğlu and Çilingiroğlu 2007) on the west coast, where the early ceramic Neolithic levels are dated to c.7000 BC, and a significant, possibly aceramic, earlier sequence remains still to be documented. Nevertheless, many questions remain. How far west of the Konya plain did sedentarizing forager communities exist? Did forager communities in the Lakes area adopt crops from their neighbors, such as those in the Konya plain? Did communities on the Konya plain, in Cappadocia, and elsewhere export populations? It seems likely that a complex process was involved. At Pendik and Fikirtepe (Bittel 1969a; Harmankaya 1983) there are hints of sedentarizing foragers similar to those documented at Pinarbaşi. There one finds oval, subterranean wattle and daub structures and chipped stone assemblages with many microliths, belonging to the ceramic Neolithic and dated to c.6500 BC. These suggest the presence of local foragers who adopted pottery and domestic animals from areas to the south and southeast. Given the presence of sickle blades, crops may have been involved too, but without paleobotanical study we cannot be certain. The importance of fishing to these communities also hints at a tradition that pre-dated the adoption of agriculture. In some areas, such as the northwest, along with the adoption of herding by foragers, classic late aceramic and earliest ceramic Neolithic features spread prior to significant increases in settlement c.6500 BC.

An intriguing question arises, therefore, as to what extent similarities between Anatolian aceramic and ceramic Neolithic sites across the peninsula were the result of behaviors that spread with crops and even farmers? And to what extent do they reflect shared behaviors that spread *after* the initial spread of crops and animals? There are indications that the spread of domestic animals and the practices of local domestication were complex. Indeed, the adoption of agriculture seems to have resulted in quite varied agropastoral practices, resulting in significant divergence in the ways in which people engaged with their landscape and exploited plants and animals.

Continuity between the communities using Boncuklu and Çatal Höyük is very clear. Sometime between the main phases so far investigated at Boncuklu and the earliest levels yet documented at Çatal Höyük, domestic sheep and goat appeared on the Konya plain. The apparent abruptness of this phenomenon suggests that it may have been an introduction, possibly from the east, where managed sheep are hinted at in the early 8th millennium BC levels of Aşikli. As with crops, the introduction of domestic sheep was probably an innovation that accompanied or immediately preceded agglomeration at Çatal Höyük, perhaps during the occupation of Çan Hasan III. It may have been associated with the

adoption from the east of close-packed, rectilinear architecture which we see emerging in the late aceramic Neolithic at Çan Hasan III by c.7500 BC where caprines, possibly domestic, were a modest but significant presence. However, the precise relationships between these phenomena are yet to be established and there may be a contemporary transition to such close-packed, rectilinear architecture in Cappadocia and the Konya plain.

The spread of domestic cattle is an equally interesting phenomenon and underlies the economic diversification that resulted from the varied processes involved in the spread of farming in Anatolia. At early ceramic Neolithic Çatal Höyük, all *Bos* seems to have been hunted aurochs, although by then hunting may have involved management of both the wild setting and the wild populations, though not direct control (Martin et al. 2002: 201). Contemporary sites such as Erbaba in the Lakes and Mersin in the Cilician plain clearly have herded and domestic cattle, which only appear several centuries later at Çatal Höyük in the later ceramic Neolithic (Arbuckle and Makarewicz 2009: 682–3), just when, in northwest Anatolia, they were becoming important for milk production (Evershed et al. 2008). Similarly, domestic pigs are apparent at many sites in the 7th millennium BC, such as Mersin (Buitenhuis 2004: 165). On the Konya plain wild boar were important to the earlier 8th millennium BC community at Boncuklu (Baird et al. in press), but eschewed at Çatal Höyük, despite an ideal environment, perhaps because they did not fit well into a complex agricultural landscape, with fields widely spread in a mosaic of wetlands and drylands across the plain. This further underlines the likelihood that traditional, ancestral practices were important for many communities in their exploitation of and engagement with the landscape.

Other indications of the diversification promoted by the initial spread of farming and the later spread of new practices are indicated at 7th millennium BC sites in northwest Anatolia. Thus, at early Fikirtepe sites near the coast, such as Pendik (c.7000–6300 BC), there is a strong emphasis on fishing as well as herding (Boessneck and Von den Driesch 1979). Contemporary inland Marmara sites (e.g., Menteşe and Ilipinar), on the other hand, are dominated by cattle and evidence of milk use (Evershed et al. 2008).

7 Settlements and Landscape Exploitation

Neolithic sites are common in river valleys, lake settings, and plains. Since most of our settlement evidence is a product of random chance discovery and unsystematic survey, however, which favors the recognition of larger sites, even the relatively high numbers of Neolithic sites in these settings probably underrepresent their real density by several orders of magnitude. Site destruction may also be a significant factor in skewing the numbers of sites recorded.

The best-researched areas give the most convincing picture of trends in settlement and population numbers. Larger sites are clearly overrepresented in most

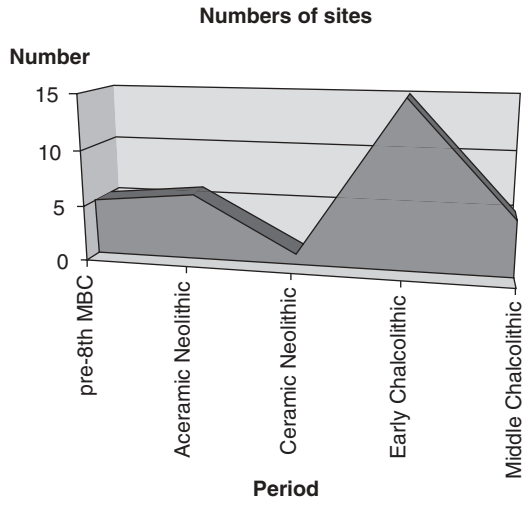

Figure 23.6 Settlement fluctuation in the Konya Plain survey area.

areas, but as these are the biggest elements in the population picture, they most likely reflect long-term trends. Pinarbaşi shows that Epipaleolithic sites were small and occupied by highly mobile groups. Such sites were low in density, but were probably widespread across the Anatolian plateau. It is not surprising, then, given the coverage of alluvial and colluvial deposits, that few Epipaleolithic sites are known. Not until c.9000–8000 BC did settlements of significant size, with some degree of long-term commitment to settlement locales (even if not year-round initially), emerge. To some extent this may represent the sedentarization of pre-existing populations. However, one suspects that settlements became more visible in both Cappadocia and the Konya plain, where four sites of this period are known (Baird 2006) (Figure 23.6), because of an increase in population following a phase of slightly earlier, initial sedentarization. Late aceramic sites are more common in parts of south-central Anatolia, such as the Konya plain, where there are six sites of this period (as opposed to four in the earlier period: Baird 2006). Çan Hasan and Suberde in the Lakes area were occupied at this time. There are sites contemporary with Musular in Cappadocia, such as Sirçan Tepe and Yellibelen (Gérard and Thissen 2002: Appendix II), and an expansion of settlement in western Anatolia is probable, although still poorly attested.

There is certainly no evidence of population disruption between the aceramic and the ceramic Neolithic on the Anatolian plateau comparable to what in the Levant has been termed the PPNB collapse. In the Lakes, western coastal areas, northwest Anatolia (Fikirtepe sites), and the Cilician plain, there is a notable proliferation of sites. Population on the Konya plain coalesced at Çatal Höyük and more Ceramic Neolithic settlement sites are known than late aceramic ones in Cappadocia (Gérard and Thissen 2002: Appendix II).

As discussed above, some scholars have suggested that the 6200 BC climatic event had an impact on Late Neolithic settlement in Anatolia, but settlement continuities are clear and there are many subsequent continuities between the Late Neolithic and Early Chalcolithic, or better, between the late 7th and early 6th millennium BC. Many communities occupied the same locales throughout this time period. The major population concentration at Çatal Höyük continued, merely shifting location across a local river channel, while the size of the early 6th millennium BC site of Çatal Höyük West was significant (8 hectares), probably as large as later 7th millennium BC Çatal Höyük East. Indeed, the most notable feature of the Konya plain population in the earlier 6th millennium BC is the way settlements proliferated across the Çarşamba fan (Baird 2006) (Figure 23.6). This was possibly the result of population increase, but another factor must have been the colonization of the surrounding plain by elements of the Çatal Höyük community, suggesting major social changes in the Çatal Höyük community itself during the earlier 6th millennium BC. This is not indicative of negative climatic events or conflicts, as some have argued (Weninger et al. 2006).

Evidence of the nature of landscape use and exploitation is weak in many sites and areas. Çatal Höyük is an exception in this regard and suggests that sophisticated and complex landscape engagements may have typified Neolithic communities. This may be due to the unusually detailed study of landscape exploitation at the site, or because exceptional arrangements supported this large community. Nevertheless, the evidence available cautions us against making facile assumptions about the ways these communities exploited, experienced, and lived in their landscapes. There is especially interesting evidence at Çatal Höyük of this community's mixed farming practices. Claims made for distant-fields agriculture (Roberts and Rosen 2009) have recently been countered by alternative claims of intensive gardening. Much turns on the interpretation of evidence of extensive floods around the site documented in Roberts' geomorphological study, in the form of a distinctive alluvial unit c.7600–6000 BC (Boyer et al. 2006). In addition, Rosen documented an absence of multi-celled cereal phytoliths, which would be expected if the cereals grew in wet areas near the site (Roberts and Rosen 2009: 398). The combination of evidence for extensive spring floods, coupled with the suggestion that cereals were grown in relatively dry conditions, has led to the hypothesis that cultivation was practiced at some distance from the site, minimally 13 kilometers. In addition, sheep-herding, another staple economic practice, would have been challenging in this environment. However, taphonomic processes may have destroyed or damaged such phytoliths and thin-section micromorphology may now be revealing such multi-celled phytoliths. Further geoarchaeological study suggests variability in the drainage characteristics of early Holocene soils in the area, and early 20th century maps show many irregularities in the plain which probably reflect underlying undulations in the

terrain. Many early sites, such as Boncuklu, were built on raised areas (Boyer et al. 2006) that may have offered opportunities for farming amidst floods. One should perhaps envisage a mosaic of both nearby and more distant fields, allowing flexible responses to flooding and a reduction of risk due to crop damage. There is certainly evidence for very extensive exploitation of the surrounding landscape, typified by a Çatal Höyük task-group campsite at Pinarbaşi used by hunters and herders away from the site (Baird et al. 2011). Judging by the frequency of perinatal sheep remains at Pinarbaşi, sheep were probably taken in the springtime to the edge of the plain, c.25 kilometers away (Baird et al. 2011). Oxygen isotope analyses of sheep teeth (Henton 2010) suggest that some sheep were kept on distant pastures, while others were kept within 4–10 kilometers of the site. Wild cattle remained important, possibly due to the careful maintenance on the plain of a wild population. In contrast, at contemporary Erbaba, located near a large lake, cattle herding was important.

In the face of this intriguing evidence some have struggled to explain what appears to be counterintuitive evidence of site location, if modern measures of economic "efficiency" in terms of energy expenditure are applied to ancient subsistence. However, distinctive community histories seem important here. An interest in an extensive landscape may have typified many communities, and Boncuklu shows that the communities that came to occupy Çatal Höyük were probably knowledgeable wetland-exploiters, for whom these circumstances and specific locations in the landscape may have had important social value. Particular importance may have been attached to ancestral landscapes and landscape practices (see above).

8 The Apparent Lack of Neolithic Sites in North Anatolia

Neolithic sites have not yet been detected in vast swathes of northern Anatolia, such as the flanks of the Pontus or the bend of the Kizilirmak (Düring 2008). This may reflect a genuine absence of sites, ineffective survey methodologies, or low archaeological visibility. A combination of the last two, and possibly low-density mobile occupations, may be responsible. Heavily wooded areas may have been avoided, but in addition one imagines that if wooden buildings were used these have not produced the archaeological mounds that have been the main focus of many surveys in Turkey. Shallower sediments would have been subject to erosion from the hill-slopes of the area, while sites in smaller valleys would have been covered by colluvium. Moreover, sites would be difficult to recognize where obsidian was not common and flint assemblages were not particularly diagnostic. Mobility and pastoralism, as well as foraging, may also have been important strategies in these areas, and their remains are often difficult to detect. In due course, early Holocene settlement will probably be revealed.

9 Question of Centers

Despite its size, Çatal Höyük does not appear to have been a large center in a quasi-urban sense and there is no evidence that it supplied goods and "services" (administrative, political, social, or religious) to surrounding settlements. Indeed, the results of the Konya plain survey suggest that contemporary sedentary settlement networks did not exist around Çatal Höyük (Baird 2006: 2010) (Figure 23.6). The closest sites were 70–90 kilometers away. Çatal Höyük may have formed through the coalescence of a pre-existing social network of scattered village communities in the southwest Konya basin (Baird 2006). Endogamy may have provided the community with its distinctive character and made it an attractive location for the negotiation of access to extensively distributed resources, perhaps mediated through endogamous marriage. As the Çatal Höyük community resettled extensive areas of the surrounding landscape in the 6th millennium BC, the site may have become a center with much greater access to obsidian than surrounding sites (Baird 2006). Other explanations for the large size of Çatal Höyük in the ceramic Neolithic include defense (Rosenberg 2003). If so, this would have to have been against raids by distant communities. Stone maces and headless bodies indicate that conflict may have occurred, but if warfare was widespread, the response of the Çatal Höyük community was not a common solution.

Settlement walls

Circum-settlement walls, possible fortifications, have often been taken as evidence for emerging social complexity and warfare on an increasing scale. Although these are possible explanations, other, and equally interesting, social factors may have played their part in the development of walls segregating or surrounding communities. Convincing instances of such walls are only observable at Haçilar II and Kuruçay in the 6th millennium BC. Earlier putative instances in Anatolia are suspect – e.g., Aşikli. The wall at Haçilar (Mellaart 1970) may have served as much to keep animals or people in as to keep enemies out of the settlement. The wall is simple, and obviously defensive features are lacking. The bastions at Kuruçay 11 (Duru 2008: 43) might suggest a defensive function, but entrances to them from the outside suggest otherwise. Thus these early walls are probably about constraining movement in and out of settlements and were probably of symbolic significance to the communities thus contained as well as outsiders. The fortifications of the upper settlement, or citadel, at Middle Chalcolithic (Level XVI) Mersin c.5000–4500 BC (Caneva 2004) seem clear, and include a gate with substantial flanking bastions/gate towers, which is the strongest indicator for a potential defensive role amongst these early enclosure walls, but this should not

rule out multiple roles for such a wall. The radial settlement plan at Mersin is a feature seen as early as the 6th millennium BC at Ilipinar Level 6 (Roodenberg and Alpaslan-Roodenberg 2008: Fig. 1) and one that became characteristic of 4th–3rd millennium BC settlement on the plateau. Sling bullets have been recovered in a series of modest two-room buildings that abut the probable defensive wall of Mersin. Putative firing slits, however, are often blocked by ovens (Caneva 2004). In addition, a substantial building, with a possibly imported tripartite plan, is located south of the gate. The distinction between a large complex on one side of the gate and much smaller units on the other demonstrates that the community occupying the citadel was separated from the settlement outside the citadel walls (Caneva 2004). It seems likely the importance of this "citadel" wall at Mersin relates to such separation, albeit with a potential defensive role as well.

10 Houses and Households

Houses dating to between the late 9th millennium BC and the end of the Chalcolithic on the Anatolian plateau show evidence of significant continuity. Buildings that can be interpreted as houses shared common features and remained relatively simple. Most consisted of a primary room (square/rectilinear from c.7800 BC onwards) (Figs. 23.4 and 23.8), sometimes with an attached subsidiary room or building, which were usually kitchen and/or storage areas. These were often located on one side of the main room, as at Çatal Höyük (Mellaart 1967), Haçilar VI or Kuruçay (Duru 2008). On the citadel at Mersin XVI (Caneva 2004) and in Haçilar Level II (Mellaart 1970) they appeared as an "antechamber" to the main room. The small Aşikli buildings may have operated as paired sets. At c.20–30 square meters, the primary living, sleeping, and eating spaces did not vary much in size, suggesting that co-resident units of broadly similar size occupied these spaces. These were probably used by simple nuclear families, multigenerational nuclear families, or sibling families.

As elsewhere in southwest Asia, the earliest buildings at Pinarbaşi, Boncuklu (Figure 23.4) and Aşikli Level 4 were curvilinear. At Pinarbaşi the 9th millennium BC buildings had wattle and daub superstructures (Baird in press), whereas at Boncuklu (Baird et al. in press) and Aşikli they were constructed of mudbrick (Esin and Harmankaya 1999). The internal floor areas of these buildings were c.15–20 square meters. Visualization studies indicate that, at most, two to three adults and several children could have slept in the Boncuklu buildings. We should, therefore, see these relatively standardized buildings at Boncuklu as the dwellings of nuclear families. Visualization studies also suggest that space existed for food preparation, around the hearths in the northwest part of the building (Figure 23.4), and other tasks, but not for major social gatherings/interaction at the multi-household level. Available space would have accommodated visits from a handful of adults or one other household, but only if little space was

Figure 23.7 Çatal Höyük building.

dedicated to storage. Although none is complete, the 9th millennium BC buildings at Pinarbaşi were probably of similar size with few built-in features, mainly hearths and table/work areas.

Structured use of space characterized these early buildings, and we see this in slightly different form at other and later Anatolian plateau households. Thus, at Boncuklu the floor was divided into a sunken, dirty, uneven area next to the hearth, typically in the northwest, and a clean, southeastern area (Figure 23.4). Similar distinctions have been observed at Çatal Höyük, where a dirty, southern floor area contrasts with a cleaner, northern area (Figure 23.7) (Hodder 2006a: 120). At 7th millennium BC sites in the Lake District – e.g., Haçilar VI, Höyücek (Shrine Phase) and Early Neolithic Bademağaci (Duru 2008) – ovens were placed opposite the house entrance. We should also be aware that each house probably gave birth to and socialized several generations, embedding similar, structured domestic practices from an early age in those generations. The number of houses in the published deep sounding at Aşikli suggests that houses were probably occupied for c.30–60 years (Düring 2010: 65). Based on the number of times

Figure 23.8 Çatal Höyük settlement.

walls were replastered, houses at Çatal Höyük were occupied for c.50–100 years, while in Level I at Köşk there is evidence of usage for c.50 years (Düring 2010: 242).

Another feature that reoccurs is the way that buildings are clustered together in these settlements. They might be densely packed, as at Aşikli, Çatal Höyük East (Figure 23.8) and West, Çan Hasan III and I, and Erbaba, with access via the roof. Alternatively, they abutted each other in linear chains, or sets, as at Haçilar VI and II (Mellaart 1970), Köşk Level I, Kuruçay, or in circular chains as at Mersin XVI (Caneva 2004) and Ilipinar 6 (Roodenberg and Alpaslan-Roodenberg 2008). Similar radial arrangements were a major feature in the Early Bronze Age and may have resulted from the desire of close kin to live near an ancestral home. Sons and daughters who left the parental home may have sited themselves close to the houses of their ancestors, who were themselves buried in the houses along with ritual paraphernalia. This is further evidence of the role of ancestry in structuring these communities.

11 Hearths, Storage, and Size

Almost all Neolithic buildings from 9th millennium BC Boncuklu to 7th millennium BC Çatal Höyük (Figure 23.8), Haçilar and Bademağaci, Ilipinar 6, and 5th millennium BC Mersin XVI and Köşk Level I had a hearth or oven, reasonably

standardized in both construction and location. This may be contrasted with the more variable hearths and ovens on sites in the Levant and northern Mesopotamia. There are probably utilitarian reasons for this, including the colder winters of the Anatolia plateau, and the fact that, in other parts of southwest Asia, some Neolithic houses are represented by basements or had two stories. However, it seems likely that the degree of elaboration and standardization of Anatolian hearths/ovens also reflects their key role, in cooking and commensality, within the social life of the household and their fixed place in the symbolic geography of the household. In later Neolithic sites – e.g., Çatal Höyük, Haçilar, Bademağaci, and Höyücek – ovens substituted for, were integrated with or accompanied hearths, further underlining the role of cooking installations. The absence of hearths at Early Chalcolithic sites like Çatal Höyük West and Çan Hasan I can be ascribed to the fact that only basement rooms survived in the archaeological record there.

Even where purpose built storage units were present, as at Çatal Höyük (Atalay and Hastorf 2006: 115; Bogaard et al. 2009: 661) or Köşk Level I, there was little storage capacity in a single-story Neolithic or Chalcolithic house. Typically, storage facilities held only enough grain and surplus to feed a family for one year and guard against crop failure. So it is significant when substantial, two-story houses emerged in central Anatolia during the 6th millennium BC at Çan Hasan I, Çatal Höyük, and probably the Lake sites (e.g., Haçilar I). The archaeologist sees only the basements of such buildings, with unplastered walls and buttresses and little evidence of activity. But these basements were probably storage magazines, partly for the large storage vessels that emerged at this time. In the 6th millennium BC, just when settlement patterns may have changed – e.g., on the Konya plain (see above) – households showed a new interest in aggrandizement.

12 Emergence of House Societies?

The predominance of houses in the archaeological record, their elaboration and repeated reconstruction on the same place, is attested from c.8300 BC at Boncuklu and Aşikli, to the late 7th millennium BC at Çatal Höyük and the 6th millennium BC at Ilipinar (Roodenberg 1995: 38). Potentially of great interest for a global-level understanding of the emergence of new social arrangements with the appearance of farming societies, this has led to the suggestion that these were "house societies." In the deep sounding at Aşikli, at least eight building levels span c.200–500 years, while at Çatal Höyük many buildings were reconstructed at least four to five times over a 200–400-year period (Düring 2010: Fig. 4.15; Hodder and Pels 2010: 169). In Area K at Boncuklu, one house was rebuilt six times on the same plan and spot (Baird et al. in press).

The term "*sociétés à maison*" was first used by Claude Lévi-Strauss to denote communities in which descent and property were traced through a married couple who belonged to a house; in effect, through the co-resident household, not the

wider kinship network (Carsten and Hugh-Jones 1995: 8–10). As in medieval Japan and feudal Europe, Lévi-Strauss noted a propensity to aggrandize the house. Recently, archaeologists have tended to use the term where houses seem to have been central to the social order, and in this sense it may apply to the Anatolian context.

The constant reconstruction of houses on the same location, the elaborate decoration of some houses with paintings and/or reliefs at Çatal Höyük, Bademağaci (Duru 2008: Fig. 58), Boncuklu, and Çan Hasan I, and the accumulation of particular materials in Sanctuary 3 at Höyücek (Duru 2008), may each reflect the expression of particular household identities, suggesting the importance of a co-resident household group. The reconstruction of houses and the acquisition of material from earlier houses at Çatal Höyük – entailing the removal of reliefs from earlier walls, repetition of paintings, and retrieval and redeployment of parts of burials – all suggest the importance of the continuation of household and ancestral identities (Hodder and Pels 2010). There are also hints at an association between the life of a house and a household in the way houses were dismembered and ritually burnt. In particular, the founding and closing of houses seem to have been important. Some practices, discussed below in the section on ritual, suggest that ancestors were key to household identity and probably also in the negotiation of access to resources. Such negotiations may also have been a factor in the aggregation of population at Çatal Höyük (see above). However, kinship and property arrangements may have been quite different from anything envisaged by Lévi-Strauss and others who have written about house societies. Indeed, it is notable that while Anatolian households may have built up ritual capital, they could not accommodate large social gatherings or accumulate significant stores.

13 The Social Order

At the earliest aceramic Neolithic (10th–9th millennium BC), sites in the "Fertile Crescent," such as Jericho, Jerf el-Ahmar (Stordeur et al. 2000), Dja'de, Wadi Faynan 16 (Finlayson et al. 2011), and Göbekli (Schmidt 2007b), relatively large communal structures may be physical manifestations of new sorts of corporate institutions. These institutions seem to have emerged quite rapidly, probably as a means of integrating larger sedentary populations that didn't exist in the Pleistocene. Corporate institutions were also present in central Anatolia during the aceramic Neolithic. The well-known building complex next to the "road" at Aşikli has a range of features suggestive of such institutions. Compared to other parts of the site, it was elaborately decorated, built – unusually – of stone, and equipped with much larger storage and cooking facilities; it had large courtyards (sometimes with ovens) that were paved using basalt or plaster made from tuff and was characterized by special tools and concentrations of aurochs bones. These

features suggest a venue for ceremonies and perhaps communal feasting (Esin and Harmankaya 1999: 124). It has been estimated that up to 340 people could have gathered on special occasions in court HV at Aşikli (Düring 2010: 72). This building complex also represents a significant investment in labor. Indeed, the communal buildings at Aşikli seem to represent a labor input several times greater than that of PPNA predecessors in the northern "Fertile Crescent." The "road," too, was maintained with some effort, suggesting performance in and around the HV and T complexes there. While this complex is unique in aceramic Neolithic Anatolia, too few aceramic settlements have as yet been excavated to deduce much from this apparent scarcity.

More extensively excavated Late Neolithic and Early Chalcolithic sites exhibit little architectural evidence of corporate institutions. This includes Çatal Höyük, where "governing" institutions might be expected to have regulated the large community there. To explain this apparent absence of evidence, some researchers have sought to identify structures associated with institutions operating at a less extensive scale, such as the so-called "history houses" envisaged as being at the heart of kin networks (Hodder and Pels 2010). Others have suggested that the elaborate buildings at the site were shrines, noting that similar buildings have been identified at Bademağaci, Höyücek (Duru 2008) and Early Chalcolithic Haçilar Level II (Mellaart 1970). However, the distinctiveness of some of these structures, and indeed of Çatal Höyük itself, can be questioned. It is, therefore, worth exploring the history of the discussion of the more elaborate buildings at Çatal Höyük.

James Mellaart's excavations at Çatal Höyük identified some particularly well-preserved structures with elaborate decoration. Because of their frequency – approximately 40 percent of the buildings he excavated – Mellaart (1967) suggested that these were "shrines." Had fewer such buildings been found, he would probably have suggested they were "temples," on analogy with the Bronze Age and Iron Age. Ian Hodder's teams, and others, carrying out more detailed analysis than Mellaart, have revealed a spectrum of building elaboration rather than two clear categories (Hodder 2006a: 151). Some buildings are significantly more elaborate than others, but the way in which buildings were abandoned, preserved, and excavated has contributed to an apparent differentiation amongst Mellaart's buildings (Düring 2002: 229–33). Because ritual practices seem to have suffused activities at Çatal Höyük, it is impossible to identify individual structures as dedicated ritual buildings. Almost all show evidence of both habitation and burials, but some are larger than others, some have many more burials (Düring 2003), some have more paintings, some more elaborate paintings, and some more reliefs (Figure 23.9). One complicating factor in understanding the Çatal Höyük buildings is their dynamism (cf. Todd 1976). Given that the walls were replastered c.50–70 times (probably annually), and intermittently white-washed, wall paintings were often covered and even the reliefs may have been decommissioned for periods, as their painted designs were masked. At certain points, key elements of reliefs, including the animal bones incorporated within

Figure 23.9 Çatal Höyük bucrania.

them (Figure 23.9), may have been removed. Perceptions of these buildings may have changed significantly over time, reflecting individual household histories, as household members reached key moments in their lives, co-resident households would have changed, and the histories of these changes may be reflected in the art. Hodder's desire to see certain households as a nexus for those surrounding them may relate not just to the empirical evidence of more and less elaborate structures, but also to a feeling that certain houses were the material manifestations of those social regulatory mechanisms that must have existed in such a large community. "History houses" would have been institutions of small-scale corporate groups, related to kinship networks, the equivalent of the larger corporate groups of the earlier aceramic Neolithic. Key to this argument is the perceived

"burying in" of people from adjacent houses and the putative elaboration of buildings as they were continually reconstructed (Hodder and Pels 2010; Düring 2010: Fig. 4.15). However, this may not reflect regular, structured phenomena as much as the temporary success of particular households in positioning themselves in the social lives of their kin and/or neighbors, and the potential for those households to assume central roles in marriage exchange, access to resources, and resources themselves – with the exception of stored foodstuffs given limited storage capacity (Atalay and Hastorf 2006; Bogaard et al. 2009).

Hodder has suggested that "history houses" were the repositories of memories used by elders to assert their positions in society, and further that long-lived building sequences culminated in such "history houses," given that architectural elaboration and burial frequency seemingly increased in tandem (Hodder and Pels 2010). He has demonstrated this in four out of five building sequences. However, it is not clear that the number of architectural elements is necessarily correlated with memory acquisition. The meanings of paintings and relief installations are ignored in this scenario, as are practices relating to the immaterial worlds of ancestors and non-human agencies. In addition, many relatively large buildings remained unrelated to such sequences and there is no correlation between the number of burials in a building and its size. It seems as if there are more idiosyncratic processes of differentiation at work in the sphere of burial, material accumulation, decoration, accumulation of exotic materials, and building size. Moreover, some buildings may have had upper stories/floors, and may have been even more differentiated than implied by floor area alone.

What this suggests is a dynamic social world in which houses and other groups competed in varying ways, perhaps creating more spacious domestic worlds in which to incorporate social interactions between households, or through feasting as represented by cattle remains found in adjacent middens and memorialized on walls by bucrania (Figure 23.9). It is possible that other material practices referenced key events in their social and ritual worlds, specific landscape encounters (Baird et al. 2011) or attempts to influence the immaterial world that may have been of particular significance to a household. Some buried material seems to indicate exchanges with those who visited exotic locations and the acquisition of distinctively crafted objects or items that conferred visually marked identities.

Such elaborate houses are certainly not unique to Çatal Höyük. The shrines, temples or sanctuaries at Bademağaci and Höyücek (Duru 2008) seem to be elaborate versions of other buildings at these sites, either because they have more fixtures, or because they were slightly larger (e.g., Köşk Level 1), or because they have concentrations of distinctive artifacts such as figurines (e.g., Sanctuary 3 of the Sanctuary Phase at Höyücek), baked clay objects (e.g., Sanctuary 1 of the Shrine Phase at Höyücek) (Duru 2008: 115, Fig. 212), or marble vessels. Some of these artifacts, such as figurines, might have been associated with ritual, although we have no specific evidence of this. However, these buildings have fixtures such as ovens and hearths, and may have had these artifacts left in them

for specific reasons. Ritual seems to have been a regular part of many Lake District Neolithic houses, particularly well illustrated by the stone and clay face-slabs of Haçilar VI and Bademağaci (Duru 2008: 94).

Competitive households seem to have been key features at Early Chalcolithic Çan Hasan I and Çatal Höyük West, where two-story houses show substantial, relatively unelaborated basement levels. These were surely storage and work places, while the upper levels provided sleeping, eating, and social space. Painted wall plaster from the upper stories in the collapsed fill of the Çan Hasan I basements (French 1962) and the red plaster floors found at Çatal Höyük West suggest that upper floors were decorated. The large scale of these buildings indicates a desire to have the storage capacity to accommodate significant quantities of produce, as does the use of large storage jars, as at Çan Hasan I (French 2005: Figs. 004–008). Often elaborately painted, with depictions of the goods stored, such vessels may have functioned in exchange transactions, probably being visibly marked in order to catch the eye and draw attention to such transactions. Indeed, evidence from Haçilar II (6th millennium BC), where there are notable differences between the western and eastern sides of the settlement, may suggest the development of significant social distinctions within communities. A western series of closely packed two-room buildings, which have their own long-axis entrance plan (Mellaart 1970), like the buildings in Mersin Level XVI, recalls earlier Neolithic buildings in both size and juxtaposition. The eastern part of the settlement, on the other hand, had rather different arrangements, including a series of buildings in the center that might have been specialized workshops or habitations with concentrations of material related to pottery production (Mellaart 1975: 116), as well as a series of interconnecting rooms. A building in the northeast corner of the settlement, opening off its own courtyard and with its own entry to the settlement, is noteworthy. It has its own well, more rooms than those buildings in the west, and a concentration of ritual paraphernalia, burials, and decorated slabs, all of which suggest a household with ritual functions. Given that there were three workshops, and only a modest number of households in Haçilar II, it is possible that these supplied both halves of the community as well as groups living outside the settlement. The pottery produced during this phase was elaborately decorated and typical of the surrounding region (Duru 2008). Thus, social differentiations, even in small communities, are perhaps more readily apparent in the 6th millennium BC than had previously been the case.

The competing households of these communities seem to contrast with the communal institutions of the Neolithic of the "Fertile Crescent." We must be wary of suggesting two distinct social worlds though, for where extensive excavation has occurred in mid-8th millennium BC Aşikli, communal buildings seem to have existed and there is much less evidence of large communal structures after 7000 BC in southeastern Anatolia or the Levant. It seems much more likely that central Anatolia was part of a southwest Asia-wide trend toward the dissolution of large-scale, highly institutionalized corporate groups after 7000 BC, perhaps

due to the appearance of aggrandizing households of the sort found at Çatal Höyük, Çan Hasan I, and Haçilar II.

14 Ritual and Religion

Different models for the religious and ritual world of the Neolithic have been suggested. While some are concerned with understanding the ideological and cosmological content of Neolithic religious and ritual practice, others are more interested in ritual as a practice structuring social interactions. These perspectives broadly accord with the theoretical positions of symbolist and practice-based anthropologies of religion.

Many studies of Neolithic religion have a distinct evolutionary flavor, ultimately derived from writers like Tylor, Frazer, and Durkheim, enshrining views of the development of religion from animism to polytheism and then monotheism, or from magic to religion (Bowie 2006: 12–15). Some scholars with an interest in cosmology see the Neolithic as a period of rapid transformation in religion and ritual, while others see significant continuities with earlier periods. Those like Cauvin (2000) have suggested that religion changed Neolithic societies and played a key role in many developments associated with them. Cauvin envisaged the emergence of anthropomorphic deities at this time, and famously identified a goddess figure and the bull as representative of new types of anthropomorphic deities. He partly drew on Mellaart's ideas (1975) regarding the role of the goddess in Neolithic Anatolia, as illustrated at Haçilar and Çatal Höyük. The existence of a female deity was suggested to Cauvin by the powerful associations of the seated female flanked by felines of Çatal Höyük Level III and perhaps by the fact that she was seated on elaborate furniture, surely a rarity at that time; a bull = male deity was suggested to him by bucrania at Çatal Höyük (Figure 23.9) and Mureybet in Syria (Cauvin 2000: 29–31). In Cauvin's opinion, the development of anthropomorphic deities, with control over nature, empowered people to change the world. Hodder and Meskell (2010) also see overarching themes and imagery relating to shared myths emphasizing phallocentrism and death. They point to the dominance of male humans and animals in the imagery at Çatal Höyük and Göbekli and of raptors and headless humans at both sites, though they tend to downplay the variant compositions and contexts of this imagery. Lewis-Williams and Pearce (2005), however, suggest continuity with what they regard as earlier shamanistic practices and cosmologies featuring multidimensional spirit worlds. Shamans typically have animal familiar spirits who help them in their journeys to other dimensions or non-material worlds. Lewis-Williams and Pearce suggest that the animal iconography and incorporation of animal remains into buildings (Figure 23.9) and objects in Neolithic Anatolia supports such an interpretation.

Whitehouse (2004) has suggested that ritual practice can be divided into two broad categories: the imagistic and the doctrinal. The imagistic mode is charac-

terized by low-frequency, high-arousal ritual events that may involve significant emotional content, violence, and pain. These fix events and shared experiences in memories, binding practitioners and participants together. They may be subject to subtle or significant and constant renegotiation. Doctrinal modes, on the other hand, are characterized by low-arousal, high-frequency events in which doctrine is reinforced through repetition and regular convocation, as in some modern monotheistic religions. Whitehouse has marshaled impressive evidence for both modes, but questions remain about how transformations between modes may take place and how we should consider societies that combine both modes.

More recently, Whitehouse and Hodder (2010) have suggested that imagistic modes of religiosity may have characterized much of the Neolithic, but that a shift to more doctrinal modes occurred in the latter part of the Çatal Höyük sequence. They believe that the incorporation of remains from dangerous animal species commemorated charged, ritualized events, such as bull hunts, which were celebrated by feasts and commemorated by the incorporation of animal remains in dwellings (Figure 23.9). These would represent low-frequency, high-arousal events. Further, Whitehouse and Hodder argue that, as naturalistic wall-painting scenes became more common and the frequency of bucrania and animal installations decreased in the later levels at Çatal Höyük, a doctrinal mode came into operation (Whitehouse and Hodder 2010: 137). There are difficulties with this view, however, not least because naturalistic wall paintings often seem to depict the sorts of events that installations were meant to commemorate. Neither does this view consider the role of institutions in the development of arenas of doctrinal practice. Indeed, the institutions that may have operated out of the Aşikli communal buildings seem to have been more structured than imagistic mode characterization would allow, but given their associations with feasting on hunted aurochs, they are more suggestive of imagistic practices than a doctrinal mode would allow.

In my view, one of the notable features of the Anatolian peninsula is the central role of the house and household in ritual practice. So much attention is paid to the house in ritual practice that one can't help but feel it was as much a ritual actor as were its inhabitants. Indeed, there are interesting parallels between ritual treatments of houses and people. Houses have lifecycles, perhaps marked by the decoration of their surfaces, just like people, whose bodies were probably ornamented with pigment. At the end of their lives houses, like people, could be cleaned, dismembered, and buried. Posts/skeletal elements and decorations were removed; walls and plaster were scoured and floors were cleared (Hodder 2006a: 129–30). The roof or "head" was removed and then, like people, houses were buried. Deposits, analogous to human grave goods, were made. Skulls and points were placed in postholes, while at Boncuklu bone points were placed against the walls/edges of floors. Sometimes buildings were burnt, as at Çatal Höyük (Cessford and Near 2006), Bademağaci, Höyücek (Duru 2008), Ilipinar, and Köşk Level I. Buildings were burnt in uneven ways and at high temperatures, suggesting that this was done with deliberate fires and was part of an even wider

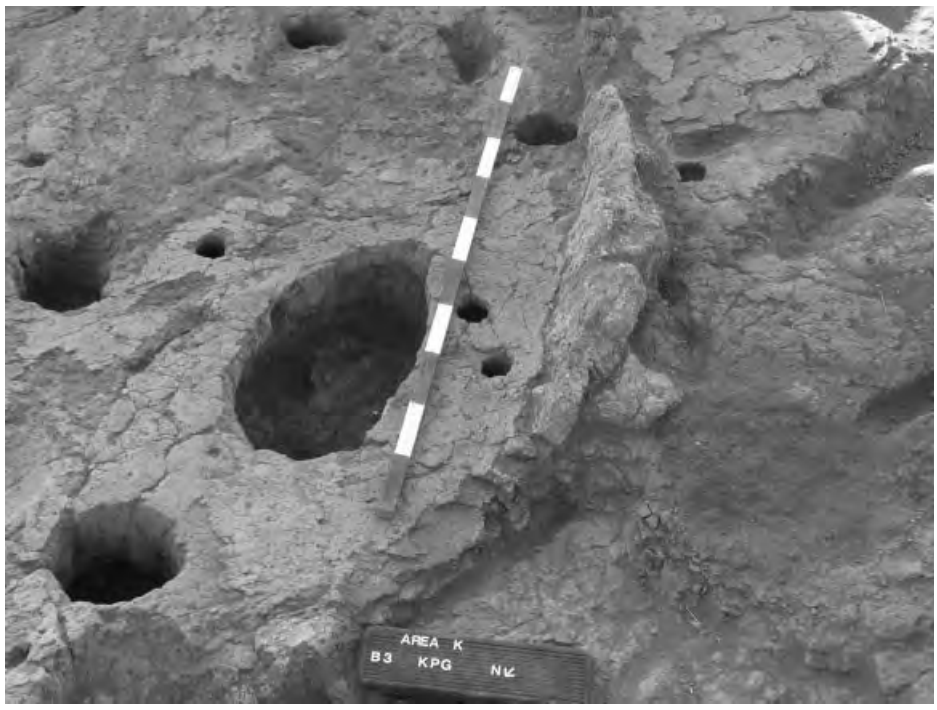

Figure 23.10 Boncuklu neonate burial in Building 3.

phenomenon, especially in the Late Neolithic, when, for example, we see the deliberate burning of buildings at Sabi Abyad, Bouqras, and Arpachiyah in northern Mesopotamia (Verhoeven 2010). The house, like a person, hands down its possessions. Houses seem to begin and end their lives with the death and burial of individuals. Burials started the lives of buildings at Köşk Level I, while a neonate burial ended the life of Building 3 at Boncuklu (Figure 23.10) and the burial of elderly men ended the life of Building 1 at Çatal Höyük (Hodder 2006a: 129). Thus, in the maintenance of household identity, links are built up between house ancestors and ancestral people that were probably key in defining rights of access to land and resources, which were thereby ritually sanctioned.

Such household rituals may have been paralleled by other ritual acts carried out in the landscape. For example, the plastering of bones at Pinarbaşi that include task groups from Çatal Höyük (Baird et al. 2011) may reflect rituals in the 7th millennium BC hunting and herding camp there. These may have involved people in ways that cross-cut the identity and affiliation of the household and built up stored memories and ritual experience. It seems unlikely that overarching, homogeneous cosmologies were able to operate at especially meaningful levels in this world.

15 Crafts and Specialization

During the Neolithic and Chalcolithic, specialization was marked, with an emphasis on socially significant crafts and distinctive behaviors expressed in the skillful employment of techniques to produce material widely in use and demand. Beads and incised stone plaques were important for individual identity, but other items, like obsidian blades produced by pressure techniques, or arrowheads and large bifaces produced by pressure flaking, saw regular use in everyday contexts and remained a feature of both Late Neolithic and Early Chalcolithic communities, judging by the 7th–6th millennium BC sequences at Çatal Höyük East and West, Çan Hasan I, and Tepeçik-Çiftlik and Köşk in Cappadocia.

Higher degrees of skill and elaboration were also employed to produce more eye-catching artifacts. These included the elaborately shaped stone bowls of Çatal Höyük (Mellaart 1967: Pl. 112), with their distinctive color characteristics; pressure flaked daggers, with elaborately carved bone handles; long, regular pressure blades partly used in agriculture; and multicolored stone and shell beads. Of course many objects of organic materials must have been crafted, including wooden vessels (uniquely preserved at Çatal Höyük; see Mellaart 1967, Pls. 105–108; 1975: 104) and textiles, as hinted at by finds from 8th millennium BC Nahal Hemar in the Levant (Bar-Yosef and Alon 1988).

Introduction of pottery

Central Anatolia boasts some of the earliest pottery in southwest Asia. This appeared c.7000 BC, during the occupation of Çatal Höyük, and was preceded by the use of unfired clay vessels at, for example, Boncuklu. There was a proliferation of painted pottery at, or just before, c.6000 BC, slightly later than elsewhere. Hodder suggested this represented a transfer of symbolism from house walls to pots (2006a: 251), but it most likely reflects the changing role of pottery, especially as there are indications that painted walls and floors, though less common, persisted at places like Çan Hasan I, Çatal Höyük West, and Kuruçay. We must imagine decorated textiles, mats, and baskets – as well as bodies – persisting as well. It would seem that in the Early Chalcolithic, c.6000 BC, a new role emerged for pottery in social interaction, with an expansion rather than a shift of symbolic expression.

Metalworking

On the plateau, metalworking is attested in the 8th millennium BC at Aşikli, where copper beads are found, and at Çatal Höyük in the 7th millennium BC. This suggests early knowledge of the properties of copper, and the probable use

of heat for annealing (Yener 2000: 22–3). Metal use became more complex in the 6th millennium BC at Çan Hasan I, where much larger objects are attested, such as a macehead, originally believed to have been cast but now shown to have been hammered (Yener 2000: 32). In the early 5th millennium BC, elaborately cast objects first appeared at Mersin XVI. Throughout this period metalworkers were probably few in number and possessed of distinct knowledge. Indeed, given the presence of ore, a considerable number of copper objects, and elaborate ovens, Caneva (2004) has suggested that the citadel of Mersin XVI might have been a distinct area for metalworkers and those who controlled them.

That many of the products discussed above were made by individuals whom we might regard as specialists seems clear. Some items, such as pressure-flaked daggers and stone vessels, obsidian bracelets, or copper ornaments, are rare and can only have been made by a few people. For others, the economy of production involved (many objects from one technical sequence) as well as the significant skill levels (e.g., in the production of long blades by pressure techniques, the rarity of by-products of production, and evidence of pressure blade cores) indicate production by limited sections of the community (Conolly 1999). In the case of common beads, production locales and by-products are rare. Thus, at Boncuklu and Pinarbaşi, despite the presence of many beads made from relatively local materials, very few elements of bead-making debris have been found (Twigger 2009). At Çatal Höyük bead-making debris was restricted to a few locales – e.g., Building 18 (Hodder 2006a: 181). Specialist workshop sites have been found at the obsidian sources. At the Kaletepe workshops, dated to c.8300–7800 BC, knappers produced large quantities of blades using a variant of pressure debitage and naviform production, the latter aimed at generating long, pointed, "center" blades ideal for producing projectile points (Binder 2002). Ten tons of residual waste, 1,500 pointed blades, and 4,500–6,000 pressure blades were produced by a modest number of skilled knappers in short knapping episodes, and exported as far as Cyprus and the Euphrates (Binder 2002: 80). Judging by the Levantine techniques used, these knappers were mobile specialists who were not local and may indeed have operated as virtually full-time specialists and agents of exchange, visiting the obsidian sources in the summer. Part-time specialists may have derived status from performing knapping along with hunting, herding, farming, and gathering.

16 Exchange

The products of distinct groups in society may have been key elements in exchange, both within and between communities. Intercommunity exchange is much easier to document because it often involves foreign materials. The material objects that survive are likely to have been accompanied by organic materials as well, whether textiles or foodstuffs, including processed food products like

alcohol, dairy fats, and oils. Wine and beer made their appearance in the latter part of this period and, at least close to the Mediterranean, olives and grapes became more common in the 7th and 5th millennia BC respectively, e.g. at Mersin (Caneva 2004: 65). It is worth noting, however, that wild grape is documented on the earliest Holocene sites, yet explored in central and northwestern Anatolia. Exactly when grape and wine production were first established on the plateau and western coasts is a question that requires further work, but it may be that the Taurus flanks and coastal areas were always exporters of wine and oil to the higher plateau areas, possibly in exchange for metals and obsidian. Some of the elaborate pottery attested from the 6th millennium BC onwards may have been used to transport and consume such liquids.

Because of its restricted distribution, one of our best indices of exchange is obsidian. Although found predominantly in Cappadocia, northern Anatolian sources in Galatia have been identified that were used during the Chalcolithic (Düring 2010: 53). In western Anatolia Melian obsidian (i.e., from the island of Melos) arrived in the Chalcolithic and perhaps earlier. Obsidian is readily identifiable in the archaeological record, and its knapping process leaves clear indicators of the various stages of manufacture. Obsidian has properties that may have made it aesthetically valued, as well as fracture properties particularly suitable for some types of knapping (especially pressure). It also gave a sharp cutting edge.

Significant amounts of obsidian were already in circulation at Pinarbaşi, c.13,000 BC. It may be that Epipaleolithic groups acquired obsidian directly from the source in making their seasonal rounds. However, large amounts of marine shells are found in the Epipaleolithic too, indicating that some materials moved a minimum of 220 kilometers onto the plateau from the south coast. As it seems unlikely that individual groups regularly went both to the coast and Cappadocia, it is probable that exchange was involved in the movement of one or both of these materials. Epipaleolithic microliths seem to have arrived at Pinarbaşi as finished objects. This may relate to the way material was reduced as groups moved around, but the exchange of finished tools is also possible. Shared rituals, such as burial with dentalium ornamentation and skull removal, as well as technological practices indicate connections between Central Anatolia and the Levant, showing that ideas, as well as materials, were probably circulating over the Taurus mountains at 13,000 BC (Baird 2007, in press).

From at least 8300 BC specialized workshops operated at Kalatepe (see Figure 23.5 above). Many thousands of blades were produced in each set of knapping episodes (Binder 2002, and see above). In the Kaletepe case it has been suggested that some blades reached Cyprus and the Euphrates in the 8th and 7th millennia BC. The presence of Cappadocian obsidian up to 1,000 kilometers away (Cauvin and Chataigner 1998) and the fact that many thousands of Neolithic and Chalcolithic communities were supplied with obsidian for tools illustrates the scale at which the sources were exploited and the material circulated. For example, obsidian made up over 70 percent of the chipped stone recovered at 16 Late

Chalcolithic sites on the Konya plain, and workshops are attested at sources right through to the 5th millennium BC (e.g., Kaletepe with a workshop phase dated to c.4900–4590 BC; Gérard and Thissen 2002: 307). Circulation probably occurred in a number of ways, including visits to sources by specialists who brought material and products back, users passing material on from house to house and settlement to settlement, and the interaction of task groups in the landscape (Baird et al. 2011).

These distinct pathways are well illustrated at Çatal Höyük, where, in the later levels excavated by Mellaart (VI–I), partially prepared cores arrived for pressure blade production on site, but pointed blades from opposed platform cores arrived as blanks, to be turned into projectile points (Conolly 1999). The blanks came from different obsidian source areas within Cappadocia and probably arrived via different agents. Point-making seems especially associated with hunting camps (Baird et al. 2011), and cores may have moved as a result of interaction between task groups in the landscape.

By the Late Neolithic, turquoise from the Sinai Peninsula, eastern Anatolian obsidian, seashells from the southern Gulfs (Red Sea or Persian), and date palm fiber items, probably containers (Hodder 2006a: 175), were traveling very long distances to reach central Anatolia, while obsidian and cinnabar moved in the opposite direction. This interest in exotic materials attests to far-flung networks of interaction in which significant value was attached to the acquisition of materials emblematic of distant contacts, indicating that individuals and households sought distinction in pervasive, low-level competition.

17 Conclusions

Even if its environment is distinct, the Anatolian peninsula was never an isolated region within southwest Asia. There is a general tendency, though, to see exchanges, influences, interactions, and people moving from *east to west*, toward Europe, in a longstanding *ex oriente* trope. This is partly due to the movement of farming from the "Fertile Crescent" into Europe and partly because, in the Bronze Age, merchants and armies seemed initially to move from Mesopotamia into Anatolia. There is, however, plenty of evidence of material moving *west to east*, including obsidian, copper, lead, and silver. Equally intriguing are practices often associated with areas outside Anatolia, mainly because they were first discovered there in the archaeological record. Some of these, such as skull removal in mortuary ritual, may have originated on the Anatolian plateau. In many periods it is more accurate to see the Anatolian peninsula as a region that interacted intensively with other parts of southwest Asia, with consequences for communities in both areas. The movement of knappers to and from obsidian sources is a good case in point. Such intensive networks of interaction were probably responsible for some of the major social transformations in southwest Asia, such as the

appearance of sedentism, farming, developments in metallurgy, and the creation of new institutions.

Alongside this theme of Anatolian interactions can be set some distinctive Anatolian plateau features. From at least 8000 BC, strongly defined household identities, and evidence of competing and aggrandizing, as well as intimately connected households, were a feature of Anatolian settlements. These households seem to have drawn on ancestral practices from at least 8300 BC. Distinctive landscape practices suggest ancestral connections were important in this arena of life as well. Modest-scale institutions were in operation, but these seem to have been flexible, fluid, and mediated by heterogeneous ritual practices. Only in the 5th millennium BC are there hints of small-scale but stable regulating hierarchies, as indicated by the citadel and its large building at Mersin XVI and the distinctive and largest building in Köşk Level 1, covering c.80 square meters.

GUIDE TO FURTHER READING

The most useful and current overview of the periods and developments discussed in this chapter, and which relates specifically to the Anatolian plateau, is Düring 2010. This covers the whole period and the Early Bronze Age and has a geographical remit exactly matching that of this chapter. It only lacks some of the most up-to-date information from projects in central Anatolia related to the Epipaleolithic and earliest Holocene settlement. In addition, two useful volumes deal with the Neolithic. One of these (Özdoğan and Başgelen 1999) covers the whole of Turkey and provides a useful site-by-site, project-by-project overview. From November 2011 onwards a new edition of this will be published with up-to-date information (a Turkish version was published in 2007). Gérard and Thissen (2002) and the associated website relating to the Central Anatolia Neolithic E-Workshop (CANEW) has many useful C14 dates and charts and deals specifically with the Neolithic and earlier Chalcolithic of central Anatolia.

CHAPTER TWENTY-FOUR

Southern Mesopotamia

Joan Oates

1 Introduction

The early prehistory of southern Mesopotamia is little understood. Until about 8000 BC the Persian Gulf was a low plain through which early versions of the Tigris and Euphrates rivers flowed to the sea through the Straits of Hormuz, between modern Oman and Iran. The rise in sea-level following the last glaciation gradually filled the area of the modern Gulf, concealing of course any earlier signs of occupation. Thus, along the southernmost reaches of the river(s), any sites earlier than the 7th/6th millennia BC, whether permanent or transient, now lie beneath the silt and waters of the Gulf. The background of Tell Oueili, the earliest excavated settlement in Sumer (the southern part of modern Iraq) therefore remains uncertain.

Sixty years ago, it was believed that at the end of the last Ice Age sea-levels were high, and therefore the whole of the lower Mesopotamian plain, from Samarra southwards, had been underwater, Samarra lying on the southernmost river terrace along the Tigris. This interpretation is now known to be incorrect, yet this view continues to exercise a considerable effect on the understanding of the prehistory of Sumer, and especially of the origin of the Sumerians, its earliest identified inhabitants. As a result, the background of the first settlements identified by archaeologists remains a subject of speculation only. What is certain is that there is little connection between early settlements in southern Mesopotamia and those in adjacent southwestern Iran. Moreover, there seems to be little

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similarity between the lithics from the earliest settlements in Sumer and those of Saudi Arabia, though possible connections with Pre-Pottery Neolithic B (PPNB) Jordan via the then-active *wadis* in southwestern Iraq have been suggested (Uerpmann et al. 2009).

At the time of the earliest settlements yet identified (Oueili, Eridu, discussed below), southern Mesopotamia was certainly far better watered than at present. Indeed, much later 4th millennium BC seal impressions depict small boats of the type still in use in the marshes of southern Iraq, at least before their recent regrettable draining (Thesiger 1964; Huot 1994: 8; see also Ch. I.19, and esp. Fig. 19.3). Examination of the landscape using satellite images has added greatly to our knowledge of such early settlements. Those that remain visible in southern Iraq appear to be situated on "turtlebacks" (see Ch. I.1), remnant Pleistocene terraces. But of course we have no evidence for sites that lie totally covered by the deep alluvium, deposited over many millennia by the spring floods or the waters of the Gulf itself, which seem to have been higher than at present during the 5th millennium BC. Such "invisible" sites are illustrated by Hajji Muhammad, a small 5th millennium *tell* near Warka (ancient Uruk), situated beneath 3 meters of alluvium cut through and exposed by the shifting Euphrates; and Ras al-'Amiya, c.80 kilometers south of Baghdad, cut by a modern excavating machine digging a drainage canal (see below).

2 The Earliest Settlements

Earlier settlements have been excavated to the north in central Mesopotamia, the most important being Bouqras, near the Euphrates and the Iraqi frontier in eastern Syria, and Tell es-Sawwan, south of modern Samarra on the Tigris, both of which are situated on Pleisocene river terraces. The sites of Umm Dabaghiyah in the flat steppe country west of Hatra and Choga Mami at the eastern edge of the Mesopotamian plain, at the foot of the Iranian mountains east of modern Baghdad, have also provided much new information concerning this early period. The earliest sites in central Mesopotamia, including Bouqras, Sawwan, and Umm Dabaghiyah, are characterized by pottery now referred to as "Proto-Hassuna," a pottery type common in northern Iraq and northeastern Syria, first identified at Hassuna itself (Level 1a), a small village site just south of modern Mosul (Ch. I.22). This very distinctive pottery, with its husking trays and low-fired vessels with patterns in red paint, is found largely in northern and central Mesopotamia together with the Khabur area of northeastern Syria, but not in southern Mesopotamia where no sites of this early date have as yet been identified.

At Bouqras, the presence of Byblos and Amuq points, together with the site's position in eastern Syria, suggest not only connections with the west but also the likelihood of PPNB occupation at the site, though it would seem that a small number of sherds may have been found in the lowest excavated levels. The size

of the site (c.3 hectares), the regularity of its buildings, laid out along narrow streets, and especially the extraordinary alabaster objects found here (on display in the Deir ez-Zor Museum; Roodenberg 1986) mark this as an important, indeed major, center already in the early 7th millennium BC. Moreover, it is one of the few early sites on the Euphrates with a long sequence of occupation (11 levels).

There seems to have been a consistent type of architecture at least in the latest levels of this lengthy occupation – rectangular buildings with three or four rows of rooms. Interior walls were often finished with white (lime) plaster, on which very occasionally ostriches or cranes were painted with red ochre. A site of this size and plan suggests formal authority, but we have no direct evidence of the type of control. The pottery is identical with that found in the Iraqi steppe at Umm Dabaghiyah and at the early sites excavated by Russian archaeologists near Tell Afar in northern Iraq (Bader 1989); until recently it was the earliest pottery known in Greater Mesopotamia.

Similar ceramic material, but without the red-painted decoration, is found in the two earliest levels at Tell es-Sawwan, a 7th millennium BC site on a Tigris river terrace some 80 kilometers north of Baghdad. Sawwan is noted for its early graves (more than 400 altogether), found beneath large tripartite buildings that constitute its two earliest levels. These buildings contained no household goods; indeed, the rooms were virtually empty. In the graves beneath them is the largest and most extraordinary collection of alabaster objects found anywhere at this early date (Figures 24.1 and 24.2).

The small amount of associated pottery indicates that these structures and their associated graves belong to an early 7th millennium BC "proto-Hassuna" phase (Youkana 1997); no painted pottery has been found in the earliest level (1), where more than 400 graves were deliberately situated beneath the large and virtually empty buildings. These graves contained a high percentage of infants (77 percent) together with an extraordinary collection of 1,341 alabaster objects, 243 of which were small statuettes, the like of which have never been found anywhere else but Sawwan (see, e.g., El-Wailly and Abu es-Soof 1965: Pls. 66–74; Al-A'dami 1968; Youkana, pers. comm.). In many burials there were few or no surviving bones, suggesting at least the possibility that some bodies had been moved from other burial grounds. One vessel, for example, contained only the bones of a child's hand. There was also evidence of rodent interference in some of the graves, which may account for some but not all of the missing bodies.

At Sawwan the inequality of the grave goods and the high percentage of "wealthy" infants indicate that significant social differentiation was already present (Oates in press). Moreover, the plan of the associated buildings provides the earliest examples of the tripartite structures that persist throughout Mesopotamian prehistory and later. A few clay figurines associated with Building I may perhaps have been relevant to burial rituals. In a unique niche in the northeast corner of this building (Level 1) was found a single alabaster figurine, the only

Figure 24.1 Alabaster statuette from Tell es-Sawwan cemetery, c.6000 BC (photo J. Oates).

Figure 24.2 Alabaster vessels from the Level 1 burials at Tell es-Sawwan (photo J. Oates).

one not from a grave; a few clay figurines are reported within this building alone (El-Wailly and Abu es-Soof 1965: 20).

Proto-Hassuna pottery was found, though rarely, among the largely empty Level 1 and 2 buildings overlying this early burial ground. The presence just to the north, beneath 10th century AD Islamic Samarra, of another "wealthy" cemetery of slightly later but still Neolithic date, with its beautifully painted Samarran pottery (Herzfeld 1930), might suggest some special importance in the 7th millennium BC relating to burial attached to this Tigris area.

Rain may have been more reliable at this time, though there is clear evidence of early irrigation at contemporary Choga Mami (see below). At Sawwan, the winter cereal crops were probably grown on the flood plain, though spring floods caused by the melting Zagros snow may already have been a problem, hence the location of the site itself on a river terrace. Evidence of increasing complexity at this time can also be seen in the earliest use of seals, at both proto-Hassuna Bouqras and Sawwan, a practice that persists even today as a "guarantee." The earliest sealings appear on small white ware lids, clearly identifying the contained "property" (Yasin 1970: Fig. 33). By the Late Samarran phase, seals and other "contractual" devices were widely used in central and northern Mesopotamia (Duistermaat 1996; Oates 1996) but apparently, and strangely, not in the south, though this may reflect no more than the lack of access to and excavation of early southern sites. A small number of stamp seals has been found in the south but, up to now, there is no evidence there for the early use of sealings.

Umm Dabaghiyah, just west of Hatra in the Iraqi *jazirah* (the steppe landscape between the two rivers) and some 90 kilometers south of Jabal Sinjar, provides the most extensive evidence for this early phase, but lacks the extraordinary quantity of alabaster figures and vessels known from Bouqras and Tell es-Sawwan (Kirkbride 1975; Curtis 1982a with lit.), though a few such alabaster vessels were found at the site (Kirkbride 1973: Pl. 8b). Now a very dry area, this part of the *jazirah* was clearly better watered in the 7th millennium BC, while the Wadi Tharthar, just to the east of Hatra, was almost certainly then a flowing river. Nor is Umm Dabaghiyah likely to have been the isolated site that is sometimes suggested, as a number of Samarran sites have been identified in the immediate area.

Together with sites some 90 milometers to the north excavated by Russian archaeologists (see Ch. I.22), Umm Dabaghiyah remains our main source of knowledge for this early village period, now generally referred to as Proto-Hassuna. Umm Dabaghiyah seems to have specialized in the hunting of onager, and is perhaps a seasonal site, but both wheat and barley were present there, along with evidence of *Chenopodiaceae*, suggesting the probable presence of relatively brackish marshes nearby. Certainly it seems likely that there were playa-type, shallow lakes in the area at this time. The Umm Dabaghiyah animal bones were dominated by onager, an animal of the steppe presumably hunted for both hides and meat; wall paintings suggest that the very fast-running onager were trapped in nets, while various on-site fittings indicate the drying of the skins.

Access to building roofs seems to have been by means of footholds cut into the walls, and there were internal, plastered chimneys associated with external ovens, suggesting either that the winters were far from warm (certainly true in modern times) or simply that these unusual features were associated with the drying of hides or other industries carried out on the site (Kirkbride 1975: 20–1 and Figs. 4 and 7).

The rooms in general were very small, as was common at even later Samarran sites such as Choga Mami and Tell Songor A (see below). There were also what seem to have been storage buildings, consisting of lengthy, double rows of very small rooms, in one of which were more than 1,000 sling bullets. Similar though less lengthy storage structures have been found in the Russian excavations to the north at Yarim Tepe. Remains of houses were found within the area of the rows of storage rooms, but these were badly eroded.

Thus, already at this early period, there is evidence of specialist sites and a common repertoire of material culture over a large part of the lowlands of ancient Mesopotamia. One other early site should be mentioned briefly, Tamerkhan, a pre-pottery, Zagros-type site situated literally at the foot of the Iranian mountains, the only site on the Mesopotamian plain with early pottery similar to that found by R.J. Braidwood at Jarmo and Sarab in the Zagros (Oates in press: Fig. 1). This site has not been excavated, but surface materials were collected in 1967–8 in the context of excavations at nearby Choga Mami (Oates 1966a: 52; Mortensen 2002).

3 The Samarran Phase

The Samarran phase, characterized by its very distinctive pottery, seems to have originated in central Mesopotamia in the second half of the 7th millennium BC. This is the phase in which the characteristic Mesopotamian "tripartite" house plan became standard (Forest 1983a), and is particularly noted for its easily recognized, often elaborately decorated pottery. Although focused in central Mesopotamia, the Samarran cultural repertoire appears also in the north as a development within the Hassuna phase, notably at Tell Hassuna itself. The latest Samarran-related phase is represented among the earliest pottery yet recovered from Tell Oueili, the earliest site excavated up to now in southern Mesopotamia. This "Late Samarran" phase, now slightly jokingly referred to as "Ubaid 0" (see below), is a major component of a phase now referred to in northern Syria as "Halaf Transitional" and in Khuzestan as the "Choga Mami Transitional" (Hole 1977: 12–18).

Samarran pottery was first excavated at Hassuna, just south of modern Mosul, and has long been seen as a slightly later development of the Hassuna phase. Certainly there seems to have been a continuity of material culture generally, together with similar patterns of incised and painted pottery in both phases,

observations which encouraged this assumption. Samarran pottery is also found at many sites in northern Mesopotamia.

In central Mesopotamia, the focus of this chapter, Samarran sites include Baghouz, on the west bank of the Euphrates near the Iraqi border, which was briefly examined in 1936 by the Yale University Expedition at nearby Dura Europos. Sherds from this brief excavation were eventually given to the Oriental Institute in Chicago in exchange for Roman antiquities. In Chicago, Braidwood organized an intensive study of this material, which provided the first evidence for the possibly separate identity of the Neolithic society that had produced the very elaborately decorated pottery we now refer to as Samarran (Braidwood et al. 1944). Wishing to confirm or disprove this tentative observation, Braidwood then excavated the site of Matarrah, a small Neolithic site near Kirkuk (Braidwood et al. 1952).

These investigations seemed to confirm the existence of a distinct Neolithic phase occupying central Mesopotamia with very characteristic pottery and architecture, a conclusion reinforced by more recent Iraqi work at Tell es-Sawwan, south of Samarra. Tell es-Sawwan also shared in the development of a number of "administrative" features evident too at Choga Mami (see below) and in the Burnt Village at Sabi Abyad, situated on the Balikh River in northern Syria, where a large quantity of late Samarran pottery is present (Le Mière and Nieuwenhuyse 1996; Akkermans et al. 2006).

The most impressive example of a Samarran site is undoubtedly Tell es-Sawwan, though work at the site – and indeed its final publication – has been seriously affected, regrettably, by both political and military disasters in Iraq. The upper areas of the site have also been damaged in the modern removal of soil by local farmers for fertilizing their fields. Tell es-Sawwan was excavated by the Iraqi Directorate-General of Antiquities during the 1960s, and preliminary reports are to be found in *Sumer*. The early levels have been discussed above; Levels 3–5 are characterized by true "Samarran" pottery, and there would appear to have been a significant time gap between Levels 2 and 3 where the elaborately decorated Samarran pottery first appears.

In these upper levels there are two different types of building, one an ordinary tripartite house, the other identified as "granaries," T-shaped structures found within the walled-in central area of the site, at that time surrounded by a massive mudbrick wall and ditch (Breniquet 1991; Huot 1994: 97; Youkana 1997: Plan 9). The granaries were identified on the basis of their lime plaster floors and the presence of agricultural implements, apparently absent in the private houses; they are also said to lack the materials and pottery found in the normal houses (Wahida 1967: 171), which are the characteristic tripartite type with, as at other sites, remarkably small rooms, suggesting that the flat roof space played a major role in daily activities both as a working and sleeping area. Even in recent times, at least until the introduction of electricity and air-conditioning, this use of the flat roof as a storage, working, and sleeping area has persisted in mudbrick houses.

The Tell es-Sawwan bricks were very unwieldy "cigar-shaped" types, often 1 meter long, a type found as early as PPNB Nemrik in the north and common at Samarran sites where they were laid as headers and stretchers (Oates 1969: Pl. 22; 1975: Figs. 12–13). Breniquet (1991) sees the granaries as related to what she interprets as T-shaped structures (beneath which the early graves were found; for plans, see Youkana 1997), but the similarity of the early structures at Samarra and the early buildings at Oueili, discussed below, would seem to argue against this (Forest 1983a; Huot 1994: Ch. 5). Samarran graves beneath the later, upper levels of the site contain the more usual grave goods, largely pottery and clay figurines, in marked contrast to the early graves. Both the connection and time span between the two phases of the site remain to be satisfactorily established.

The Samaran site of Choga Mami was excavated for only a single season in the winter of 1967–8. This site is located literally at the foot of the Zagros, some 2 kilometers from the Iranian border, northeast of Baghdad. It was deliberately chosen for its central position on one of the major routes of antiquity, later known as the Royal Road, which ran along the Zagros, where water was available, from Susa in Khuzestan to Sardis in western Anatolia. Unfortunately, political conditions in Iraq made further work there impossible, even for Iraqi archaeologists, and we have, therefore, very limited knowledge of the site, though it is clear that there was a particularly rich repertoire of female figurines (Figure 24.3) and other small finds, together with new evidence of a late form of Samarran pottery, now shown to be clearly related to the earliest pottery known from Sumer (see below; also Oates 1969; 1975 with refs; Huot 1994: 117–31).

The tripartite houses that characterize both the early Samarran and later "Transitional" phases were built of the cigar-shaped bricks (Figure 24.4) widely used at this time, as was a guard tower, a reflection of the site's apparently insecure eastern location (Oates 1969; 1975: Figs 12–13; in press). The houses were built very close to one another and there were separate, large courtyards, which seemed to be working areas. Among the most interesting discoveries were the figurines, none of which was complete. The heads had all been broken off and the presence of single legs with finished, flat interior surfaces led us to suspect that the breakages were deliberate, the various pieces perhaps functioning as parts of some form of "contract," a suggestion now reinforced by the new and comparable evidence from Sabi Abyad in the north (Level 6, the "burnt level"; Akkermans 1996). Similar objects were found also at Tell Songor A in the nearby Hamrin (Fujii 1981: 178 and Fig. 39). A recent example of contracts "agreed" by the breaking of material objects is to be found in 19th century London, where the use of wooden tally sticks was only abolished in 1834 when their burning, after completion of the contract, accidentally set fire to the Palace of Westminster (the original Houses of Parliament; Oates 1996: 171).

Another important feature of the Choga Mami figurines is the evidence for skull deformation, which became widespread during the later Ubaid phase, presumably among the "elite," as demonstrated by the well-known male figurine

Figure 24.3 Head of Samarran female clay figurine from Choga Mami, late 7th millennium BC. The hairstyle and earrings anticipate the style of the famous Warka head by some 3,000 years (photo J. Oates).

Figure 24.4 Architecture built with cigar-shaped bricks at Choga Mami (photo J. Oates).

from Eridu who holds a mace-like object, a symbol of authority (Safar et al. 1981: Fig. 115), and the apparent fact that carrying loads on one's head is said to be no longer possible (Molleson and Campbell 1995). Such deformation is visible as early as the Samarran phase not only on the Choga Mami figurines, but also on those from the Hamrin sites (Oates 1969; Matsumoto 1981; Daems 2010; Lorenz 2010). Such deformation is also physically visible on some skeletons from the Ubaid phase at both Eridu and Arpachiyah (Molleson and Campbell 1995).

Perhaps the most important discovery at Choga Mami was a series of artificial water channels of Samarran date, providing the earliest evidence found up to now for the deliberate construction of irrigation channels (Oates and Oates 1976a), a practice that seems to have been transferred to Khuzestan in the Late Samarran phase along with a number of other features that are clearly Samarran-related (Hole 1977: 12–19 and Figs. 50–51). This movement seems also to coincide with the appearance at Sabi Abyad in northern Syria of cultural materials also related to the Late Samarran (there referred to as the "Halaf Transitional"), suggesting at least the possibility that this "diaspora" to both the north and east might have been related to the ice-core cold phase dated c.6200 BC (cf. Akkermans et al. 2006).

Indeed, Choga Mami provides a link among the earliest sites in central Mesopotamia, the south, and, for the first time, Khuzestan, where the newly introduced Late Samarran material was labeled "Choga Mami Transitional" (Hole 1977: 12). At Sabi Abyad too this late Samarran pottery is found, together with a range of apparently "administrative" paraphernalia also related to the approximately contemporary material at Choga Mami (Oates in press). Similar material is also present at Late Samarran sites in the Hamrin – e.g., in the Japanese excavations at Tell Songor A and B (Fujii 1981; Matsumoto 1987).

Analysis of the Sabi Abyad pottery, moreover, has demonstrated that some at least of the Samarra-related pottery and also of the early Halaf types, many of which developed from Samarran prototypes, were imported (Le Mière and Nieuwenhuyse 1996: 161). Moreover, at Sabi Abyad the "administrative evidence" similar to that at Choga Mami and the Hamrin sites includes the deliberate breakage of figurines. Finally, the development of the ceramic types that define early Halaf in the north seem to be at heavily dependent on Late Samarran types (see Ch. I.22; Akkermans 1996; Akkermans et al. 2006).

The geographical extension of the Halaf culture is outside the limits of this chapter, though there is some heavily eroded Halaf at Tell es-Sawwan and very late Halaf pottery was found at sites in the Hamrin and in a well at Choga Mami, the latter including polychrome pottery virtually identical with finds from Arpachiyah (especially examples with crosses of unfired white paint; Oates and Oates 1976b: 63; Mallowan and Rose 1935: frontispiece). Closely related, late Halaf pottery was found in the Hamrin at Tell Songor A and B (Matsumoto 1981: Figs 34, 49) and Tell Hassan (Fiorina 1987). The Hamrin house plans and material culture, including the manufacture of separate body parts and the apparent

use of figurines as possible guarantees (Matsumoto 1981: fig. 39), are indistinguishable from those at Choga Mami. Such genuine identity of material culture, together with specialized production areas, strongly suggests that by 6000 BC an increasing complexity of both social and economic organization is accompanied by widespread contacts over much of Greater Mesopotamia.

4 Southern Mesopotamia (Sumer): The Ubaid Period

Neolithic occupation in Sumer was clearly enhanced by the adjacent marshes and the more northerly position at this time of the summer monsoons; indeed, Sumer's early sites have been described as "islands embedded in a marshy plain" (Pournelle 2007: 32; cf. Potts 1997a: 47–55), an aspect still featured in late 4th millennium BC cylinder seal impressions. Regrettably, the alluvial landscape now overlies much early occupation, though such settlements are occasionally visible on wind-eroded sites (e.g., Adams and Nissen 1972: 232, site 298) away from the modern courses of the rivers that flood every spring as the snow on the Zagros melts. Indeed, two briefly investigated Ubaid sites lay completely invisible beneath alluvial silts and were only accidentally discovered (Ras al-'Amiya and Hajji Muhammad: see below).

The earliest southern settlement investigated up to now is Tell Oueili, near Larsa in southern Iraq, excavated by French archaeologists under the direction of Jean-Louis Huot whose 1994 volume provides an excellent summary of the site. Oueili was discovered by André Parrot in 1967 (also known as Awayli: Adams and Nissen 1972: 238, site 460); interestingly, none of the earliest sherd types was recovered by the Chicago survey though early pottery was found on Adams and Nissen site 298, northeast of Warka.

This early pottery in the south is most closely related to Late Samarran ceramics at Choga Mami (see below), and it is clear from the French excavations, regrettably forced to cease at the time of the First Gulf War (1991), that at Oueili there is a considerable depth of earlier levels still to be investigated. Unfortunately these now lie well below the modern water table (Huot 1994: 117ff).

The materials from the earliest levels at Oueili are closely related to those from the latest Samarran level excavated at Choga Mami, referred to in the original Choga Mami report as "Late Samarran" but now better known as Choga Mami Transitional or, in southern Mesopotamia, "Ubaid 0," the latter originally no more than a deliberate joke at my expense based on a proposal long ago (1953) that the early levels at Eridu were all genuinely related and represented gradual cultural change rather than an invasion of new people for which there was no convincing evidence; hence the more non-committal labels Ubaid 1–4 (Oates 2010), a proposal based on close examination of the excavated material in Baghdad and many discussions with the late Fuad Safar and Mohammed Ali Mustafa, excavators of Eridu, to whom I remain deeply grateful.

The Ubaid "sequence" remains based on these important Iraqi excavations, where a long succession of public buildings was excavated, ending in what were clearly early versions of the standard Mesopotamian temple built upon a terrace which, in the late 3rd millennium BC, was transformed into a multi-staged *ziggurat*. The early levels at Tell Oueili now provide an extraordinary new window into early settlement in the south, with a phase earlier than Ubaid 1 at Eridu and characterized by "specialist" buildings, including a granary and large buildings of tripartite style with stone column bases in the central courtyard (Huot 1989; 1994: 118–31). The walls were built of long, cigar-shaped bricks laid as headers and stretchers, following both the Samarran plan and style of building. Unusually, these early levels were accessible owing to the prevailing winds which had blown away much of the later settlement on one side of the *tell* (Huot 1989: 29, Fig. 2).

The earliest Ubaid levels (Ubaid 0) were reached c.4.5 meters below modern plain level and there undoubtedly remains much more of the settlement below the present water table. Evidence of the date palm was found, as well as wheat and barley, together with reeds from what was clearly a marshy landscape. Cattle and pigs were the dominant animals, with smaller numbers of sheep and goats; fish played an important role in the diet. Complete plans of the early buildings are lacking, simply because of their considerable size and the small area accessible in the trenches. The grain samples found in the latest Ubaid levels were largely six-row hulled barley, while einkorn was present but less common, plants that to some extent seem to contradict the otherwise wet landscape. Barley was also found in Ubaid 0 levels, the earliest such evidence in the south.

Our belief that there was a much wetter landscape at this time is further confirmed by the presence of date palms and large reeds, the latter used as matting on the floors of the granary (Huot 1989: Figs. 5–6; 1994: 118), and the fact that the most common domesticated animal is the pig, an animal well adjusted to such an environment. A close connection with both Late Samarran Choga Mami and Ubaid 1 from Eridu can be seen in the earliest pottery yet excavated, hence the term Ubaid 0, originally a joking term but one that has become widely used (Oates 2010). This term now defines a cultural style found also in the Hamrin and even in Khuzestan (Chogha Sefid), where it is known as the "Choga Mami Transitional" (Hole 1977: 12–19). The Samarran component of this "Late Samarran" culture appears also at this time (late 7th millennium BC) in northern Syria, where at Sabi Abyad it is referred to as the "Halaf Transitional" (Akkermans et al. 2006; Oates in press). At the latter site the succeeding "Halaf style" owes much to Late Samarran, as does the Ubaid 1 style in southern Mesopotamia. That is, the later Ubaid expansion, discussed below, is preceded by some 1,000 years in the spread of a central Mesopotamian culture from Khuzestan to northern Syria.

Long before the excavation of Oueili, the important site of Eridu, excavated by Iraqi archaeologists in the 1940s, provided the sole sequence of both buildings

and pottery throughout the 5th and 4th millennia BC. At this time the Iraqi excavators proposed a not unreasonable break in the sequence following the early "Eridu" and "Hajji Muhammad" phases (Levels 20–14), the later levels at that time being designated Ubaid 1 and 2 on the basis of Woolley's excavations at Ur and Levels 13–6 at Eridu.

Although there are visible changes over this timespan, these are present in all cultural sequences and the suggestion of continuity, originally made in 1953, was confirmed in 1960 by rescue excavations at Ras al-'Amiya, a small site about 80 kilometers south of Baghdad, where both "Hajji Muhammad" (now Ubaid 2) and the later Ubaid 3 pottery first identified by Woolley at Ur as "Ubaid I" were found together in the houses of a small Ubaid farming village, apparently dependent on cattle and irrigation agriculture (Stronach 1961). Moreover, the most distinctive Hajji Muhammad/Ubaid 2 type first occurred in Eridu Level 17 and persisted up to Ubaid Level 8 (end of Ubaid 3), a further argument for continuity at the site and one reinforced by the lengthy sequence of non-residential buildings one directly above another – i.e., occupying the same position for apparently the same purpose.

Further study of the Eridu pottery also suggested that the ceramic shifts were not abrupt and that convincing evidence for gradual changes in ceramic design as well as other cultural features continued over what was a relatively lengthy period of time, well over 1,000 years (Oates 1960). Regrettably, we have very few recent radiocarbon determinations for the Ubaid, and none for Eridu. Recent determinations now exist from Oueili, placing Ubaid 0 late in the 7th millennium BC (Huot 1996: 390), and from newly excavated Tell Zeidan in Syria which place the much later Halaf-Ubaid transition in the north in the mid-6th millennium BC (Stein 2010).

A further interesting feature of Ras al-'Amiya is that, like Tell Hajji Muhammad, it was no longer visible. The *tell* itself had been entirely covered with later alluvial deposits and was discovered entirely accidentally in the machine-excavation of a deep water channel, proof, if such were needed, of the degree to which the prehistory of southern Mesopotamia lies deeply buried. Indeed, the Hajji Muhammad "type site" itself had been covered with 3 meters of alluvium and was found only in an official inspection of the Euphrates river banks when the river itself was very low (Ziegler 1953).

By far the most culturally informative site is the small Ubaid village of Tell Abada in the Hamrin, excavated by Sabah Abboud Jasim. The latest level (1) is especially interesting for its evidence of a community water supply. Remains of a lengthy system of terracotta water pipes was traced over half a kilometer to the north, leading apparently from a large *wadi* to a stone-lined basin (2.5×1.5 meters and c.1 meter deep). Further water pipes led from another source to the west. Also in the latest level there new evidence was found for an unusual type of grain store within the separate houses, where standing, rolled-up reed mats had been filled with grain and sealed with a layer of fine clay; these were tied

together with string or fronds of leaves and placed, standing, in a corner of the main courtyard (Jasim 1989: 86). The excavator also noted that in the 1980s this practice still survived in southern Iraq.

A wide range of pottery kilns was also found in the village, which the excavator suggests may have specialized in pottery production. In the earliest level, moreover, to be dated sometime in the 6th millennium BC, there is the earliest Near Eastern evidence for the use of a potter's wheel. This consisted of large gypsum hemispherical discs, measuring 10–40 centimeters in diameter, apparently identical to those still used around Hillah in modern Iraq (Jasim 1989: 89; 1985: 87). The precise dating of this level, which clearly specialized in pottery manufacture, is complicated by the great variety of pottery types, though it would appear to belong sometime in the 6th millennium BC.

Undoubtedly the most interesting building at Abada is Building A, versions of which are found in both the uppermost levels (1 and 2). Clearly this was the most important building on the site, indicated architecturally not only by its regular buttresses but also its larger size. Moreover, not only were 57 infant burial urns found beneath these two buildings, but a group of pots stored in several different rooms contained seemingly miscellaneous groups of clay tokens, the sole prehistoric evidence for a clearly specific use of these objects; regrettably, their specific purpose remains unknown (Jasim and Oates 1986).

Uruk-Warka remains without question the major early site in the south (see below). Two Ubaid temples have been identified there in the area of the Steingebäude (Schmidt 1974), the plans resembling the tripartite plan known at both Eridu, in particular temples VIII/VII, and in later monumental buildings at Warka itself. Unfortunately, the foundations of the Steingebäude had been dug into the Ubaid mound, thus breaking the stratigrahic connection between these early shrines and the well-known, high-terrace sequence of the late 4th millennium BC, discussed below.

The other important southern site is Tell Uqair, briefly excavated by Fuad Safar and Seton Lloyd in the 1940s. Only a small area of the Ubaid settlement was investigated, but this included not only a wide repertoire of the usual Ubaid pottery but also clay models of copper axes as well as the earliest mass-produced bowls – the so-called Coba bowl (named after the type site Coba Höyük in Turkey), flint-scraped vessels closely resembling those also known in the very latest Ubaid levels at Tell Brak and more common in Late Chalcolithic 1 levels in northern Syria (Lloyd and Safar 1943: Pls. 17.7, 22.4). Most significant at Uqair is the evidence for a building of monumental proportions and function with long storerooms reminiscent of later secular buildings (Lloyd and Safar 1943: Pl. 6B). The date of this building has been questioned, but the associated pottery is Ubaid and the building is aligned with an Ubaid street.

The presence of "ophidian" figurines – i.e., with elongated, reptilian heads – appears first at Late Samarran sites such as Choga Mami and later became characteristic of Ubaid sites (Oates 1969: Pls. 25, 27; Daems 2010; Lorentz 2010).

This head deformation represents deliberate cranial modification, another possible indication of increasing social stratification. Indeed Moorey (2003: 19) viewed these elongated heads as depicting "elite or specialist social groups defining and encoding their status." The single male figurine from a grave at Eridu not only has an elongated head but he also holds a mace or scepter, in later times a symbol of authority and here presumably also a reflection of the increasingly complex society that had by now developed (Safar et al. 1981: Fig. 115).

The most recent work on the Ubaid period is taking place in northern Syria (Ch. I.22) but it should be noted here that the undisturbed transition from Ubaid to Late Chalcolithic 1 ("Terminal Ubaid") is clear not only at Eridu but also at both Tell Zeidan and Tell Brak in the north. At both the latter sites, moreover, there is also evidence of Coba bowls closely resembling those found in Ubaid levels at Tell Uqair, the earliest "mass-produced type" identified by its flint-scraped sides (Lloyd and Safar 1943: Pls. 17, type 7, and 22.4). The purpose of the mass-produced bowls, of which the bevel rim bowl of Middle to Late Uruk date is the best known, remains uncertain, but the presence of massive numbers of these bowls, often found stored together, suggests some function connected with formal administration.

Coba bowls were first found in southeastern Turkey. They are more widely known in western Syria, but have not been recorded in southern Mesopotamia at sites like Ur and Eridu. Nor are Coba bowls known in northern Iraq (with the sole exception of Grai Resh, near Jabal Sinjar, on the major road from the south to Tell Brak). Despite its much wider distribution in northern Syria and southeastern Turkey, Ubaid Tell Uqair currently provides by far the earliest appearance of this mass-produced type.

To date, the Ubaid cemeteries (e.g., at Eridu) provide relatively little evidence for the social distinctions apparently recognizable much earlier at Tell es-Sawwan. At Eridu, however, some bodies are buried without the rectangular mudbrick tombs that otherwise characterize this cemetery. Moreover, we cannot know who was or was not buried there, and it is clear both from the increasing size of settlements and the evidence for specialized craft production and architecture visible already in the earliest levels at Oueili – i.e., in the late 7th millennium BC – that Ubaid society had by that time reached a level of considerable complexity. Moreover, even at small, peripheral sites like Tell Abada, there is evidence of both economic and social complexity, such as the specialist pottery workshops and the monumental building with its token-identified pottery. The great range of geometric tokens at this relatively small site, and their apparently very specific use, also reinforce the evidence for increasingly complex organization.

Ubaid society is not known for ostentation. It has been suggested that the economy operated through staple finance and that Ubaid material culture functioned over large areas as a marker of group identity (Stein 1994, 2010). Certainly the spread of Ubaid culture was extensive, from a copper-processing site in Anatolia (Değirmentepe) to temporary sites along the Persian Gulf, where

both pearls and fish seem to have been the desired objects. Most recently it has been argued that the processes reflected in the following Uruk culture were largely secondary to Ubaid innovations (Gibson 2010). Moreover, although Ubaid society has often been seen as essentially egalitarian, recent excavations in the north (Zeidan and Brak) provide additional evidence to that from Eridu and Uqair, and especially from the early levels at Oueili, for a greater level of social and economic complexity than has up to now been recognized, a diversity that becomes increasingly visible in the early Late Chalcolithic.

5 The Late Chalcolithic (4400–3400 BC)

The early levels of this phase are far better represented in northern Mesopotamia than in the south, where very little has been excavated of the post-Ubaid, pre-Late Uruk settlements. Indeed, it was long believed that there was a serious break in occupation at this time, which years ago was thought by some to mark the arrival of the Sumerians, a view no longer held given the obvious continuity throughout this time span where sites have been excavated. Such continuity is very clearly attested at Eridu, where the temple sequence persists, though, unfortunately, the upper levels are very heavily eroded. Continuity at Warka is suggested by the presence of Ubaid shrines adjacent to the later Anu Ziggurat, a situation very similar to that at Eridu where the final construction within the temple sequence was also a true *ziggurat*. At Warka, however, there is as yet no reliable sequence; indeed, the deep sounding dug in the early 1930s has proved more misleading than informative. Only Nippur and Eridu provide reasonably stratified sequences for the southern Late Chalcolithic (Hansen 1965: 201–13; Safar et al. 1981).

At Warka recent test trenches in the outer town have proved relatively uninformative (Nissen 2002), though the site remains both the largest and the most important city of the late 4th millennium BC (cf. Ch. I.28). By 3400 BC it had grown to an impressive size with remarkable, indeed unique, monumental architecture in the so-called Eanna precinct, which contained a number of formal public buildings from which the contents had unfortunately been cleared in the construction of the overlying level. The precinct covered an area of c.8–9 hectares and stood some 2 meters above the surrounding city. Many of the buildings were decorated with elaborate cone mosaics (Strommenger 1964: Pl. 13). These were clearly important buildings. Though they have often been referred to as "temples," there is no specific evidence to suggest this; indeed, none seems obviously suitable for any specifically economic or religious purpose. The main temple area lies across a watercourse (probably a branch of the Euphrates) in the area later to become the site of the Anu Ziggurat.

The most important discovery in the Eanna precinct was, without doubt, the large collection of written documents (the Archaic Texts), clay tablets inscribed in pictographs, found in the leveling fill beneath the Level IVA buildings. These

are the earliest such documents known and reflect the activities of a complex, stratified administration, but we remain ignorant of the areas of the site where the various economic activities referred to in the texts were actually carried out. Certainly there is no particular reason to associate them with the monumental buildings of Eanna itself; they were simply part of the rubbish brought in and used to level the surface on which the buildings were constructed (see discussion in Nissen 1988: 97ff.).

Undoubtedly the single most important text recovered is the so-called "Titles and Professions List," a lexical text of the type later known to have served for teaching purposes. Its significance lies in the fact that it clearly indicates a four-tiered organization of society that must have significantly preceded the compilation of the text itself. The sequence of titles clearly points to a hierarchical society and the positions themselves are clearly ranked. The "professions" list also reveals some of the numerous economic and political groups that functioned at Warka, a further and convincing argument for complexity (see Nissen et al. 1993; cf. Nissen 2002).

Of particular interest on this list is the first title, "chairman of the assembly." Many years ago Thorkild Jacobsen argued that this assembly represented the earliest form of political organization in Sumer, one that survived at least until the early 2nd millennium BC as the place of arbitration of local disputes (Jacobsen 1957; Oates 1986: 68; Postgate 1992: 80–1). Such a "democratic" institution perhaps helps to explain the fact that there is surprisingly little visible evidence for social stratification by the end of the Ubaid period, despite the fact that we know from a few monumental buildings and the increasing size of settlements that by then society was already highly complex.

One of the many innovations of the Uruk period was a new type of seal, the cylinder seal, which can be rolled over clay, providing greater security than the much earlier stamp seals (Pittman 2001). This new type first appears in Middle Uruk levels – i.e., considerably earlier than the Eanna IVA buildings. A major figure on these sealings is the so-called "man in the net skirt," a bearded man depicted with a stave who is clearly the most important official and appears in both ritual scenes and as a leader in war (e.g., Strommenger 1964: Pls. 15–17; Boehmer 1999: Pls. 17, 35). The same figure also appears on the Lion Hunt Stele from Warka, demonstrating already in the 4th millennium BC a royal prerogative that was to continue throughout Mesopotamian history (Oates et al. 2007: Fig. 9; McMahon 2009a).

The Late Uruk mass-produced bevel rim bowl has been found throughout the Near East, a reflection of the influence in – and in some cases actual Mesopotamian (probably Sumerian) occupation of – areas peripheral to Sumer. Hundreds, even thousands, of these vessels have been found on Near Eastern sites from the Uruk "colonies" in the north (Ch. I.22) to eastern Iran. Originally thought to have been a "ration bowl," the most recent view is that these vessels are containers for the baking of leavened bread (Millard 1988; Potts 2010), though the vast

number of these suggest still the context of "rations" in the sense of bread rations. Whatever their purpose, they reflect a highly organized administration, as is indicated by other contemporary evidence.

There is also some debate as to whether the Warka IVA "pictographic" texts (i.e., the signs consist of what is essentially picture writing) represent the very earliest stage of writing. It seems unlikely that such a complex writing system as that on the earliest texts from Warka could have developed overnight. Several individual pictographs have appeared much earlier at Tell Brak in northern Mesopotamia (e.g., the pictographic sign for ox; cf. Sumerian **gud**) on a number of small bowls in the earliest Late Chalcolithic 3 level, c.3900 BC (Oates et al. 2007: Fig. 7). Moreover, the tablets recovered in Level IVA at Warka were in fact rubbish brought in from other areas of the site to provide leveling fill for the construction of the Level IVA buildings. Thus we have no evidence whatsoever for the timespan represented by this rubbish.

The numerical systems used on the Warka IVA texts are also extraordinarily complex, with different number systems for different types of products or materials – for example, calendar units, grain, dairy products, etc. – though all were based on the sexagesimal system with the use also of the number 10 (Nissen et al. 1993). The numbers on the earliest tablets were made by impressing geometric tokens, types that are characteristic of earlier periods in Mesopotamia (e.g., at Tell Abada: see above). The very systematic Abada evidence suggests that these tokens may also have represented numerical values though it must be admitted that we have no direct evidence as to their precise meaning.

One of the arguments for the background to the pictographic signs at Warka assumes the existence of earlier, "complex tokens" that closely resemble the pictographs (Schmandt-Besserat 1992). There is, however, no clear evidence that these precede the pictographic script and a large number seem to have appeared slightly later. Moreover, as already noted, the geometric tokens were used to impress numbers on the earliest texts.

Thus, by the second half of the 4th millennium BC the size and complexity of Uruk leaves little doubt as to the urban nature of early Sumerian society. Moreover, the "man in the net skirt," whose duties are now illustrated, displays all the features of the later Sumerian kings, including leadership in both ritual activities and warfare. Surveys carried out in southern Mesopotamia suggest an increasing density of settlement in the 4th millennium BC, made possible by the introduction and extension of irrigation agriculture, unnecessary in the north, but which produced far higher yields than northern rain-fed cultivation. Indeed, these higher yields were a major factor in the growth of increasingly large Sumerian cities, the greatest of which in the 4th millennium BC was clearly Warka.

Somewhat perversely, as a result of the discovery and excavation of "colony sites" (Ch. I.22), there exists more data about the Middle and Late Uruk phases in northern Mesopotamia than in the south. Whether all these were true colonies acquiring materials for the cities of the south or perhaps speculative settlements

with a view to "personal profit" remains uncertain. Sumer is of course devoid of metal ores, obsidian, flint, and gem stones, and the "colony" sites were undoubtedly for the purpose of acquiring such desirable materials, whether "officially" or more "privately entrepreneurial" in their purpose.

There is another essential, but often forgotten, material that must have been in demand for the construction of the increasing number of larger monumental buildings, and that is wood suitable for roof beams. Certainly, the local poplar is not suitable for buildings on the scale of those at Warka. Margueron (1992) has calculated that between 3,000 and 6,000 meters of roofing timber would have been required to roof Warka's Level V Limestone Temple, while Algaze (2008) has estimated that the Level IVA monumental buildings would have required between 16,800 and 33,600 linear meters of such timber. These buildings would not, of course, have been built at the same time, and roofing timber can be reused, but such monumental structures made considerable demands on both local and distant resources.

6 Summary comments

The prehistory of southern Mesopotamia is the story of stable sedentary villages based on agriculture, including dates, and a reliance on fish, cattle, and pig, with a standardized, tripartite house plan deriving from earlier Samarran sites and tripartite monumental buildings found already in the earliest levels up to now excavated. It is also clear that there is a relatively uninterrupted development from the Samarran and Ubaid periods, and it is becoming increasingly obvious that by the end of the Ubaid phase all the attributes of complex society were already present.

Surveys carried out in southern Mesopotamia suggest an increasing density of settlement in the Uruk period, and the potential of irrigation agriculture, introduced at least as early as the 6th millennium BC, would eventually make possible a much greater density of population than in the rain-fed north. Serious conflict also became evident at this time, and the role of the "man in the net skirt" at Warka included not only the usual religious and political duties, but leadership in war and apparently the right to hunt lions, in later times certainly the prerogative of the ruler.

GUIDE TO FURTHER READING

Several works cover the Ubaid period in Mesopotamia. In addition to Carter and Philip (2010a), readers should also consult Henrickson and Thuesen (1989). For the Uruk period, see Rothman (2001) and Postgate (2002). Much of the Syrian evidence is well summarized in Akkermans and Schwartz (2003). Stein and Rothman (1994) also contains some useful studies.

CHAPTER TWENTY-FIVE

The Arabian Peninsula

Philipp Drechsler

1 Introduction

Permanent, clustered human settlements with fixed dwellings and populations ranging from a few hundred to a few thousands that are based on agriculture (villages) or manufacture and trade or exchange (towns) appeared comparatively late, during the 3rd millennium BC, in the Arabian peninsula. The domestication of the date palm (*Phoenix dactylifera*) and the development of water management strategies that provided the shade and water necessary for the growth of other fruits and vegetables formed the basis for the kind of oasis living which is so characteristic of permanent settlements on the Arabian Peninsula up to the present day (Cleuziou 1996; Potts 2001b). But the first steps toward sedentary village life took place during the preceding Neolithic period. Based on either favorable environmental conditions or trade and exchange, these early developments preceded the establishment of town and village life on the Arabian peninsula during the Bronze Age.

From the first half of the Holocene until c.4000 BC, environmental conditions in Arabia favored the predominance of mobile human communities living in small, ephemeral camps. Almost contemporaneous with the dawn of domesticated animals in the Fertile Crescent, mobile herders started to explore the wide, steppic plains of northern Arabia. As there exist no major environmental barriers along the northwest–southeast axis of the peninsula (Drechsler 2009), the Neolithic dispersal reached central (Drechsler 2007) and probably southeastern Arabia

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(Uerpmann 2011) within a few centuries. As an adaptation to favorable local environmental conditions, a highly mobile herding economy based on domesticated sheep, goat, and cattle developed during the 7th, 6th, and early 5th millennia BC that included both local southern Arabian and Levantine Neolithic cultural traditions. As indicated by numerous archaeological sites in almost all parts of Arabia, these mobile Neolithic groups even roamed the most remote areas of what is today the Rub al-Khali desert (Adams et al. 1977; Edens 1982, 1988). But archaeological evidence of sedentary life in permanent settlements during this time period is generally restricted.

Influenced by deteriorating climatic conditions at the end of the 5th millennium BC, human populations retracted into more sustainable habitats along the coasts of the Arabian peninsula and into the highlands that benefited from higher precipitation. Both a broad but spatially restricted spectrum of marine and terrestrial resources allowed for and forced the establishment of communities living in small, more permanent settlements with fixed dwellings. Far-reaching exchange networks along the Persian Gulf and the development of water management strategies in the highlands of southern and western Arabia contributed to the emergence of permanent settlements between the 5th and the 3rd millennia BC.

2 Arabian Early Neolithic

During the Holocene, the Arabian Peninsula underwent a number of significant changes in vegetation, fauna, and human occupation driven by changes in the regional climate. Between 9500 and 4200 BC, wetter climatic conditions prevailed in the southern part of Arabian landmass because of the incursion of the Indian Ocean monsoon (Lézine et al. 1998; Neff et al. 2001; Fleitmann et al. 2003; Parker and Goudie 2008). At the same time, the intensification of Mediterranean storm tracks caused an increase in annual precipitation in northern Arabia (Bar-Matthews et al. 1997). These wet conditions led to the development of savanna grassland with a dominance of C3 (cool season) grasses and scattered tree cover. Simultaneously, an increase in vegetation cover stabilized the large dune areas that developed in southeastern Arabia during the Last Glacial Maximum, Younger Dryas, and earliest Holocene (Goudie et al. 2000), while precipitation allowed for the development of intradunal, fresh-water lakes (Lézine et al. 2007).

These changes in environmental conditions made the formerly desertic regions of the Arabian peninsula attractive for both hunter-gatherers and mobile herders. Almost simultaneous with the appearance of domesticated animals in the southern Levant, a spatial extension of Pre-Pottery Neolithic B (PPNB) groups into the northwestern margins of the Arabian peninsula can be observed during the 7th millennium BC, marking an intensification of the exploitation of the steppic areas of the northern Arabian plateau (Bar-Yosef 2002b; Kuijt and Goring-Morris

2002). At this time, large villages with multistory buildings were established in the southern Levant (Kuijt 2000a; Gebel 2001–2), while settlements along the northern Arabian plateau were characterized by more ephemeral architecture (Ingraham et al. 1981; Betts 1998; Fujii 2006; Fujii and Abe 2008). At a greater distance from the PPNB core region, archaeological sites in eastern and central Arabia as well as in Qatar reflect the extension of the PPNB territory during the 7th millennium BC through the presence of Qatar B-type blade arrowheads that show affinities with PPNB blade arrowheads in the Levant (Kapel 1967: 18, based on a comment by P. Mortensen). Up until now, there is no evidence of permanent settlements with fixed dwellings associated with these finds. Therefore, it has been assumed that these PPNB-related sites represent the residue of mobile herders of PPNB origin that roamed the northern and central parts of the peninsula. That the dispersal of Neolithic populations from the Levant was based on the herding of domesticated animals can be inferred from finds of domesticated sheep, goat, and cattle in archaeological contexts dating to the 6th and 5th millennia BC in southeastern (Uerpmann and Uerpmann 2008a; and discussion below) and southwestern Arabia (Martin et al. 2009). Although permanent settlements cannot be expected to be found in an economy that is primarily based on mobile herding, there are some indications that particular places were frequented over a prolonged period or at least on multiple occasions. The common characteristic of these places is their proximity to resource-rich environments and open water bodies.

The site of Nad al-Thamam (NTH), c.2 kilometers northeast of Jebel Buhais in the Emirate of Sharjah (UAE), is situated on top of a prominent dune overlooking the surrounding landscape. The dune is covered by a dense surface scatter of Neolithic flints, which continues to a depth of more than 50 centimeters below the surface (Uerpmann 2011). Among other flint artifacts that can be subsumed under the "Rub al-Khali Neolithic" or "Arabian Bifacial Tradition" (Edens 1982, 1988), so-called Fasad points have been documented at the site. Made on regular blades, these points show strong formal similarities to the abovementioned Qatar B arrowheads. One radiocarbon date from a shell fragment of the marine gastropod *Fasciolaria trapezium* indicates human presence at Nad al-Thamam during the early 7th millennium BC. Recent geomorphological investigations confirmed the presence of an extended, freshwater lake near the site.

Although poorly dated, the site of Ain Qannas, a low mound with a height of 3.8 meters and a diameter of 250 meters located on the northern edge of the al-Hasa oasis (Eastern Province of Saudi Arabia), provides additional evidence of more permanently populated places during the late 7th and 6th millennia BC. Excavations at Ain Qannas revealed a stratigraphic sequence c. 5 meters thick of 14 archaeological layers. The lowest levels (14–12) show a stone tool assemblage characterized by blade arrowheads related to Qatar B-types, bifacially and unifacially worked blade knives, and blade scrapers (Masry 1997). In contrast, the subsequent levels (11–5) are flake-dominated. Installations associated with these

levels are limited to one limestone-lined fireplace in Level 9 on top of a possible "dirt floor," and a fireplace in Level 12. More substantial architectural remains were identified in the upper four levels (1–4), dated on the basis of finds of Ubaid pottery to the 5th millennium BC. While occupation at Ain Qannas was limited below Level 4, the succession of cultural deposits clearly demonstrates the repeated use of the site during the late 7th and 6th millennia BC. Only 500 meters to the east of the site is a large basin where a shallow, permanent lake formed, with a thick, marshy growth of reeds and other plants. A second, more substantial lake that is completely dried up today was located approximately 1 kilometer further north. Both lakes are fed by rainwater, as well as outflow from springs in the al-Hasa oasis. Based on Pleistocene fossil groundwater, this permanent supply of water would have been capable of sustaining mobile herders during prolonged stays as well as supporting agriculture.

3 Arabian Middle Neolithic

Moist climatic conditions in Arabia continued during the 6th and early 5th millennium BC. Lakes developed in the an-Nafud desert (Schulz and Whitney 1986) of northern Arabia and further south in the Rub al-Khali (McClure 1976, 1978; Parker et al. 2004, 2006), Ramlat al-Sabatayn (Lézine et al. 1998, 2007) and Wahiba Sand Sea (Radies et al. 2005). In the Yemen highlands, soil formation took place (Wilkinson 1997). The lowlands and desert areas were covered by grassland vegetation with woody elements (Schulz and Whitney 1986; Lézine et al. 1998, 2007; Parker et al. 2004), while grass and scrub vegetation with a higher density of trees predominated in the Yemen highlands (Wilkinson 1997).

Mobile herders whose subsistence was primarily based on sheep, goat, and cattle benefited from these favorable environmental conditions. As a consequence, mobility patterns developed in southeastern Arabia during the 6th millennium BC that encompassed the Hajar Mountains, the interior, and the coast (Uerpmann et al. 2006; Uerpmann and Uerpmann 2008a; Uerpmann 2011). Archaeological excavations around Jebel Buhais documented extended funerary complexes (Jasim et al. 2005; Kiesewetter 2006) and contemporary artifact assemblages (Drechsler 2010). However, permanent installations and dwellings were rare. The distribution pattern of stylistically similar arrowheads (Spoor 1997; Drechsler 2009) demonstrates the great mobility of these Neolithic herders. The presence of similar point shapes in the desert interior, coastal regions, and mountain ranges suggests the exploitation of all these regions by the same or closely related groups. Further evidence of the mobility of these communities is provided by personal adornments made of marine shell that have been found up to 180 kilometers away from the closest seashore, demonstrating the mobility of the Neolithic pastoral communities who must have regularly come into contact with coastal communities as part of their annual cycle of movement (Beech et al.

2006). Additional evidence of mobility comes in the form of "exotic" goods such as obsidian in southwest Arabia (Edens and Wilkinson 1998; Khalidi 2009: 288–9).

The predominance of a highly mobile way of life in Arabia during the Middle Neolithic constrained the development of settlements with fixed dwellings. Places that were occupied permanently or at least for longer periods of time developed exclusively in those regions where diverse or especially resource-rich environments supported a greater degree of sedentism. This process is documented along the shores of the Gulf of Oman, where such settlements relied on marine resources. Evidence from small villages in the Yemen highlands suggest similar specific adaptations. Another factor that supported the development of settlements with fixed dwellings and permanent architecture was the emergence of long-distance cultural and trading relationships between coastal populations along the Persian Gulf and southern Mesopotamia.

Indications of more long-term coastal fishing settlements during the late 6th and 5th millennium BC have been found along the shores of the Gulf of Oman (Uerpmann and Uerpmann 2003; Biagi and Nisbet 2006). Based on the environmental characteristics of the site locations that provided a year-round food supply, it has been suggested that at least semi-sedentary communities settled in this area (Biagi and Nisbet 2006).

The shell middens of Ra's al-Hamra in the Capital Area of Oman are located on top of a limestone terrace that forms a prominent headland. Overlooking an extensive mangrove swamp and shallow beach to the southwest, this headland marks the beginning of a rocky coastline that extends as far as Ra's al-Hadd. Fresh water is available thanks to a *wadi* (seasonally flooded rivulet) that separates the shallow beach from the rocky coast. While most shell middens are oriented toward the open sea, several are situated farther inland and were oriented toward a former lagoon and mangrove swamp (Uerpmann and Uerpmann 2003). Both the mangrove swamps and rich fishing grounds off the coast of Ra's al-Hamra provided the economic basis for the settlement, supplemented by hunting and herding of domesticated animals. The mangrove swamp's basic resources – shellfish (principally *Terebralia palustris*) and wood for fuel – are available throughout the year. The stable ecology of the area was capable of supporting continuous occupation, or at least groups whose subsistence was based on the resources immediately surrounding their habitation sites and who therefore only moved periodically (Biagi and Nisbet 2006). The most comprehensive evidence of late 6th millennium settlement at Ra's al-Hadd comes from the sites of RH-6 and RH-11, both of which are oriented toward the interior (Uerpmann and Uerpmann 2003). The fact that RH-6 is a classic shell midden with layers rich in mollusk remains and fishbones indicates the importance of aquatic resources for its inhabitants, while the remains of domestic animals were present as well. Although the environment around Ra's al-Hamra provided a potentially year-round food supply, it is likely that it was integrated into the annual cycle of mobile

herders who spent part of each year on the coast as well (Uerpmann and Uerpmann 2003).

Likewise, substantial settlement at Suwayh 1 (SWY-1), on the Ja'alan coast, is indicated by multiple layers of archaeological deposits up to 2.10 meters thick. The foundations of two semicircular huts c.2.3 meters in diameter and delimited by stone boulders were excavated (Charpentier et al. 2003: 17). In addition, a cemetery was unearthed that has been dated to the late 4th millennium BC.

Other evidence of nucleated, long-term settlements dating to the Middle Neolithic comes from the Yemen plateau. Covering an area of c.6300 square meters, WTH3 (also known as WTHiii) is located in the Wadi al-Tayyila drainage of the eastern Yemen plateau c.2,025 meters above sea-level. The site occupies a shallow depression between rocky hillocks and low ridges, while the present course of the *wadi* runs 100 meters north of the site. Embedded in stratigraphy c.80 centimeters thick, the Neolithic horizon is associated with a paleosol that dates to the 6th and 5th millennia BC (Wilkinson 1997; Wilkinson et al. 1997; Edens and Wilkinson 1998). Environmental reconstruction of the eastern Yemen plateau during the mid-Holocene suggests woodland vegetation, generally higher water tables, and scattered ponds in many upland basins as a result of higher precipitation (Fedele and Zaccara 2005; Fedele 2008).

The surface of WTH3 is covered with elliptical block and boulder structures of unworked stone (3×5 or 4×7 meters) oriented northeast–southwest (Fedele and Zaccara 2005). Excavation of about 5 percent of the site indicates that such "houses" existed side by side with impermanent structures. These houses often have a slightly sunken floor, sometimes paved with cobbles and angular stone debris, with a flat stone in the center of the structures that may have supported a central post (Fedele and Zaccara 2005). Two hearths were found inside one of the structures. Between these stone buildings, other flimsy installations, such as light annexes or fences adjacent to stone buildings or separated workshops, have been documented. All these structures suggest a complex settlement organization reflecting a varied village life (Fedele and Zaccara 2005). The basis of this settlement was an efficient, tropical, high-plateau ecosystem and an economy based largely on extensive cattle breeding. Limited archaeozoological evidence from the Neolithic levels of WTH3 indicates the predominance of domestic cattle (70 percent) and caprines (20 percent), while wild species represent only 10 percent of the bone assemblage.

The presence of a large number of other dry-stone constructions, including enclosures, alignments, and oval or elliptical huts located on gently sloping ground in the vicinity of water courses or alluvial flats on the eastern Yemen plateau, suggests the presence of a substantial Neolithic population in this area. Characterized by the presence of chipped stone tools, none of these sites has yielded any pottery (Fedele and Zaccara 2005).

Both along the coast of the Gulf of Oman and on the Yemen plateau, resource-rich environments allowed for the permanent or long-term occupation of specific

places. Similarly rich habitats that allowed for year-round settlement included oases along the coast and in the interior of the Arabian landmass. Oases in the interior that are based on fossil ground water are situated in three major basins in the *cuesta* (ridge) landscape of the Arabian Shield in central and Eastern Arabia, and in the sediment bodies of the northern Arabian Peninsula (Burdon 1977). The outcrops of the water-bearing formations along the edges of the basins are zones of groundwater recharge during periods of high precipitation, while artesian springs can be found within the centers of the basins. Long intervals between water recharge and discharge which can range up to tens of thousand years (Wushiki 1997), as well as the distance between recharging and discharging areas, make these water sources independent of prevailing climatic conditions. Accordingly, springs are the origins of oases within the flat desert, as is the case with the al-Qatif and al-Hasa oases in the Eastern Province of Saudi Arabia (Hötzl and Zötl 1984). Although these oases have a long history of permanent settlement in villages and towns from the Bronze Age onwards (Piesinger 1983; Potts 1990; Larsen 1983), archaeological evidence of permanently populated places during the Neolithic is scanty. The existence of a curving, packed stone and mud wall associated with the Ubaid-related, Middle Neolithic levels 1–4 at Ain Qannas indicates the presence of permanent architecture there (Masry 1997). This suggests intensive use of the rich oasis environment near the site, potentially linked to cultural contacts with Southern Mesopotamia as indicated by the Ubaid pottery found at Ain Qannas.

Evidence of more intensively or permanently populated settlements comes from a number of sites along the shores of the Persian Gulf, many of which are characterized by substantial architectural remains and Ubaid pottery. Although generally associated within artifact assemblages that show strong affinities to the Arabian Middle Neolithic, the occurrence of Ubaid pottery at these places indicates cultural contacts to southern Mesopotamia (Oates et al. 1977; Roaf and Galbraith 1994). Although the exact form of this contact is unknown, trade or exchange have often been invoked as a driving force (Oates et al. 1977; Uerpmann and Uerpmann 1996; Carter and Crawford 2010; Drechsler 2011). The frequency of Ubaid pottery on east Arabian sites decreases with distance away from southern Mesopotamia, but architectural remains have been documented in both the upper and lower Gulf.

Most prominent in the lower Gulf is the settlement of MR11 on Marawah island c.15 kilometers off the coast of Abu Dhabi. Archaeological sites dating from the Neolithic to the Islamic period illustrate the long and intensive settlement history of the island, which measures only 13 kilometers east–west by 5.5 kilometers north–south. MR11 is situated at the tip of a limestone ridge, approximately 2 kilometers from the present coast. Originally interpreted as a group of pre-Islamic burial mounds (King 1998), the site was revealed by excavation to contain an east–west oriented apsidal room (1.8×4.8 meters), built with stone walls standing to a height of 0.75 meters. This room is part of a larger building

complex, consisting of at least three rooms. An additional, smaller, rectangular stone structure (2.4 × 1.2 meters) was excavated nearby. After the building complex had been abandoned, a burial was placed in the apsidal room. Associated with this burial was an almost complete pottery vessel that might have been a grave-good. The fabric of the pottery, its shape, and its painted decoration do not match any other known finds at Ubaid-related sites along the coast of the Persian Gulf. Thus, its origin remains elusive although it has been attributed broadly to the Ubaid style (Beech et al. 2005). Bifacially chipped points and arrowheads, beads made from shell, coral, or stone, and fragments of plaster vessels were also found in association with these buildings. Faunal remains were sparse, but sheep or goat, dugong, marine turtle, and fishbones were recovered. Radiocarbon dates date the building complex to sometime between the mid-6th and 5th millennium BC (Beech et al. 2005). The quality and extent of the architectural remains at MR11 are without parallel in the lower Gulf. Although the exact character of these buildings is obscure, as is their relationship to other, ephemeral or more permanent structures (e.g., a village), MR11 can be related to other sites along the coast that show architectural indications of long-term occupation and Ubaid pottery signifying contact with southern Mesopotamia.

Ubaid pottery has been found at several other coastal sites between Ra's al-Khaimah and the Qatar peninsula (Beech et al. 2000; Uerpmann and Uerpmann 1996; Boucharlat et al. 1991; Phillips 2002; Vogt 1994). Often associated with substantial shell middens, most of these sites lack any traces of architecture and are characterized by few material remains. They can therefore be considered the remains of ephemeral campsites (Uerpmann and Uerpmann 1996). One exception is represented by DA11, a site on Dalma Island 45 kilometers off the coast of Abu Dhabi that is radiocarbon-dated to the late 6th millennium BC, where shell midden deposits have been documented interstratified with layers of Aeolian sand and ash lenses (Beech et al. 2000). In the lower levels of this site, eight postholes have been recorded that have been dug into a hard and leveled deposit. Seven of these postholes form part of a circular structure. Additional structural features discovered at DA11 include singular post sockets and an irregular layer of plaster (Beech et al. 2000). In addition to more than 35,000 stone artifacts, typical pottery of late Ubaid 3–4 type was recovered (Beech et al. 2000). Consistent with MR11, architectural remains at DA11 indicate intensive settlement activities at the site, while Ubaid pottery relates to contacts with southern Mesopotamia.

As already noted above, in the central Gulf area Ubaid-related sites are not restricted to the immediate coast but have also been documented in the interior. With the exception of Ain Qannas, these inland sites are small artifact scatters without any indications of architectural remains. It is therefore likely that these sites result from short stays by mobile groups. In contrast, substantial deposits indicating prolonged settlement have been found at the coastal sites of Dosariyah and Abu Khamis in the Eastern Province of Saudi Arabia (Burkholder 1984;

Masry 1997). Located on the peninsula-like promontory of Ra's az-Zor, Abu Khamis is an almost 10 meter-high mound with an average north–south length of 350 meters (Masry 1997). Overlooking the surrounding sabkha of a sandy desert area, it consists almost completely of marine mollusks. While these deposits clearly indicate substantial economic activities at the site that focused on the collection of oysters, excavations could not confirm the existence of an actual settlement there.

Dosariyah is located about a kilometer inland from the present Gulf coast on a raised area surrounded to the north and west by *sabkhas* (salt flats). Here, the evidence of long-term settlement is more abundant. Flint artifacts, pottery, bone, and mollusk shells are scattered across an area c.90 × 120 meters. Excavations revealed a stratified sequence of archaeological deposits almost 2 meters thick that included shell midden deposits, settlement horizons, and natural accumulations of windblown sand. While the flint artifact assemblage is reminiscent of the Arabian Middle Neolithic, more than 7,000 pieces of Ubaid pottery, as well as obsidian blades, indicate far-reaching cultural contacts with southern Mesopotamia during the Ubaid period (Ubaid 2–3). Radiocarbon dates place the settlement at the beginning of the 5th millennium BC (Drechsler 2011). Although a few installations such as pits were documented during excavations, the evidence of more permanent architecture at Dosariyah remains elusive. Therefore, ephemeral occupation with shifting spatial foci may be suggested for Dosariyah during the Ubaid period. The repeated identification of massive dumps of seashells clearly demonstrates the dependences of the inhabitants on marine resources, as does the huge amount of burned and unburned fish remains. Other aspects of subsistence and economy are revealed by the mammal bones and bone tools recovered.

Numerically speaking, the most frequent archaeological finds at Dosariyah are mollusks. More than 90 percent of the shells are those of the pearl oyster, and this might point to the function of Dosariyah in a wider economic context. Considering that natural pearls were discovered during recent excavations, it can be hypothesized that pearls were an object of exchange between the peoples of Eastern Arabia and the coast, and Ubaid-period Mesopotamians sailing down the Gulf. Dosariyah may have been a meeting point, occupied by mobile Arabian Neolithic communities on a yearly cycle, where pearl oysters were collected during part of the year, or a settlement of specialized pearl collectors. Either scenario would have necessitated prolonged stays at the site.

The best evidence for a settlement on the upper Gulf coast that was involved in the far-reaching relationships comes from the site of H3, As-Sabiyah, located on a low peninsula on the north side of Kuwait Bay. Situated today in close proximity to mudflats, H3 was originally sited on the southern shore of a tidal lagoon or creek at the time of its occupation in the late 6th and early 5th millennium BC (Carter and Crawford 2010). This was a location that provided both an ecologically rich environment and easy maritime communication. A surface scatter of pottery, shell, and lithics measuring approximately 90 × 80 meters

delineates the extent of the site, the center of which consists of two shallow mounds, the larger of which contains the main building complex, while the other has the remains of a single, free-standing structure. Three separate building phases in the main complex, as well as a fourth occupation phase predating the establishment of the first stone buildings there, reflect a well-established settlement. The building complex consists of dry-stone, cellular structures. Neither mudbrick architecture nor postholes were identified (Carter and Crawford 2010). The initial occupation at H3 consisted of fire-pits and probably represented a campsite without any built architecture, although the presence of perishable structures such as tents or windbreaks, and stone architecture elsewhere on the site, cannot be excluded. The fire-pits of this period were densely concentrated, and repeatedly cut in upon each other. Radiocarbon dates place this occupation phase in the mid- to very late 6th millennium BC. The presence of Ubaid 2/3 pottery indicates that contacts with southern Mesopotamia were already established. The material culture inventory from the earliest occupation phase can be characterized as being fundamentally Arabian Neolithic, its lithic industry similar to that of Dosariyah, with a strong Mesopotamian Ubaid component.

During the following period at H3, a series of stone structures was erected and partly rebuilt, as the walls of the earlier phases were incorporated in new buildings. Three distinct building phases were distinguished, with the majority of buildings belonging to occupation phases 3 and 4. During the initial building episode (phase 2), evidence for stone buildings was limited. The size of the structures was small compared to the subsequent periods, and was restricted to the central part of the mound. Smaller alignments and shallow fire-pits outside this central structure point to open-air domestic activities. Fishbones and mollusk shells point to the importance of marine resources. During the subsequent occupation phase, a series of contiguous chambers forming a cellular building complex was built across the surface of the site. These range in size from 4×3 meters to 0.5×1 meters, while the entire complex measured at least 10×7 meters. Many of the chambers were subdivided after building. The artifact assemblages documented in the interior of the chambers indicates that the function of this space changed repeatedly, with phases of temporary disuse and abandonment. This pattern implies sporadic or seasonal rather than permanent occupation (Carter and Crawford 2010). It has also been suggested that a lack of standardization in the use of space might reflect the inhabitants' flexible approach to spatial organization, indicating that permanent installations were not a well-established feature of Arabian Neolithic life (Carter and Crawford 2010).

The site continued to be occupied during phase 4, but some areas fell into disuse and no new structures were built in the center of the site. Away from the center of the site, an oval chamber (2.8×1.7 meters) with an ancillary chamber on its western end was built. Occupation at H3 during this phase was both spatially and chronologically discontinuous. Still, in the Ubaid 2/3 or Ubaid 3 period, the site was finally abandoned.

Despite the presence of substantial architectural remains at the site that indicates some degree of sedentism, at least during phase 3, other archaeological evidence makes it unlikely that H3 was ever a permanent village. It has therefore been suggested that many of the structures relate to stock-keeping, while others would have been used as huts or storage facilities. The archaeozoological assemblage indicates ovicaprid and cattle herding, while maritime resources were also important for the inhabitants of the site. Boat remains in the form of impressed bitumen slabs, a boat model, and a painted boat on Ubaid pottery (cf. Fig. 19.2), as well as huge quantities of Ubaid sherds, clearly point to maritime connections with Mesopotamia. Boats from southern Mesopotamia may have visited the territory of the inhabitants of H3, and stopped at this particular spot. The reason for these visits remains unclear, but both economic and cultural relationships can be assumed.

In summary, it can be stated that until the mid-5th millennium BC, permanent or long-term settlements with fixed dwellings constitute an exception in the Arabian peninsula. The economy during the Arabian Middle Neolithic, based on mobile herding, did not encourage the establishment of villages. Development toward higher degrees of sedentism can only be detected in a few regions where environmental conditions were favorable. Far-reaching cultural contacts and possible trading relationships along the shores of the Gulf may have facilitated the establishment of more sedentary ways of life also led to a greater degree of sedentism.

4 Late Neolithic

During the late 5th millennium BC, climatic conditions in Southern Arabia started to deteriorate. The Indian Ocean summer monsoon retreated southwards and rainfall was increasingly derived from westerly sources during the winter months. As a result of these drier conditions, the vegetation changed toward a sparser cover of C4 grasses (adapted to warm conditions), characteristic of tropical and subtropical grasslands and savannah (Parker and Goudie 2008). At that time, the dominant subsistence system based on mobile herding came to an end (Uerpmann and Uerpmann 2003) and settlement and mobility patterns changed. Indications of large-scale transhumance disappeared, since the exploitation of domestic animals no longer determined the seasonal cycle of human movement (Uerpmann and Uerpmann 2003). Environmental constraints forced human population groups into spatially restricted niches, and the distribution networks for personal ornaments broke down (Uerpmann 2003). While inland sites were abandoned, new settlements were established along the coasts of the Arabian Peninsula, where rich marine resources still provided a sufficient subsistence base.

A large Neolithic settlement of this period has been documented on Akab, an island in a lagoonal environment in the Emirate of Umm al-Qaiwain in the

northern UAE (Charpentier and Méry 2008). Dated to c.4700–3600 BC, the site is located on top of a low hillock of Pleistocene sand and covers an area of about 1.5 hectares. Settlement is manifested by postholes and a basin-shaped hearth. Although a total of 175 postholes were documented over a surface area of about 40 square meters, no circular structures were apparent during excavation, indicating a different kind of architecture at the site. The absence of fine, wind-blown, sandy horizons between the succession of occupation floors at the site, each with an abundant spread of marine mollusks, fish skeletons, and crab carapaces, suggests the absence of lengthy phases of abandonment. Therefore, the site might have been populated without major discontinuity for over 500 years (Charpentier and Méry 2008). While clearly oriented toward the exploitation of the lagoon and mangrove environment, tuna fishing in the open sea took place as well. Supplemented by hunted gazelle and wild ass, subsistence at the site was based on domestic sheep, goat, and cattle. Specialized production of *Spondylus* shell beads characterized the site as hundreds of finished beads as well as production waste were recovered. The few pieces of pottery found date to the Ubaid 4 period, indicating that contact between southern Mesopotamia and the lower Gulf continued into the mid-5th millennium BC.

The fullest information about this type of coastal settlement comes from Ra's-al Hamra 5 (RH-5) and Wadi Shab (GAS1) in Oman. The central settlement at RH-5 dates to the late 5th and early 4th millennia BC (Biagi and Nisbet 2006). During the initial habitation phase, C-shaped structures, pits, fireplaces, and postholes were carved into the bedrock, suggesting that the site was systematically populated from the beginning. Similar semicircular structures were uncovered throughout the later phases of occupation.

The animal resources at RH-5 show an orientation toward deep-sea fishing, supplemented by the hunting of green turtle (*Chelonia mydas*) and the collection of mollusks populating the coast and mangrove forests (Durante and Tosi 1977; Uerpmann 1989; Uerpmann and Uerpmann 2003). The Arabian tahr (*Hemitragus jaykari*) was also hunted (Uerpmann 1989), while domesticated animals are represented by dog, sheep/goat, and cattle (Biagi and Nisbet 1989; Uerpmann 1989). In addition to shellfish, fish, reptiles, and mammals, carbonized fruits and stones of *Zizyphus spina christi* (jujube) were also consumed at RH5 (Biagi and Nisbet 1992).

Associated with the settlement of RH-5 was a graveyard with the remains of at least 170 individuals (Salvatori 1996). This was in use for at least 200 years during the middle and late settlement periods. While primary burial predominated, the presence of some secondary burials might indicate a certain degree of mobility by at least a part of the coastal population at Ra's al-Hamra, on analogy with the contemporary graveyard at al-Buhais in the interior of Sharjah (Uerpmann 2011), the supposition being that individuals who died away from the settlement may have been brought back to the main site after a primary burial elsewhere to have their remains reburied with their social group.

Dating to the late 5th and 4th millennia BC, Wadi Shab (GAS1) is located on the northeastern coast of Oman. Excavations revealed three, well-preserved archaeological deposits that may represent distinct phases of occupation that were chronologically close in time as no significant changes in material culture could be observed between them (Gaultier et al. 2005). As with RH-5, C-shaped structures in the earliest deposit have been interpreted as the foundations of huts. By contrast, semi-circular stone alignments with ephemeral fireplaces, probably the remains of windbreaks, characterized the middle deposit. In the upper deposits large, well-constructed and regularly spaced fireplaces with postholes linked to fragmentary stone alignments were found (Gaultier et al. 2005). A graveyard with both primary and secondary inhumations was excavated adjacent to the settlement. Considering the additional evidence of the portable material culture, the site appears to have been a settlement of fishermen who relied on both marine resources and domesticated animals (Gaultier 2005). Installations at the site indicate both intensive and repeated use; the timing and duration of these settlement episodes, however, remains elusive.

5 Bronze Age

While the evidence of permanent settlements in the Arabian peninsula during the Neolithic is sparse, villages and towns were finally established during the Early Bronze Age. As in earlier periods, their existence depended either on local environmental resources or on trading relationships, but their layout, building plans, and building materials were different from those in the Neolithic. Climatic conditions during the Bronze Age were generally drier in Arabia than they had been previously. Lacustrine conditions based on cyclonic winter rainfall persisted in northern and western Arabia (Schulz and Whitney 1986), but not in central and southern Arabia. Here, the influence of the summer monsoon decreases as the result of the southward movement of the intertropical convergence zone (ITCZ), and winter rainfall did not penetrate into the south. While C3 grassland was replaced with C4 grasses that were more tolerant of arid conditions (Parker and Goudie 2008), generally sparser vegetation led to the reactivation of Late Glacial mega-dunes. At the same time, former lake basins became desiccated and sand-filled. By contrast, humid monsoonal conditions persisted in the mountainous, southwestern part of the peninsula (Wilkinson 2003b).

Benefiting from these more favorable climatic conditions, numerous villages and towns developed in the highlands of Yemen beginning in the early 3rd millennium BC (Wilkinson 2003b). Their location on high points or plateaus overlooking lower ground provided both security and access to agricultural and pastoral resources available on the plains. Therefore, at least four contributory factors are thought to have influenced the location of Bronze Age settlements in the Yemeni highlands: (1) the presence of grazing grounds capable of sustaining

large flocks or herds within the centers of basins; (2) proximity to terraceable or cultivable land; (3) hill- or plateau-top locations that provided some measure of defense; and (4) the presence of transport routes that increased opportunities for the exchange of goods (Wilkinson 2003). Clustered settlements in highland Yemen ranged between 1 and 5 hectares in size, but occasionally reached 5–20 hectares (e.g., Hawagir/DS 293; Wilkinson 2003). The standard Bronze Age dwelling of the Yemeni highlands consisted of a walled enclosure (16 × 19 meters) surrounding a forecourt to the east and a group of rooms to the west. A central room (6 × 6 meters) with smaller, abutting chambers was built against the back wall. The entire enclosure was entered via a monumental entrance. Besides this standard dwelling, other building plans, possibly with specialized functions, are attested.

Long-term, clustered settlements also developed on the coast of the Gulf of Oman. Characterized by a broad spectrum of natural resources for subsistence and exchange, the whole territory was continuously exploited from the Neolithic to the Early Bronze Age (Cleuziou and Tosi 2000). Examples of clustered coastal settlements include HD-6, dating to 3100–2700 BC, and RJ-2, dating to 2500–2000 BC, on the Ja'alan coast.

During the main period of occupation at HD-6, rectangular, mudbrick buildings were erected. These were composed of rectangular rooms of varying size. The internal arrangement of the rooms followed three different patterns (Azzara 2009). In several cases, a large, elongated room was associated with three abutting spaces on each side. The central area of the settlement was dominated by a large building complex that consisted of 16 rooms with an apparently unplanned alternation of varying room sizes. Additional, smaller dwellings, generally composed of two or three rooms, were located in the remainder of the settlement. Following its abandonment, a second occupation of the site consisted of 15 scattered oval and circular huts built of large stones (Azzara 2009).

By contrast, the later settlement of RJ-2 consisted of two main compounds built of mudbrick that show a different organization of space. One compound consisted of at least two adjacent, aligned buildings composed of a succession of rooms of similar layout. The second compound comprised five dwellings with rooms of varying sizes organized around a courtyard.

At both settlements, the buildings show a functional differentiation of space. While most rooms were associated with daily domestic activities, some may have been used as storage facilities. Still others were linked to the manufacture of domestic and ornamental goods. At HD-6, the manufacture of specific items such as beads used for personal jewelry was not localized in a specific zone of the site, but took place in all households. Plans of the buildings at HD-6 suggest that the external space related to each house was often segregated with respect to surrounding dwellings. On the other hand, large, collective ovens suggest some degree of collaboration among neighboring residential units.

Craft activities at RJ-2 were concentrated in specific common areas, suggesting that production was undertaken by several families. Further indications of greater integration within the communities include the presence of a shared courtyard. Craft specialization was thus embedded in the household economy at RJ-2.

Villages also developed in the interior of the Oman peninsula during the 3rd millennium BC as a result of far-reaching trading relationships and craft specialization in the production of copper. The settlement of Maysar 1, located in central Oman, prospered during the late Umm-an-Nar and early Wadi Suq period (c.2200–1900 BC), but was already populated during the 4th and 3rd millennium BC (Weisgerber 1981). Based on rich copper ore sources in the vicinity of the site, a specialized part of the settlement was used for the preparation of copper ore and smelting. House units at Maysar (5×7.3 and 11×17 meters) were generally single-room units whose foundations were built of stone boulders. Although structural details remain largely unknown, due to the poor state of preservation at the site, the remains of a smelting-oven were recovered in one of the houses.

A different layout characterized the settlement at Hili 8, in the Al-Ain oasis near the border between Abu Dhabi and the Sultanate of Oman (Cleuziou 1980, 1982, 1989). The earliest occupation phase at Hili 8 (period I), dated to the early 3rd millennium BC, was represented by a square mudbrick tower, an adjacent rectangular structure, a single wall, and several trenches of unknown function. The foundations of the tower consisted of a series of cross-walls, which formed small chambers built of unbaked mud bricks. A well in the center of the building provided its inhabitants with water. The superstructure of the building was not preserved, but the adjacent rectangular structure appears to represent a set of storage bins that were added to the tower after the building was complete.

Paleobotanical remains from the rectangular structure included a wide range of domesticated cereals, such as emmer (*Triticum dicoccum*) and bread wheat (T. *aestivum*), two-row (*Hordeum distichon*) and six-row hulled (*H. vulgare*), and six-row naked barley (*H. vulgare* var. *nudum*), and possibly sorghum (*Sorghum bicolor*). In addition, melons (*Cucumis* sp.) and dates (*Phoenix dactylifera*) were grown, while wild oats (*Avena* sp.) and jujube seeds (*Zizyphus* sp.) were also used. This spectrum of plant products suggests the presence of gardens in which the date-palms provided shade for the cultivation of fruits and vegetables underneath.

During the subsequent period II a round tower, c.22 meters in diameter, was built on the remains of the former rectangular tower, complemented by an additional rectangular outbuilding. A large ditch, almost 30 meters long, ran around the building complex and is thought to have been part of an irrigation system.

Similar round towers have been documented at other Umm-an-Nar settlements in the Oman peninsula (Cleuziou 1984; Potts 1999). The foundations of

these buildings normally show a pattern of cross-walls within the circular unit. The spaces in between were usually filled with gravel to support a superstructure. Although their function remains obscure, it has been repeatedly assumed that they represent defensive towers. The well-preserved example at Bat, in central Oman (Frifelt 1976), towered 5 meters above the surrounding plain. With an average diameter of 20 meters, such towers would have been capable of holding a fair number of people, perhaps even animals, and were not just lookout posts. The fact that a well is usually found in the center of the building also points to the possibility that they were erected for defensive reasons or to protect the well itself.

Village settlements also developed during the Bronze Age in large oases elsewhere in the eastern Arabia – e.g., at Umm an-Nussi in the Yabrin oasis (Piesinger 1983; Potts 1990) and Umm ar-Ramadh in the northern Hofuf oasis (Larsen 1983). These were economically based on agriculture and enjoyed far-reaching trading relationships with Mesopotamia, Bahrain, southern Iran, and the Indus culture.

GUIDE TO FURTHER READING

Information about the emergence of early permanent settlements on the Arabian penisula is scattered in the literature, making the selection of additional recommended reading somewhat difficult. Comprehensive information about the Holocene environmental history of Arabia can be found in Parker et al. (2006), Parker and Goudie (2008), and Lézine et al. (2007). Uerpmann and Uerpmann (2003) present a conclusive picture of Neolithic societies living along the shores of the Gulf of Oman during the early and mid-Holocene. Primarily based on excavations at the Site of H3-As-Sabiyah, Carter and Crawford (2010) reanalyze the Ubaid phenomenon in the Arabian Gulf in detail. General aspects of the emergence of towns and villages in Bronze Age Arabia are discussed in Cleuziou (1996), Potts (1990 and 2001b), and Wilkinson (2003b).

CHAPTER TWENTY-SIX

The Iranian Plateau

Barbara Helwing

1 Introduction

The development from incipient village life to proto-urban settlements unfolded on the Iranian highlands over a period of roughly five millennia, from the early 8th millennium until the first centuries of the 3rd millennium BC, in lockstep with parallel developments in other regions of Western Asia. During this long stretch of time, periods of regionalization alternated with periods of more extensively visible similarities over wider areas, but transitions from one period to the next in most cases remain unclear. The rugged terrain of the high mountains of the Zagros and Alburz mountains favors distinct regionalism, as do select, oasis-like locations around the Dasht-e Kavir and Dasht-e Lut deserts that equally provided a matrix for the establishment of settlements. The development of local cultural sequences has therefore to be studied in light of this specific geography (Ch. I.1). This chapter will provide a broad overview of these processes, with their ups and downs, their transitions, and their punctuated changes, in order to locate the specific track of development in highland Iran within the broader framework of the Western Asian Neolithic and Chalcolithic.

2 Archaeological Sources, Sequences, and Biases

Prehistoric sites in highland Iran are represented mostly by settlement mounds that have formed over millennia from the accumulated debris layers of buildings

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constructed from mud (*chineh*) and mudbrick. Although these are not the only known prehistoric monuments, these mounded sites (Persian *tepe/tappeh*) clearly dominate the known archaeological record, since archaeological prospections carried out by numerous expeditions since the 1920s have concentrated largely on their documentation. A second settlement category is represented by cave sites, often used seasonally as camps by hunters or shepherds. With a few exceptions (Abdi 2002), such cave sites have mostly been investigated within the framework of Paleolithic research, and the recording of later cultural remains happened rather randomly. A third major group are flat sites, but due to their relative invisibility most of these have escaped recognition, except in the case of accidental discovery or, more recently, systematic walking surveys (Coningham et al. 2004; Schmidt and Fazeli 2007). Besides settlement sites, open-air workshops for flintknapping and mining sites for the extraction of metal ores are also known. With the exception of Chalcolithic examples recorded in the high valleys of the Pusht-e Kuh/Ilam (Haerinck and Overlaet 1996), a region that has been thoroughly investigated, cemeteries are a site category that is, in the current state of research, virtually absent from the archaeological record of the early periods.

This predisposition toward unequal recovery is further exacerbated by the orography and hydrography in the highlands, where active tectonics and heavy erosion are effective even over short time periods, and large-scale landslides that have buried sites in the plains are recorded as recently as the 13th century AD (Brookes et al. 1982). The highly active geomorphology of the landscape leads in consequence to the silting-up of rivers and hence to the invisibility of many ancient sites. Survey results, therefore, cannot be taken at face value and the underrepresentation of specific archaeological periods that is at the heart of most arguments about demographic developments over time may well be an artifact of archaeological exploration (Schmidt and Fazeli 2007; Helwing et al. 2010).

The rugged terrain in the mountainous zones of highland Iran and the enormous distances between oasis locations around the central deserts are factors that contribute to the high variability of the archaeological record throughout the region, and thus to distinct regional sequences. The status of research between these individual regions also varies greatly, with most research concentrated in the southern and southwestern part of the country. Only a few reference sequences that cover the development of the Neolithic and Chalcolithic period are available – e.g., in Fars (Sumner 1977; Voigt and Dyson 1992; Alizadeh 2006) and on the western central plateau (Ghirshman 1938; Majidzadeh 1981; Fazeli et al. 2005; Fazeli Nashli et al. 2009), so that any large-scale discussion has necessarily to extrapolate from the very few available projects that stand out. An additional research bias is due to the different approaches used by the respective archaeological schools to which we owe the principal research. Excavations in huge, multi-period sites that still form the backbone of chronological sequencing throughout the country, such as Tepe Hissar (Schmidt 1937), Tepe Sialk (Ghirshman 1938) and Tepe Giyan (Contenau and Girshman 1935), were carried out

mostly in the early days of international archaeological research in Iran which began in the 1930s. These early expeditions yielded large-scale exposures, but were characterized by relatively poor observation of archaeological layers and contexts, and most of these sites have, as a consequence, been reinvestigated at one point or another. A second phase of research into the early periods of sedentary life was carried out largely within a framework of environmental archaeology and "New Archaeology," introduced to Iran in 1959 by Robert J. Braidwood and his "Prehistoric Project" (Braidwood 1961), and subsequently elaborated by his students and colleagues. As a result, there are some sites that have yielded a wealth of data on subsistence and environment, while at the same time enormous stretches of land remain unknown. With regard to the early proto-urban sites, large-scale excavations have taken place since the late 1960s in a few select locations, and it is from these that most of our current knowledge stems. Due to the interruption of systematic fieldwork in the years following the Iranian revolution in 1979 (Azarnoush and Helwing 2005), the status of research in highland Iran remains, however, "delayed" when compared to the current hot spots of prehistoric research in Western Asia, and in many regions archaeologists have still to construct even the most basic of chronological sequences.

3 Becoming Neolithic

In the days of the Iranian Prehistoric Project, "becoming Neolithic" was regarded largely as a matter of adopting a sedentary and food-producing lifestyle which should have originated in the most favorable regions of the Zagros "Hilly Flanks," as Braidwood had called them (Braidwood 1960). The domestication of plants (Helbaek 1969; Miller 2003) and animals (Zeder 2005) was regarded as critical to the maintenance of the earliest Neolithic communities of the highlands. Where this process actually happened, and consequently where the earliest sedentary villages have to be sought – whether in the cooler climate of the high Zagros valleys, where sites such as Ganj Dareh seem to have had herd management strategies since the 8th millennium BC, or in the lowlands, where Choga Bonut and Ali Kosh are likewise regarded as examples of early sedentism – was an undecided question when research first began. What has become obvious during the last decades, however, is that the question has to be rephrased: today we assume that domestication is not the precondition but, rather, the effect of long-term human interference with specific animal populations through selective or opportunistic hunting (Zeder 2000). In such a scenario, selective human management would have created an environment of reproductive isolation for these animal stocks, thus encouraging genetic/epigenetic changes. Therefore, the question today is to seek the beginning of sedentism as a precondition for long-term interaction between humans and animal populations that would have preceded domestication by a considerable amount of time.

The appearance of sedentary hunters/gatherers/foragers in the Zagros during the 9th–8th millennia BC, as is now confirmed on the basis of radiocarbon dates, corresponds to parallel developments in other areas of Western Asia and especially in the eastern Fertile Crescent. It therefore vitiates the traditional "Levantine primacy" paradigm, which argued for a late arrival of the Neolithic way of life in the Zagros mountains parallel to an assumed, slow reforestation of the eastern Fertile Crescent at the end of the Pleistocene (Aurenche and Koszlowski 2000). Settling-down was a gradual process that was not accomplished once and forever: the earliest sedentary sites (e.g., Ganj Dareh, Asiab, Sarab, and Tepe Abdul Hosein) rarely produced solid architecture but rather accumulations of pits and fireplaces. Campsites or temporary shelters in caves may have been used by either hunting parties or herders (Hole 1987a).

The communities that settled in the Zagros were most probably of local stock: the lithic assemblages of the Zagros Early Neolithic consist of microblade industries based on bullet cores, a tradition that can be linked to the earlier lithic traditions of the Epipaleolithic in Iran. Most importantly, the supposed gap between the Epipaleolithic and Neolithic periods, for which hardly any data were available until recently, is slowly beginning to disappear with new discoveries. The so-called Proto-Neolithic layers in Hajji Bahram Cave (Tsuneki et al. 2007) and Aceramic Neolithic remains at Rahmatabad (Bernbeck et al. 2005), both located in the Sivand environs of highland Fars, as well as Aceramic Neolithic sites in Luristan, clearly show that our current knowledge is incomplete and that there is a high probability that predecessors of the Pre-Pottery Neolithic (PPN) hunters were present in various parts of the highlands. Early Aceramic Neolithic occupations are also attested beyond the Zagros range – e.g., at Sang-e Chaxmagh West in Northern Iran. The recently discovered Aceramic Neolithic site of Tepe Atashi in eastern Iran (Gharazhian, pers. comm.) indicates that such local strands of development can be expected also in other regions of highland Iran. Only the Epipaleolithic seal hunters' sites on the Caspian littoral, the caves of Hotu, Kamarband, and Dam Dam Cheshme (the latter in Turkmenistan), provide so far no evidence of continuous occupation into the Neolithic (Coon 1957).

The early sedentary communities in the Iranian highlands relied on a broad spectrum economy based largely on wild resources (Flannery 1973). The first solid indices of deliberate herd management by humans in the Zagros mountains date, according to the most recent understanding of the paleo-osteological record, only to the late 8th millennium BC (Zeder 2000), at a time when sedentary human communities pursuing a hunter-gatherer lifestyle had been present already for some time. These sedentary forager groups were responsible for tampering with local animal flocks through selective hunting and possibly herding. The animal stock in the Zagros region was distinctly different from its counterpart in the Levant (Zeder, pers. comm.) and was not brought there from distant areas, an observation that further underscores the local nature of the Iranian Neolithic.

Research undertaken since the 1990s in other parts of Western Asia has demonstrated that the transition to a fully Neolithic lifestyle cannot merely be defined as a change to a sedentary, food-producing lifestyle, be it gradual or not. It also comprises important shifts in mental and social concepts (Cauvin 1994; Hodder 2001a; Watkins 2004). In highland Iran, a growing interdependency between the sedentary human communities and specific locales and landscapes seems to have favored the development of locally rooted memories and identity markers, especially through the presence of ancestral burials at sites. Regularly repeated rituals and feasts may have enforced the meaning of these ancestral sites, though the evidence is still scanty. In the Early Neolithic site of Sheikh Abad (Matthews et al. 2010), located in the Kermanshah region of the central Zagros, human burials were dug into the settlement. One of these was sprinkled with ocher, a hint at a tradition of ancestral commemoration. A neighboring building consisted of an extraordinary T-shaped room where the skulls of four wild goats and one wild sheep were set into the wall. A complete crane wing may represent the residue of a costume used during commemorative or other rituals. The Sheikh Abad evidence closely resembles observations made at Ganj Dareh, where 41 adult and child burials were uncovered beneath house floors, and wild sheep skulls were mounted in a niche in the wall (Smith 1968).

In comparison to the western and central parts of the Fertile Crescent, the archaeological record in the Iranian highlands remains so far rather exiguous with regard to ritual and symbolism. Since the abundance of spectacular finds in early Neolithic sites further west is the result largely fieldwork carried out since the 1980s, however, the current research situation in Iran may not at all be representative, and one should be prepared for surprises as soon as systematic fieldwork fully resumes there.

4 The Fully Established Pottery Neolithic

It took more than two millennia for communities in parts of the Iranian highlands to adopt a fully Neolithic lifestyle that included, besides sedentism and cultivation/herding, the mastering of various crafts, most importantly the production of pottery, a development that occurred at the beginning of the 7th millennium BC. During this pottery Neolithic or Late Neolithic period, people lived in permanent villages in solid houses constructed from packed mud (*chineh*) or mudbrick, and sustained their living through a wide range of resources, including animal husbandry and agriculture complemented by wild animals and plants.

The earliest pottery-producing Neolithic sites are recorded in the high valleys of western Iran and northern Iraq. The site of Jarmo in Iraq provided the prototype for the early pottery-producing communities of the so-called Zagros group (Adams 1983) that is attested – e.g., in the latest occupation layers at Ganj Dareh (Hole 1987b). The characteristic proto-pottery of the Zagros group consists of

a badly fired, handmade "software" with coarse organic temper. The new technology spread rapidly over long distances, and the earliest ceramic assemblages documented in widely separated locations such as Tal-e Iblis in southeastern Iran (Caldwell 1967; Evett 1967) and Tappe Sang-e Chaxmagh West in Damghan, northeastern Iran (Masuda 1984), share characteristic technological features of this software horizon, such as concave bases.

Do these similarities indicate a common origin for all these early pottery-using groups? The rapid dispersal of the knowledge of pottery-making, together with the new techniques of subsistence across the highlands, is an argument against purely local development. Recent discussions of modes of cultural transmission over large distances have emphasized differentiated and layered networks in the earlier Neolithic (Asouti 2006; Watkins 2008; Özdoğan 2010) which may provide a useful model for the spread of the Pottery Neolithic to the Iranian highlands. Networks that allowed for long-distance contact certainly did exist, as is evident from the regular occurrence of exotic materials such as maritime shell, obsidian, semi-precious stones, bitumen, and even copper, which could only be obtained through organized exchange.

The first decorated wares appeared a few centuries later – e.g., at Sarab (Hole 1987a), where shortly after 7000 BC three distinct varieties of decorated pottery are attested. All three are constructed from slabs of organic tempered clay and are distinguished according to surface finish as either completely covered with red slip, or painted in red with spots and stripes in a characteristic fashion that Braidwood nicknamed "tadpole ware," or painted in red on clay-colored ground with geometric patterns.

The apparent clumsiness of the earliest pottery production has often been interpreted as a sign of experimentation with a new material that became desirable only after the necessity to store food (such as cereals) in solid containers had arisen. It seems, however, that with the help of a more precise chronology based on radiocarbon dates, a different line of development can be traced: the first pottery appears to have been part a continuous tradition following on from the earlier manufacture of fine stone vessels (Nieuwenhuyse et al. 2010). Indeed, the tadpole patterns of the Sarab ware closely resemble the marmorated appearance of calcite and alabaster vessels, just as the Dark Faced Burnished Wares of the western Fertile Crescent closely resemble the steatite vessels of the PPNB. If this line of argumentation holds up to chronological scrutiny, a socially and symbolically grounded impetus toward the introduction of pottery may be postulated, instead of a mere material-practical need.

The increasingly immobile way of life pursued by most members of the late Neolithic sedentary communities favored the formation of groups with increasingly differentiated regional identities (Weeks et al. 2006b). Pottery, with its unlimited possibilities of shape and decoration, was quickly adopted as the main marker of these new, localized networks and from the early 6th millennium BC onwards stylistic variation in pottery shape and decoration became extremely

great. The basal levels of many of the long settlement stratigraphies in the Iranian highlands go back to the 6th millennium BC Late Neolithic – e.g., at Tepe Sialk I (Ghirshman 1938; Fazeli Nashli et al. 2009). Older sedentary occupation in the highlands may have existed but is as yet not attested. In many regions, however, chronological sequences remain to be fully defined.

Despite the stylistic variability expressed in pottery production, Late Neolithic communities in the Iranian highlands shared a number of features related to their social makeup and the subsistence strategies adopted. In the south and southwest of Iran, multi-cellular constructions of mud and mudbrick may have been communal storage facilities. In the northwestern part of the country, small individual houses were instead preferred, possibly indicating that smaller household units functioned as modules of the social fabric. Burials were underneath the houses in the northwest, a feature not as yet reported at sites with collective storage buildings. Subsistence relied increasingly on agriculture and herding, supplemented by wild resources such as hunted animals and collected pistachios and wild fruits.

If population numbers are used as a proxy to evaluate the reproductive success of the new subsistence strategies, then the Pottery Neolithic lifestyle can be considered highly successful. The number of sites grew exponentially from the late 7th to the late 6th millennium BC, as is attested in various survey records – e.g., in the Kur River Basin in Fars (Sumner 1977), where the chronological sequence is represented by the sites of Mushki–Bashi–Jari–Shamsabad, successively. In the Mushki period, only 8 sites are known; the Jari period is attested at 50 sites; and the Shamsabad period at 108. Whether this represents a continuous, rapid growth of population, as is generally assumed (Sumner 1977; Alden et al. 2004), or an initial rapid growth followed by a long period of slow growth (Weeks et al. 2006b: 19–20), depends on the individual duration of each phase. Despite this bias of the archaeological record due to our remaining incapability to estimate the absolute length of individual periods, and the contemporaneity of sites assigned to the same archaeological period, the tendency of steady population growth seems to hold. In addition, early Pottery Neolithic sites tend to cluster in close proximity to each other (Hole 1987c: 83), possibly the result of dependency relations between one initial "mother site" from which new sites branched off once a critical population size was reached. Similar patterns are recorded in northwestern Iran around Hasanlu (Voigt 1983), in the southern Caucasus Shulaveris-Shomutepe area (Kushnareva 1997), and in the Djeitun and Anau oases at the foot of the Kopet Dagh in the north Iranian/Turkmen borderlands (Kohl 1984).

5 Technical and Social Innovations in the Chalcolithic Period

Following on the steady increase of sedentary village population during the Late Neolithic, the 5th millennium BC brought divergent developments in the various regions of highland Iran. In the southern highlands new technologies of pottery

production were introduced: two-chambered pottery kilns now allowed for controlled firing temperatures above 1000°C (Alizadeh 1985a; Streily 2000). These were used for the production of a light-colored fine ware, painted with elaborate, dark-colored motifs that is diagnostic of the Bakun period, named after a prehistoric site (Tal-e Bakun) close to Persepolis, where such pottery was first recovered (Herzfeld 1929). Related "black-on-buff wares" appear in numerous regional variants all across southern Iran. In their kiln technology and ceramic properties, these wares are reminiscent of those found in the Mesopotamian Ubaid *oikumene* (Caldwell 1968a; Weeks et al. 2010).

The appearance of the "black-on-buff wares" in highland southern Iran and their relationship to earlier, undecorated Shamsabad pottery have been a matter of much debate (Voigt and Dyson 1992; Petrie et al. 2009). The new style is so strikingly different from Shamsabad wares that continuous development out of the former seemed impossible. Therefore an introduction from a region with older traditions of painted wares, such as Khuzestan, was advocated. The dissemination of the new style was thought to be linked to the adoption of a mobile, migrating lifestyle by some segments of the population (Alizadeh 2006). Only recently have reinvestigations at Tall-i Jari yielded ceramic materials that may bridge this gap (Alizadeh 2004; Alizadeh, Kouchoukos, et al. 2004) and with an increase in archaeological evidence this question may be solved.

New pottery styles are only the most obvious markers of significant technological change during the 5th millennium BC. Other changes can be observed in the agropastoral economy. The proportion of caprids in the osteological record rose sharply in the Bakun period, and herding is assumed to have been a major pillar of subsistence (Mashkour 2006b). An emphasis on caprid (especially goat) herding correlates with the introduction of wool and fiber-working, attested through the proliferation of spindle whorls that form a regular component of material culture at Bakun sites (Sudo 2010). Other innovations included the use of stamp seals for the marking of containers, best attested at Tal-e Bakun (Alizadeh 2006), and the beginning of copper smelting (Ch. I.16).

Social changes during the 5th millennium BC can also be deduced indirectly from settlement patterns and architecture. In the Kur River Basin in Fars, settlement sizes indicate an at least two-tier settlement hierarchy, with centers up to 7 hectares, and smaller sites of 1 hectare. Population density seems to have increased from the Early to the Middle Bakun period, followed by a sharp decline in site numbers in Late Bakun (Sumner 1990a). In the Mamasani area though, the increase in population seems to have proceeded steadily until the late Bakun phase (Zeidi et al. 2009). The Bakun period also provides the first evidence of special-purpose buildings. In the uppermost layer of Middle Bakun, Tal-e Gap was a one-room "shrine" (Egami and Sono 1962). The multi-room "administrative building" at Tal-e Bakun, where most of the seal impressions were found, suggests central control over some basic goods (Langsdorff and McCown 1942; Alizadeh 2006).

In contrast to the rapid changes evident in pottery style in southern Iran, communities on the central plateau grew gradually and settlement hierarchies with larger centers and smaller satellite sites developed in the landscape. These groups produced black-on-red, fine-burnished Cheshme-Ali or Sialk II wares, fired in single-chambered open kilns of a type found all over the central plateau – e.g., at Tee Pardis (Fazeli et al. 2007a), but also further north in the Turkmenistan/Kopet Dagh area.

In the northwestern part of the country, however, occupation appears to have been interrupted for several centuries in the late 6th millennium BC and only resumed sometime during the 5th millennium BC by communities that used so-called Dalma wares with their characteristic red-on-white painted designs and plastic surface decoration of fingernail impressions and stitches (Voigt 1983). Such a gap in occupation is attested over a wider area, including the southern Caucasus, and may reflect a change in preferences for settlement locations.

6 Craft Specialization and Trade Contacts

In southern Iran, a decline in the number of settlements is recorded in the late 5th millennium BC – i.e., toward the end of the Bakun period. The subsequent Lapui phase, named after a small, unexcavated site in the Kur River Basin, is hardly known except for its peculiar red burnished pottery. It has been dated on the basis of the stratigraphic sequences of Tol-e Nurabad and Tol- Spid (Petrie et al. 2007), and was recently encountered in rescue excavations at Tappe Mehrali in Fars (Sardari Zarchi and Razai 2008).

In contrast to southern Iran, cultural development on the Iranian plateau proceeded without noticeable interruption well into the 4th millennium BC. Pottery production shifted gradually from the black-on-red of the Sialk II/Cheshmeh Ali tradition to black-on-buff wares subsumed under Sialk III/Hissar II. Evidence of this new style is centered on the western Iranian plateau, but is found over a wide area, from the northern edge of the Dasht-e Kavir to the Kangavar Valley in Luristan. It is linked to the introduction of a new technology, a variant of the two-chambered pottery kiln that had been used in southern Iran during the Bakun period. Early Sialk III shapes and decoration attest to continuity in craft production (Nokandeh 2010a) which differ from the south Iranian, Bakun tradition.

During the earlier 4th millennium BC, the sites on the Iranian plateau engaged in a process of specialization in the manufacture of specific materials. Traders and craftsmen at Tepe Hissar on the northern edge of the desert acted as intermediaries in the lapis lazuli trade from Afghanistan, engaging in the preparation of blanks and finished products (Casanova 1998). Copper smelting and silver refinement were other newly introduced lines of craft production in workshops located along the southern and western edge of the desert, at Tepe Sialk, Arisman, and

Ghabristan (Pernicka 2004; Majidzadeh 2008b). These manufacturing centers were all located some distance from the sources of the raw material that they processed. Lapis lazuli occurs only in the Badakhshan mountains of northern Afghanistan. The silver ores processed in Arisman and Sialk were obtained from the Anarak region of central Iran, about 200 kilometers further east. The existence of these manufacturing centers can thus not be explained by their proximity to exotic raw material sources. Rather, each relied on a long-distance supply system. The introduction of domesticated ass, attested in central Iran since the 4th millennium BC (Benecke 2011; Potts 2011), may have been a crucial step in the establishing of these supply systems.

The finished products manufactured in these craft centers found their way through trade into the households of consumers and institutions in the Mesopotamian lowlands. Contact between the sites on the desert rim with the emergent Uruk period institutions in the lowlands is attested during the later Sialk III period in the form of occasional administrative devices such as seals and tokens at highland sites. Potters in the highlands emulated shapes known at the lowland sites, probably linked to fancy new food and drink habits, and bevel rim bowls, leitfossils of Uruk sites in Mesopotamia during the second half of the 4th millennium BC, were produced at the highland sites (Potts 2009; Boroffka and Parzinger 2011).

7 Proto-urban Centers in the Highlands: The Proto-Elamite Period

Contacts between the highland manufacturing centers and the emergent states in the lowlands prepared the groundwork for the establishment of the first proto-urban center in the highlands. Around the middle of the 4th millennium BC, sedentary occupation at most highland centers was interrupted at least briefly (Helwing 2004). Shortly afterwards, new settlements sprang up all over southern and central Iran, either on previously occupied sites such as Tepe Sialk, Tepe Yahya, and Tal-e Iblis, or on formerly unsettled sites such as Tal-e Malyan and Arisman. There is some evidence that this transition was induced by some sort of crisis or collapse: established, large settlements were abandoned and at some of these (e.g., Sialk) destruction layers can be observed. The resettlement brought a concentration of population in a few large centers, without associated, smaller satellite sites (Helwing and Chegini 2011). The new settlements had a planned, urban architectural layout and made use of standardized *Riemchen* bricks (long, thin, and square in section). Ceramic styles indicate a selective emulation of lowland prototypes of the Late Uruk to Jamdat Nasr period. An original writing style was adopted during the later phase of the Proto-Elamite period, and cylinder seals are found in the highland sites as well, indicating familiarity with this system of trade control. Craft production reached a highly

professional level, as is evident from the use of the potter's wheel, and the introduction of copper smelting furnaces that increased the production of copper artifacts exponentially (Sumner 2003; Vatandoust et al. 2011). Apparently, sites specialized even further in the working of specific raw materials: some sites such as Arisman engaged in metal production, others such as Tepe Hissar produced lapis lazuli blanks. Another specialized field was the production of elaborately soft-stone vessels in the Jiroft area (Kohl 1975, 2001) and alabaster vessels at Shahr-i Sokhta in easternmost Iran (Casanova 2008).

The development of handicraft centers in favorable locations around the central desert and in the high valleys of the Zagros relied on a well-established network of trade routes. With domesticated asses available for transport since the 4th millennium BC, and with refined technologies that allow for large-scale output – e.g., in the metal and stone vessel sector – towns in the Iranian highlands prospered by supplying the lowland settlements in Khuzestan and Mesopotamia, as well as the market centers on the Persian Gulf, with prestige goods: metal, jewelry, and stone objects, and probably other invisible products as well. This complex trade network turns the Iranian highlands into a blossoming landscape for a few centuries during the late 4th/early 3rd millennium BC, before it again became more and more isolated and finally fell apart.

GUIDE TO FURTHER READING

For a general overview, focused on Western Iran but with links to other regions, see contributions in Hole (1987a). Up-to-date chronology is found in Fazeli Nashli et al. (2009), while Dyson (1992) and Voigt and Dyson (1992) are still useful for their general outline. Animal domestication has been treated exhaustively by Zeder (2005). For aspects of the most recent field research into the Neolithic, see Alizadeh (2006), Weeks et al. (2006), and Pollock et al. (2010). For a general assessment of the Chalcolithic period, see Weeks et al. (2010). The classic on the emergence of urbanism and long-distance networks is Amiet (1983), while updated opinions are discussed in various recent excavation reports, among others Potts (2001a) and (2009), and Vatandoust et al. (2011). The role of metallurgy as one of the main triggers for the emergence of social complexity is emphasized in Matthews and Fazeli (2004) and Helwing (2011). Dahl (2009) treats the earliest appearance of writing.

CHAPTER TWENTY-SEVEN

Southwestern Iran

Abbas Moghaddam

1 Introduction

A long history of archaeological studies in the lowlands of southwestern Iran has made this the best-studied region in Iran (Figure 27.1). From the mid-19th to the early 20th century, archaeological investigations in the Susiana plain by English and French missions (Loftus 1857; Dieulafoy 1890–2; Morgan 1894–1905, 1900a, 1902, 1912; Gautier and Lampre 1905), intent on revealing ancient monuments and excavating large mounded sites, was limited mainly to the extensive excavation of Susa (Malek Shahmirzadi 1986, 1987, 1990; Chevalier 1997; Abdi 2001). Unearthing impressive objects to enrich the Louvre was one of the main goals of the French delegation, which enjoyed a monopoly over archeological investigation in Iran at that time (Mousavi 1996: 6; Abdi 2001b: 54). Unfortunately, this approach, which was the product of the prevailing archaeological thought of the time, was accompanied by destructive methodologies as well. As a result, many valuable prehistoric and historical deposits at Susa and elsewhere were destroyed without adequate documentation. Nonetheless, it needs to be acknowledged that it was this work that eventually led to the more scientific, rather than object-oriented, investigations at Susa and neighboring sites from the mid-20th century onward (Ghirshman 1952, 1953, 1954, 1964b; Le Breton 1957; Steve and Gasche 1971, 1990; Perrot 1978; Dollfus 1978, 1983a, 1983b, 1985).

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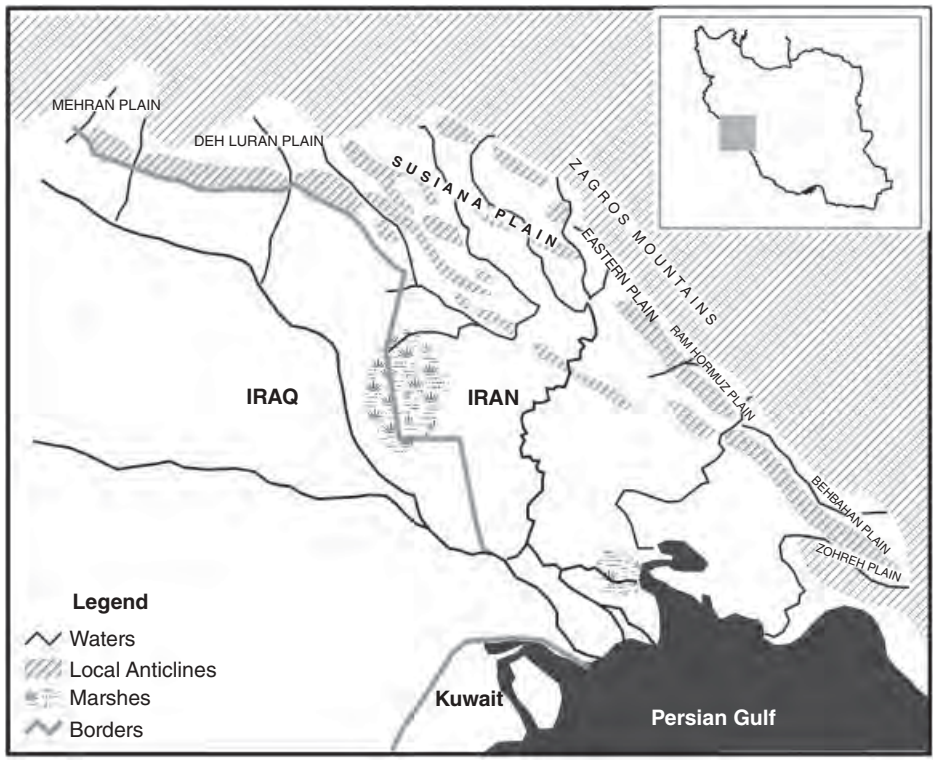

Figure 27.1 Map showing the extent of greater Susiana.

In the 1940s D. McCown, a student of Henri Frankfort's, pioneered the comparative, stratigraphic study of Iranian archaeological assemblages (McCown 1942). He was mainly interested in clarifying cultural developments and interactions on a broad cultural and geographical scale. In the 1950s the French scholar Louis Le Breton tried, for the first time, to assemble the "much neglected, disperse and vague, unsystematic and often seemingly contradictory" information that was available from the early excavations at Susa in the form of a relative chronology (Le Breton 1957: 4). Le Breton's work resulted in the establishment of a local chronological sequence, which was enriched and modified by later excavations at Susa and other sites in Susiana. It also provided a basis for later survey projects to be undertaken within a relatively secure chronological framework.

Beginning in the early 1960s the southwest Iranian alluvial plains became the object of more systematic, problem-oriented archaeological and ecological research. Many attempts were made to understand the cultural and natural contexts under which various developments and human-environment interactions

took place (Kouchoukos 1998: 75–89). *The Archaeology of Western Iran* (Hole 1987a), which deals with the archaeological problems of the region – in Nissen's words "a mine of new information and new insights" (1988: 87) on the archaeology of western Iran – was largely the result of long-term archaeological investigations in this region. Pioneering work in the late 1960s and early 1970s in the Deh Luran and Susiana plains greatly facilitated our understanding of the settlements and occupational history of this important region from the 8th millennium BC onwards (Johnson 1987: 283–91).

The Islamic revolution of 1979 resulted in a long hiatus in archaeological field investigations and excavations in Iran. This nevertheless provided a study period for scholars who were able to shift their efforts and energy from fieldwork to the revision and interpretation of the results of previous research (cf. Wright 1981b; Dollfus 1983a, 1983b, 1985; Pollock 1983; Dittmann 1984, 1986; Hole 1987a; Alizadeh 1992; Neely and Wright 1994; Haerinck and Overlaet 1996; Delougaz and Kantor 1996; Wright and Carter 2003; Kouchoukos and Hole 2003). In the subsequent decades, though on a very limited scale, Iranian archaeologists, having benefited from previous studies, revived archeological investigations in southwestern Iran using new approaches and participating in several collaborative projects (Alizadeh 2003a; Moghaddam and Miri 2003; Alizadeh et al. 2004; Moghaddam 2005, Moghaddam and Miri 2007, Moghaddam 2008, Moghaddam et al. 2008; Nokandeh 2010b;).

2 Boundaries and Natural Setting

The area from the small valley of Mehran in the northwest to the Zuhreh valley in the southeast constitutes the southwestern lowlands of Iran (see Ch. I.25, Fig. 25.1), forming part of the "Assyrian steppes" (Flannery 1965: 1247; Carter 1971: 11). The marked geographical, environmental, and economic contrast between this area – a "single developing ecosystem" (Hole and Flannery 1968: 198) – and the immediately adjacent valleys of the Zagros in Luristan to the north and Fars to the east, the lowlands of southern Mesopotamia, and the low-lying plains of the Persian Gulf has long been recognized (Hole and Flannery 1968: 148–9). More broadly, these steppes can be defined as a zone of transition between the adjacent ecological systems of the highlands and the lowlands. The southwestern lowlands are defined by the first folds of the Zagros mountains to the north and several low, outlying folds in the south, including Jabal Hamrin and the Dezful, Haft Tape, Shaur, Ahwaz, Kupal, and Gachsaran anticlines. Toward the south and southeast, the region is bounded by the Persian Gulf. The Zagros mountains and the aforementioned anticlines run in a parallel, northwest–southeast direction. As a result of tectonic uplift and alluvial processes, several plains of varying size were created here (Hamzehpour et al. 1999: 180). These boundaries have created a distinct and, to some extent, unique region in south-

west Asia, enjoying access to three distinct environmental zones: the highland Zagros, lowland Mesopotamia, and the Persian Gulf.

Emphasizing the geographical similarities between the different plains of southwestern Iran, Malek Shahmirzadi marshaled the available chronological evidence (Voigt and Dyson 1992; Hole 1987b; Alizadeh 1992), adopting a holistic, geocultural approach to the region he has called "Khuziyan." Khuziyan is defined as "a vast cultural zone in southwestern Iran that extends from the Pashmi mountain foothills in the Ilam province in the northwest to the Gachsaran area in the southeast near the Persian Gulf shoreline. It is separated from Mesopotamia by the Tigris and Arvandrood (Shatt al-Arab) Rivers in the west and from the Iranian central plateau by the Zagros Mountains in the north" (Malek Shahmirzadi 1997: 406). "Greater Susiana" is another term often applied to this region (Kouchoukos 1998: 80; Moghaddam 2008; cf. Wilkinson 2000: 222–3). The prevailing view in most general studies on southwestern Iran is that the Susiana plain is geographically an extension of the lower Mesopotamian Plain. However, this is not entirely correct. Geographically, it is a distinct and markedly unique interface zone between lowland Mesopotamia and the highland Zagros, a transitional "ecotone" between two adjacent ecological ecosystems bisected by rivers, foothills, and plains formed by tectonic uplift and alluvial deposition. Climatically, it is capable of sustaining both dry-farming and irrigation agriculture. It enjoys easy access to three important environmental zones (lowland Mesopotamia, highland Zagros, and the Persian Gulf), as well as to the foothills and highland pastures with their vast resources: wool, stones (of different types), wood, bitumen, tree fruits, metal ore, gypsum etc. (Pollock 1999: 40, box 4). The proximity of Greater Susiana to the marshlands and their diverse ecosystem of plants and faunal species in the south and southwest is still a largely neglected topic (Hole et al. 1969: 10–22; Neely 1974: 22; Baeteman et al. 2004: 156; for a comprehensive study on the lower Khuzestan plains, see Heyvaert and Baeteman 2007). Most importantly, the cultural development of Greater Susiana was "quite distinct from that of Mesopotamia" (Nissen 1988: 87).

Adams divided the southwest Iranian lowlands into three zones. The first is the lower plain or old shoreline, which extends from the Persian Gulf to the south of Ahwaz. It has limited evidence of human occupation prior to the Christian era. The intermediate zone is a neglected plain of "widespread salinity, poor drainage, and extensive dune formation" with "nothing to attest a significant occupation prior to Alexander's conquests" (Adams 1962: 110). Finally, a third zone consists of the upper plains to the north of the intermediate zone, where the surface gradients constitute a region with remarkable drainage capability and agricultural potential. In Adams's words, "gross descriptive categories like 'semi-arid steppeland' and 'dependence on large-scale irrigation agriculture' may be as inadequate for a deeper historical understanding as they are for the contemporary planner" (1962: 109).

Dyson (1965: 6) proposed a more detailed description of southwestern Iran which was further amplified by Carter (1971: 8–12), whose approach provides a more meaningful basis for studying the plains of Khuzestan by constructing a framework for analyzing inter-valley cultural interaction during the Elamite era. She divided the Khuzestan plains into three groups: the Lower Plains situated between the Tigris marshes, coastal plains, and the outer chain of Jabal Hamrin in the west to Behbahan; the Middle Plains stretching from Deh Luran to Ram Hormuz, including the Deh Luran, central Khuzestan, and Ram Hormuz plains, situated mostly within the Assyrian steppe; and, lastly, the Upper Plains, located to the north of the inner mountain chains from Shushtar to the east of the Ram Hormuz plain and the high valleys between Malamir and Qaleh Tul (Carter 1971: 326–9 and Figs. 1–2).

Taking all the abovementioned approaches to the geographical definition of the southwestern lowlands into consideration, it becomes clear that it is necessary to consider the entire chain of northwest–southeast oriented plains in the southwestern lowlands of Iran or "Greater Susiana" as an interconnected unit which provided an environment suited to the development of human societies since, at least, 6000 BC (cf. Adams 1962: 109; Hole et al. 1969: 2; Hole 1977: 3–9, 1989: 29).

3 Background to Prehistoric Studies in Southwestern Iran

Beginning at the northwestern corner of the region, there is a small and strategically situated plain known as the Dasht-e Mehran where, in 1997, a team of Iranian archaeologists recorded several settlements dating to the 5th and 4th millennia BC (Khalilian and Nokandeh 1997). Unfortunately, the results of this survey have not yet been published comprehensively. Thus, as will be discussed later, the two ends of the southwestern lowlands (the Mehran plain in the northwest and the Zuhreh plain in the southeast) remain poorly known. A broad archaeological and geomorphological survey project planned for the Mehran plain was canceled because of the dangers posed by the remaining Iraq–Iran War minefields in this area (Alizadeh 2003a: 3). The most recent work here was conducted by a team of Iranian archaeologists focusing on Initial Village to Later Village period (Table 27.1) settlements (Darabi and Javanmardzadeh, pers. comm.).

Deh Luran is an exceptional case in terms of Iranian archaeological investigations. There, the focus of archaeological reconnaissance and excavation shifted from "site" to "site and region," an obvious reflection of the impact of New Archaeology (Binford 1964) on the scholars working there. This new approach involved multidisciplinary investigations (Hole et al. 1969; Hole 1980; Wright 1981b; Neely and Wright 1994). Compared to what we have from more than 100 years of archeological work in the nearby Susiana plain, the results of the

Table 27.1 Relative chronology of greater Susiana

			Susiana					*Deh Luran*	*Behbahan-Zohreh*	
					Dollfus 1983a, 1983b			*Hole et al. 1969* *Hole 1977* *Wright 1981b* *Neely &Wright 1994*	*Dittmann 1984, 1986*	
	Period *Hole 1987a*	*Dates BC*	*Delougaz & Kantor 1996* *Johnson 1973*	*Le Breton 1957* *Johnson 1973*	*Jaffarabad*	*Djowi*	*Bandebal*		*Zohreh*	*Behbahan*
Later Village Period	Post Village Period	3500–3300	Late Uruk	Acropole I 18–17	`			Late Uruk	Uruk	
		3700–3500	Middle Uruk	Acropole I 21–19				Middle Uruk		
		3900–3700	Early Uruk	Acropole I 23–22				Early Uruk		
	Late Village Period	4000–3900	Terminal Susa A	Terminal Susa A (Acropole I 24)				Sargarab	Post Sohz	Post Chogha Sofla Late Chogha Sofla
		4200–4000	Late Susiana 2	Susiana e/Susa A (Acropole I 27–25)	III (Levels 3–1)		III (Level 10)	Susa A	Late Sohz 2 Late Sohz 1	Early Chogha Sofla
		4700–4200	Late Susiana 1	Susiana d	GAP II (3m–n)	II (10–4)	II (Levels 27–11)	Farukh (4400–4200) Bayat (4600–4400)	Sohz 2 Sohz 1	
	Middle Village Period	5100–4700	Late Middle Susiana (Middle Susiana 3)	Susiana c				Mehmeh (4800–4600)	Do Tulun	

(*cont'd*)

Table 27.1 (*cont'd*)

		Susiana					*Deh Luran*	*Behbahan-Zohreh*	
				Dollfus 1983a, 1983b			*Hole et al. 1969* *Hole 1977* *Wright 1981b* *Neely &Wright*	*Dittmann 1984, 1986*	
Period *Hole* *1987a*	*Dates* BC	*Delougaz &* *Kantor 1996* *Johnson 1973*	*Le Breton 1957* *Johnson 1973*	*Jaffarabad*	*Djowi*	*Bandebal*	*1994*	*Zohreh*	*Behbahan*
Early Village Period	5700–5100	Early Middle Susiana (Middle Susiana 1–2)	Susiana b	GAP I (Level 4)	Trans. (12–11) I (Levels 17–13)	I (28–?)	Khazineh (5000–4800)	Mahammad Taqi	Cheshme Morad
	6000–5700	Early Susiana	Susiana a	I (Levels 5–6)			Sabz (5200–5000)	Darwish Ahmad	
Initial Village Period	7000–6000	Archaic Susiana 1–3					CMT (5400–5200) Surkh (5700–5400) Sefid (6000–5700)		
	7200–7000	Formative Susiana					Mohamad Jafar (6300–6000)		
	7800–7200	Pre–ceramic					Ali Kosh (6700–6300) Buz Mordeh (7500–6700)		

relatively brief Deh Luran investigations are very significant. For the first time in Iranian archaeology, hypotheses relating to the impact of climate on the locations of early agricultural villages were tested. Geomorphological studies were carried out to better understand factors affecting site visibility; and intensive archaeological surveys were conducted to elucidate early irrigation practices and settlement patterns. Finally, attempts were made to explain specialization and the organization of early trade as reflected in the excavated material (Hole 1962, 1977; Hole and Flannery 1968; Neely 1969, 1970; Hole et al. 1969; Kirkby and Kirkby 1976; Kirkby 1977; Renfrew 1977; Wright 1981b; Neely and Wright 1994). In comparison to the neighboring plains, the chronology, environment, population, and subsistence of the small Deh Luran plain are well studied.

In 1948, D. McCown visited the eastern plains "to explore the hitherto archaeologically un-surveyed area south of Ahwaz, and to locate a promising pre-Achaemenian site at which excavations might contribute evidence of Iranian relationships with Lower Mesopotamia" (Perkins 1949: 54). Tol Geser (Tall-e Ghazir), the most promising site discovered, was briefly excavated by McCown. Although the detailed results of excavations at this site, especially in the prehistoric layers, were never published, a short summary (Caldwell 1968b) and an analysis of the late 4th millennium BC pottery appeared later (Whitcomb 1971). In the late 1960s and early 1970s, moreover, two significant survey campaigns took place in this area. The first was a brief survey focusing on the late 5th and early 4th millennium BC settlements in the western part of the Ram Hormuz plain (Wright and Carter 2003). The second was the Oriental Institute survey and excavation project in the Behbahan and Zuhreh plains conducted by Nissen and Redman (1970–1). While the survey results are available (Dittmann 1984, 1986), the results of the team's limited excavations at Tepe Sohz were never published in detail. Thus, the surface collections from the region are unfortunately not complemented by controlled stratigraphical data. Hence, the initial project goal of tracing ancient trade through this region could not be achieved.

The Susiana plain (Loftus 1857: 342–7; Menant 1887: 88; Carter 1971; Johnson 1973; Wright and Johnson 1975; Alden 1987; Hole 1987b: 38) has been surveyed since the 19th century (Rawlinson 1839; Dieulafoy 1890–2; Morgan 1900b; Gautier and Lampre 1905; de Mecquenem 1943). After these early ad hoc investigations, systematic surveys were conducted over the course of 10 seasons between 1959 and 1978 that resulted in the recording of more than 1,000 archaeological sites (Kouchoukos 1998: 80–4). In contrast to the surveys of the Deh Luran plain, which were carried out to answer certain archaeological questions (see above), the first serious surveys in the Susiana plain were carried out in response to regional development in the early 1960s (Adams 1962). Adams's work, which led to the discovery of many prehistoric and historic sites using the available topographic maps and aerial photographs, influenced later surveys in the plain in many ways. This pioneering work was carried out in the extended plain between the Karkheh and Karun Rivers, sometimes regarded as a

"Little Mesopotamia" (Hole et al. 1969: 358). Adams's survey, however, was more than just a recording of sites. He offered an interpretive rather than a descriptive report, which became a paradigm after being adopted by many archaeologists involved in the study of this plain. Many attempts have since been made to refine Adams's original survey, recording new archaeological sites and increasing data collection in this area (Kouchoukos 1998: 83).

Later archaeological surveys were conducted by many other scholars (Hole 1969, 1985; Wright 1969; Carter 1971; Johnson 1973; Wenke 1975–6; Dollfus 1985; Schacht 1987; Alden 1987; Moghaddam and Miri 2003, 2007). Some surveys, however, are of questionable value. For example, Gremliza's (1962) informal survey in the Susiana plain involved non-systematic site recording and selective sherd collection limited to decorated pieces. Despite its flawed methodology, the results of this survey have been used by some scholars (Alizadeh 1992).

Surveys in the Susiana plain since Adams's work share certain features. Addressing these features helps highlight the insufficiency of the evidence currently available for understanding landscape changes during the Later Village period in this region. Since the presumed economic context of most settlements was agricultural (cf. Hole 1987c: 81), sedentary settlements and presumed carrying capacity became primary concerns. This approach, however, eliminated significant economic possibilities provided by other natural resources in the neighboring regions (Hole 1987c: 81). Subsistence economy was the main research objective; if there was inadequate agricultural capability in any given area, the emphasis shifted to the presumed pastoral economy (Alizadeh 1992, 2003b; Alizadeh et al. 2004).

While describing and evaluating surface finds, presenting detailed maps, and considering the geographical situation in which sites are located are all vital parts of any survey project (cf. Hole 1980), many of the published reports lack adequate data on environment, as well as sketch plans and measurements (Johnson 1973 is an exception). In addition, field records and survey collections are often inaccessible or non-existent. Adams (1962) recorded 142 sites at which he picked up painted pottery; of these, 115 were revisited a few years later by Hole (Hole 1969). The results of these surveys have not been published in detail even though they formed the foundation of many later interpretive works (Hole 1987b, 1987c). Part of the Susiana survey collections was stored in the basements of the Susa Castle and the Iranian National Museum in Tehran. Circumstances during the Iraq–Iran War (1980–7), as well as subsequent neglect, threatened the safety of these collections.

Apart from Susa, Chogha Bonut, Jaffarabad, Jowi, Bandebal, and Abu Chizan, the only other major published excavation report from Susiana is that of Chogha Mish (Kantor and Delougaz 1996; Alizadeh 2008). Although all published surveys provide valuable evidence about the number, size, and location of sites and the changes in their distribution and density through time (Renfrew and Bahn 2000: 71–5), an over-reliance on data from surveys that were carried out by different teams with different objectives, methods, and approaches fails to

provide answers to many questions about critical transitions in human history (Wright and Johnson 1975: 283). Nevertheless, the results of the aforementioned studies form the main body of available evidence from the region, while excavations have mostly dealt with chronology and historical sequences.

With its striking Later Village period finds, Susa has been the "site of sustained efforts to elucidate stratigraphy" (Perrot 1978: 133–4). In 1968, while the roles of human agency, cultural history, and natural landscapes in Deh Luran were closely pursued, the Susa expedition instead initiated another stratigraphic research program (Perrot 1978: 134). Soundings and excavations at Susa (Le Brun 1971; Canal 1978a, 1978b) and the satellite sites of Jaffarabad, Jowi, and Bandebal (Dollfus 1978, 1983a, 1983b, 1985) were undertaken in order to define the chronological sequence of the region. Unfortunately, the Susa deposits most important for the Later Village period, including the cemetery and mud-brick platforms (*massif funéraire* and *haute terrasse*) were poorly documented (Morgan 1900c, 1912; Mecquenem 1928, 1934, 1943). These have since been characterized as "tantalizingly fragmentary" (Pollock 1989: 283) and far too coarsely excavated for modern purposes (Hole 1987a: 26) as "the excavation methods employed leave much to be desired" (Potts 1999: 47). A focus on chronological and stratigraphic issues in Susiana, both of which are undeniably important, served to limit the possibility of undertaking broader investigations within a regional context. Only Qabr-e Sheykheyn was excavated to test a hypothesis related to settlement changes in the Later Village period of Susiana (Weiss 1976: 172).

No other archaeological sites in Susiana were excavated then with any distinct questions in mind other than chronological ones. Chogha Mish was the object of extensive excavations for 11 seasons. However, as the excavators noted:

> [I]n contrast to Susa and to many sites in Mesopotamia, where Protoliterate [late 4th millennium BC] remains were covered by thick later deposits, at Chogha Mish Protoliterate materials were to be found at or close to the surface. Moreover, the abundance of painted shards of many types indicated that this site would offer an excellent opportunity to examine the relationship between the Protoliterate occupation and to the cultures of preceding periods and to verify the validity of the prehistoric Susiana sequence as built up by a number of archaeologists on the basis of largely unstratified materials. (Delougaz and Kantor 1996: 1)

Unfortunately, precisely this goal of investigating the relationship of the Protoliterate occupation to that which preceded it was unsuccessful. Although the excavators alleged it was deserted for several centuries between the Late Middle Susiana and Susa A periods, this cannot be substantiated, because, put simply, "the relevant part of the site has not been excavated" (Hole 1987c: 88).

Hence, although it seems that many of the plains in southwestern Iran have been well documented archaeologically, it is not easy to integrate the available

data in such a way as to understand the cultural and social character of the region as a whole and the interactions among its constituent parts. All attempts to do so are profoundly indebted to the limited available evidence of the "old collections" (Kouchoukos and Hole 2003: 59), mostly from the Susiana and Deh Luran plains. Even in these two "archaeologically well-known plains" our data has some very serious limitations. The most serious one is the modification of the natural and cultural landscape by development projects and agricultural intensification since the 1960s. Four decades of modern irrigation systems and the use of heavy machinery by various agro-industrial corporations, as well as the foundation of new towns, have wiped many ancient settlements from the face of the landscape, opened up vast areas of farmland and turned the remaining ancient settlements into "islands." This is especially evident in the largest plain of the region, the so-called Upper Khuzestan plain (see above; Wright and Johnson 1985: 25; for a detailed discussion and illustration, see Kouchoukos 1998: 103–4). Finally, the nature of the plains of Greater Susiana is such that it has always attracted new settlers, and continues to do so. The possibility that this has been occurring for many millennia has been discussed by Hole, who long ago postulated the intrusion of farmers into the Deh Luran plain from Chogha Mami in eastern Iraq (1977: 12–18).

Other issues regarding previous archaeological surveys carried out in the Susiana plain have been summarized by Kouchoukos as follows:

> First, the settlement record is only a partial one. The sample of 264 surveyed sites probably accounts for less than half of the Village period sites founded on the Susiana plain, and only about half of these can be assigned with confidence to specific archaeological periods. Second, estimates of site sizes are approximate, and no systematic observations have been made on the sizes of successive occupations at specific sites. (1998: 105)

With all the abovementioned caveats in mind, it is difficult to provide a holistic framework for a proper understanding of the Village period societies of southwestern Iran. In general, "our pictures are composed from evidence that was gathered without overall central purpose, so that regional gaps and chronological omissions are to be expected" (Hole 1987: 32). When reviewing the Village period evidence of the region, this lack of central purpose in previous attempts is clear and is largely responsible for the existing gaps in our knowledge and errors in the interpretations.

Nevertheless, by juxtaposing different available evidence, scholars have undertaken a number of studies and presented a variety of interpretations about what was happening in southwestern Iran in this period. These studies have provided the framework for further inquiries into how prehistoric societies organized themselves and modified the environment to suit their needs; how interactions between humans and their environment resulted in the spatial distribution of

settlements across the landscape; the nature of population fluctuation throughout the time and space; the nature of relationships between and within settlements; the degree of integration between different modes of livelihood, including the relative shares of agriculture, herding, mining, and other land use strategies; and how fundamental concepts like power, status, production specialization, colonization, exchange, and social organization (in chiefdoms, complex chiefdoms, and early states) can be investigated using archaeological evidence.

4 Early Village and Town Life in Southwestern Iran

Starting at the beginning and reaching its apogee in the middle of the Village period, an expansion of occupation has been documented on many plains that were suitable for agriculture. Particularly in Susiana, the largest plain in the region, population increase went hand-in-hand with a high degree of uniformity in ceramics, the emergence of large and extended residential sites with monumental buildings, specialized production centers, the colonization of previously unoccupied areas, competition, social ranking, and growing links between different regions over a wide area (Hole and Flannery 1968: 202–3; Kantor 1974: 16; Dollfus 1975: 61; Johnson 1987: 283–6; Flannery 1999: 45; Wright 2000: 211; Kouchoukos and Hole 2003: 53). Signs of rebellion or conflict between different sectors of society or economic systems – settlers and nomads – have also been posited (Adams 1962: 110, 122; Wright and Johnson 1975: 285; Wright 1987: 142; Hole 1990: 7; Alizadeh 1992: 57; 2006: 4). Conflagrations at major sites such as Chogha Mish; the eventual desertion of this large administrative and religious center (Kantor 1976: 28) before the Late Village period; the foundation of Susa (Wright 1984: 67; Hole 1987b: 42; Johnson 1987: 258; Pollock 1989: 287); and east-to-west shifts in settlement (Hole 1987b: 39; Alizadeh 1992: 59–60; Kouchoukos 1998: 117) have all been noted. Many attempts have been made to explain the dynamics of settlement in relation to the principal modes of production, settlement hierarchy, and the emergence of regional centers.

Based largely on the evidence from the Deh Luran plain, surveys throughout the region, and the excavations at Chogha Mish, the first phase of the Later Village period (Late Middle Susiana phase) was a pivotal one in the socioeconomic life of Greater Susiana. However, more is known about the later phases – the Late Susiana, Early, and particularly Middle Uruk phases. Some of these later phases of the Village period (Susa A/Late Susiana 2 and the phase later called Terminal Susa A) witnessed a sharp decline in the number of settlements, described by some scholars as system collapse (Johnson 1987: 286). Others see the decline in Susiana society as an inevitable development in the new "context of competitive emulation" that appeared during the Uruk period (Hole 1987c: 96). Susa shrank from 15 to 5 hectares in the Terminal Susa A Phase (Hole 1987b: 63, table 9; for different observations, see Dollfus cited in Pollock 1989:

289; Steve and Gasche 1990: 25) and new, unpainted pottery forms replaced the earlier elaborate beakers and goblets. During the following Early and Middle Uruk periods, signs of growth in both settlement numbers and ceramic production appeared. In addition, a clear settlement hierarchy became evident once again. According to Johnson, "a three-level settlement size hierarchy was dominated by Susa with an occupation covering about 12 hectares" (Johnson 1987: 286). Underlining similarities between Susiana pottery and those of the Mesopotamia, he took this to be a sign of "increasing contact among a series of rapidly changing lowland polities" (Johnson 1987: 286). Around this time, notions of "center and periphery" and "heartland and hinterland" became prominent in discussions of social organization in Greater Susiana (Wright 1987; Johnson 1987). The Greater Susiana and Zagros inter-mountain plains were called "rural" areas, in which the population growth differed from plain to plain (Wright 1979: 59; 1987; Johnson 1987: 286; Henrickson 1994: 98). The last phase to be considered, Middle Uruk, appears to have been one of state-level organization in the Susiana plain (Johnson 1987: 287); a decline of rural settlement in the Zagros area (Johnson 1987: 287; Wright 1979: 50; 1987: 149; 1998: 193–4); strong relationships between Uruk, Nippur, and Susiana; an expansion of transhumance or nomadism in the rural areas (Johnson 1987: 287); and the re-establishment of Chogha Mish as a major center (Johnson 1973: 109–111; Wright 1998: 194).

As regards the sociopolitical organization of Susiana society, Pollock has suggested that different parts of the plain had different settlement systems (1983: 371). Her observations elaborated previous views (Wright and Johnson 1975; Weiss 1976) and shed new light on the processes of political and economic centralization in the prehistoric societies of Susiana. She emphasized the role of "Chogha Mish as a center" a few centuries before Susa became the undisputed center on the plain. On the other hand, some scholars see no reason to attribute any political or economical status to such a center, preferring to characterize Susiana's settlement system as "a series of independent, shifting communities occupying a large territory in common, with little or no hostile competition" (Hole 1987c: 96). This consisted of Susa, its dominance guaranteed by its religious status in the Late Susiana phase, along with the "village and herding camp as economic units" and specialist communities: Khan's [chief's] houses, craft manufactories and possibly trading posts" (Hole 1987c: 92).

The difficult question was then raised: "What kind of socio-political organization did late fifth millennium societies have?"(Wright 1984: 53). While Wright had previously addressed the evidence of socially differentiated houses at Farukhabad (Wright 1981b: 12–22, 65–6), he emphasized chiefly symbolism or symbolic representation in the form of complex stamp seals (such as the "master of animals" figure; Amiet 1966: 32–49) and painted ceramics as indicators of the type of sociopolitical distinction found in a mortuary context at Susa (Wright 1984: 58).

In terms of subsistence economy, there appears to have been a gradual shift during the Later Village period from a wheat/goat/dry-farming complex to a barley/sheep/small-scale irrigation complex (Hole et al. 1969: 368–9; Miller 1977: 51; Pollock 1983: 367–8). In the Deh Luran plain, Hole and Flannery postulated "two basic and temporally distinct patterns of subsistence," which they referred to as "The Era of Dry Farming and Caprine Domestication," and "The Era of Early Irrigation and Cattle Domestication" (Hole and Flannery 1968: 166–83). The latter stage was, without doubt, the period which saw the fusion of increasing material production and social differentiation. Hole and Flannery stressed variables such as irrigation and cattle domestication in the rapid emergence of social complexity, population expansion, and urban life (Hole and Flannery 1968: 181). During the Mehmeh Phase in Deh Luran, settlements clustered on alluvial fans. Neely and Wright argued that this was due to the ease of channeling for irrigation over longer distances from fans (Neely and Wright 1994: 167–8). Subsistence at this time was based on the cultivation of barley, wheat, lentils, vetch, vetchling, grass peas, and flax; the herding of sheep, goat, and some cattle; and hunting. Based on the size of the flax seeds recovered, Hole et al. suggested that irrigation agriculture was practiced during this phase (1969: 361).

Most of the plains in Greater Susiana probably received roughly 250 millimeters of rainfall, which is near the minimum necessary for dry-farming (Brichambaut and Wallen 1963: 10; Oates and Oates 1976a: 111). Negligible salinization – thanks to excellent natural drainage and underlying gravels – was an environmental feature across most of Greater Susiana that favored agricultural productivity in all periods (Hole et al. 1969: 366). Therefore, it is likely that the inhabitants of this region practiced a form of dry-farming, supplemented by herding, hunting, and seasonal transhumance. In some areas, particularly in the western portion of the Susiana plain (around Susa and Abu Fanduweh), the natural position of the Karkheh River levee above the level of the plain facilitated irrigation agriculture in the later phases (Johnson 1973: 100) and can be considered one of the reasons for the development of settlement in the western sector of the Susiana plain from Late Susiana times onward, contrary to some scholars' view that the migration of the river westward, coupled with social problems, was responsible for the westward shift of settlement beginning at that time (Veenenbos 1958: 34–9; Hole 1987c: 85; Kouchoukos 1998: 110). It is also possible that the westward shift of the Susiana settlements was a consequence of high-risk cultivation in areas that were affected by deep plowing, which was responsible for destroying the natural vegetation communities and causing serious erosion closer to Susa (Kouchoukos 1998: 481).

Most subsistence in the earlier phases in Deh Luran shows dependence on the steppe environment (Hole et al. 1969:343). Evidently, wild grasses were intensively collected, along with some the cultivation of non-native plants like wheat, barley, goat-faced grass, ryegrass, and wild einkorn wheat. Moreover, alongside the gathering of wild grasses and wheat cultivation, herding was a key part of the

subsistence economy of the early phases in Deh Luran. Predominantly goat and some sheep were eaten during the early phases, while hunting and fishing were practiced as well.

Based on Hans Helbaek's paleobotanical study (Helbaek 1969: 405–12), canal irrigation, as suggested by the abundance of flax seeds, was practiced both in Deh Luran and Susiana during the Archaic phases (Helbaek 1969; Hole 1977: 35–6; Alizadeh 2008), when the most favored cereal was barley. This may have been due to barley's greater tolerance of low rainfall and high salinity (Hole et al. 1969: 363). Hole and colleagues suggested that human modifications to the landscape around villages with a long history of occupation, such as Tepe Sabz, increased salinity, causing the abandonment of those sites and a search for new locations with unspoiled soil and water resources (Hole et al. 1969: 364). Later, Kirkby elaborated on Hole's observation, stressing the idea of changing efficiency of land use for food production through time (Kirkby 1973:145). Sheep become the dominant herd animal in this phase, although goat, cattle, and swine were kept as well.

As regards material culture, Pollock's stylistic analysis of Late Susiana painted pottery suggests the elaborately decorated ceramics found in the Susa A cemetery were prestige goods (Pollock 1983: 383). Neutron activation analysis (Berman 1987, 1994) demonstrated that the Susa funerary ceramics were made at several nearby sites. This analysis suggested that paramount rulers (if any existed) at Susa had no direct control over the highly elaborated ceramics deposited in the graves there.

Some of ceramics show evidence of standardization. "Sherds of . . . salmon colored pottery from Tepe Sabz were literally indistinguishable from those at Chogha Mish, more than 100 km. away. They could easily have come from the same kiln in the same pottery making town" (Hole et al. 1969: 365). Jar sealings and cylindrical bead seals in this phase suggested "property-marking" for the first time in the Deh Luran prehistoric sequence (Hole et al. 1969: 365). The similarity of the ceramics of the Bayat Phase in Deh Luran, Susiana c in central Khuzestan, Eridu VIII and IX-related communities in southern Iraq, and Tepe Gawra XVII-related communities in northern Iraq is evident (Le Breton 1957: Figs. 4, 6; Wright 1981b: 68–9). As Wright emphasized, this may indicate increased interaction throughout the lowlands at this time (Wright 1981b: 69). In contrast, the ceramics of the Farukh phase are unlike any material in Iraq, but are very similar to Susiana d on the nearby Susiana Plain and to Tal-e Bakun AIII in the highlands of Fars (Wright 1981b: 69). Discussing Kouchoukos's (1998: 20–7) study of population growth during the Middle Susiana Phase, Alizadeh (2006: 97) has stated that the "attention shift" from lowland Mesopotamia to highland Iran began in the Late Middle Susiana phase and continued into the early Protoliterate period due to "new socioeconomic and political developments that eventually resulted in the formation of state societies there in the late fourth millennium BC." Ceramics had strong ties with both Mesopotamia and highland Iran. Black-on-

buff ceramic decoration of the Mehmeh Phase in Deh Luran, in particular, shows that the similarities between the Iranian plateau and Khuzestan had never been stronger. Nevertheless, it is believed that the Deh Luran Plain was marginal in terms of scale and centrality in relation to the larger and more central plains of southern Mesopotamia and Susiana during this phase (Hole et al. 1969: 362–3).

In the Deh Luran Plain, the evidence of flint knapping and sickles, drills, limestone celts, and heavy grooved mauls shows that stone industries were active. Flint blades were common in the Sabz phase, as well as hafted sickle blades.

Studies at Tape Farukhabad revealed more details of economic and political processes in this, the second largest settlement of the region during the Farukh phase (Susiana d/Late Susiana 1). Higher status people at Farukhabad were "controlling the large storage structures, consumed more beverages, and had preferential access to exotic chipped stone raw materials" (Wright et al. 1999: 72 Wright 1981b: 65–6). Besides routine activities at Farukhabad, a notable activity in this phase was the extraction of bitumen from sources about 12 kilometers away. As little bitumen seems to have been used at the site itself, the bitumen extracted was presumably for export (Wright et al. 1999: 72). Based on the evidence from Farukhabad, in the Middle Uruk phase, secondary animal products became increasingly important. Wright saw a close correlation between the increased number of spindle whorls and the elevated proportion of goat in the faunal sample, suggestive of fiber production (1981b: 153–4). An increase in import and export activities and sealing was apparent in this phase as well (Wright 1981b: 156, 267, 274–5).

Through the examination of several hundred mounded sites in the Susiana plain, scholars have detected a general hierarchical trend from the Susiana a to the Susa A phase (Le Breton's 1957 chronology). This began with a small, centralized polity during the Susiana a phase leading to a pattern of autonomous units in the Susiana d phase and finally to a more dynamic pattern of centralization in the Susa A phase (Johnson 1973: 89; Wright et al. 1975: 130; Wright 1977a: 387; Pollock 1983: 375; cf. Kouchoukos 1998: 69–72). Between Susiana c and Susa A times, Chogha Mish, Chogha Dosar (KS 0004), and Susa were extensive sites. Similarly, Musiyan and Farukhabad in the Deh Luran plain, Tol Geser (Ghazir) and Sartoli in Ram Hormuz, Tepe Sohz in the Behbahan plain, and Chogha Sofla in the Zuhreh Plain were all significantly larger than the other sites on those plains. Many earlier studies in the region sought to elucidate the early "ranked" societies represented by these settlement systems (Johnson 1973; Wright and Johnson 1975; Weiss and Young 1975; Wright et al. 1975; Nissen 1976; Wright 1981b, 1984; Pollock 1983, 1989; Hole 1983, 1984, 1990; Wright and Carter 2003). In the Deh Luran plain, where large settlements (e.g., Musiyan) were found, Neely and Wright suggested the existence of a three-level settlement hierarchy (Neely and Wright 1994: 168).

The Late Susiana 2 phase in Deh Luran appears to have been a phase of drastic decline. Settlement dropped from twelve Farukh/Late Susiana 1 phase

settlements to just three in this phase, suggesting to Neely and Wright that a threat from the west may have emerged at this time (Neely and Wright 1994: 172). Musiyan shrank from 9 hectares in the Farukh phase to 5 hectares at this time (Neely and Wright 1994: Tables V.6–7). Moreover, a drastic change in settlement organization, for both political and environmental reasons, is indicated by the abandonment of the long-settled alluvial plain along the Mehmeh River (Neely and Wright 1994: 172). The easily irrigated land here was settled again in the Early Uruk period. Although Tepe Musiyan was abandoned, a new, large settlement (DL-292) along an irrigation canal (?) emerged in the west (Neely and Wright 1994: 173–4). During the Middle Uruk period, however, no single large center dominated the smaller, dispersed settlements in Deh Luran (Neely and Wright 1994: 175). Other changes visible at Farukhabad include a scarcity of cattle and an increase in goat over sheep (Redding 1981: 258–60) and, for the first time, barley predominated over wheat (Miller 1981: 228). Neely and Wright interpreted these changes as signs of increasing aridity (Neely and Wright 1994: 175).

The available information on the eastern plains of Greater Susiana is not comparable to that which is available for Susiana and Deh Luran. Nonetheless, work by the author (Moghaddam 2008) in the Karun River Basin, Wright and Carter (2003) in the Ram Hormuz plain, and Nissen (1976) and colleagues (Dittmann 1984, 1986) in the Behbahan and Zuhreh region is available, and provides some data on settlement development during the Later Village period in the eastern end of Greater Susiana. In the Ram Hormuz plain, Wright and Carter (2003: 75) observed a settlement system that began in the mid-5th millennium BC. The evidence was taken to support Wright's previous hypothesis of the role of "marginal lands" for refuge and overflow population from the "heartland of Susiana" (Wright 1987). No evidence was found which sheds light on the correlation between settlement growth and interregional exchange (Wright and Carter 2003: 75).

In a summary of the Behbahan and Zuhreh survey results, Nissen described a roughly three-tier settlement hierarchy in this region: "Tepe Sohz was the largest with approx. 13 ha. and, a height of 9.5 meters, followed by No. 6 of our list with 8 ha. whereas all the others measured 1 ha" (1976: 277; cf. Dittmann 1984: 74). Further, he noted that if all recorded settlements were occupied at the same time, then the sharp differentiation in settlement size could be interpreted as the "presence of a full-fledged central system with one center, a subcenter and several villages" (1976: 277). The "central" site in the Behbahan plain was located in a strategic location in relation to the other smaller settlements, possibly regulating irrigation for the rest of the settlement system. Nissen identified a canal system which originated at Tape Sohz, and believed that a connection between Susiana and the Marv Dasht plains appeared during the 5th and 4th millennia BC (1976: 277; in Dittmann's clarification, this happened during the Do Toluene and Sohz phases – Dittmann 1984: 74). Nissen concluded that set-

tlement in the Behbahan plain grew as a result. Later, in the late 5th/early 4th millennium BC, all prehistoric settlements in the Behbahan and Zuhreh plains were abandoned, never to be resettled (Nissen 1976: 277). Similarly, Dittmann suggested that the settlement of Behbahan was almost completely abandoned during the Late Sohz phase (roughly contemporary to Sargarab phase in the Deh Luran, end of Susa A and terminal Susa A Phase in Susiana, and Gap II and Bakun A Phase in Fars; Dittmann 1984: 75). This is contradicted, however, by the discovery of typical Late Uruk, bevel rim bowl fragments on the surface of Arjan of late 4th millennium BC date (Potts 2009: 5, Figs. 2–3).

Questions surrounding the mechanics of early trade and relations between central and dependent settlements have been raised by scholars working in the Behbahan and Zuhreh plains (Nissen 1976: 274). The small size and apparent isolation of sites there may have been mitigated by their position on the overland routes between the middle and lower plains of Khuzestan, the Persian Gulf, and the Marv Dasht plain in Fars. This has prompted researchers to examine the role of raw material extraction, exchange, and commodity movement from one major center to another or from village to village, within the local economy (Nissen 1976: 274–5).

Settlement patterns in the eastern Susiana plains during the Village period are a microcosm of the entire history of settlement in the Greater Susiana plain. The evidence presented from the Karun river basin prehistoric project (Moghaddam 2008) underscores the fact that the easternmost region in the Greater Susiana flourished from the Late Middle Susiana phase onwards (cf. Hole 1987b: 33; Nissen 1976: 276). Linking this fact with the growth of Chogha Mish, and its role in the Susiana cultural landscape, poses many questions about the social, economic, and political configuration of Greater Susiana society before the Susa A phase.

Based on the evidence from Tall-e Abu Chizan, we know that both wild plants and domesticated crops were present. The inhabitants of the site exploited the full range of domesticated animals: sheep, goats (90 percent), and possibly cows and pigs were herded, while a range of wild animals such as boar, fox, and cattle were hunted. The archaeological evidence from Tall-e Abu Chizan also yielded abundant information on craft production, especially pottery-making, stone tool manufacture, and bitumen extraction from nearby sources. The ceramics from Chogha Mish and Tall-e Abu Chizan during the Late Middle Susiana phase are very similar. During the Late Susiana 1 phase, several forms and decorative motifs in the ceramic assemblage of Tall-e Abu Chizan have no parallels in the other plains of Greater Susiana. The general similarity with Susa and Chogha Mish was once again evident in the Late Susiana and Uruk assemblages.

The locations of some Later Village period settlements were linked to the sources of natural resources consumed at Tall-e Abu Chizan. Some sites, like Abu Chizan, were situated in an unfavorable environment for agriculture. On the other hand, these sites were part of a wider network of contacts that involved

the movement of stone, pottery, and bitumen that were distributed from their sources over a vast area. The study of the bitumen samples from Tall-e Abu Chizan excavations has opened a new window on social, political, and economic organization during the Later Village period (Connan et al. 2008).

5 Conclusion

More early villages and towns have been investigated in southwestern Iran than anywhere else in the country. The limited but pioneering work in the Deh Luran plain was sufficient to demonstrate how society in that part of the region developed throughout the millennia. However, the policy of closing down all research programs in the area for over a quarter of a century drastically limited the growth of knowledge on the prehistoric societies of this region as compared to other parts of the Near East. Within the vast and environmentally diverse region of southwestern Iran, it has been possible to examine interaction between humans and their landscape, where flourishing socioeconomic and political structures can be tracked over a very long time span. Certain trends in continuity of land use, especially steppe land exploitation, can be distinguished. The close link between the landscape and human activity throughout prehistory is an outstanding element in the development of prehistoric village and town life in this region over time.

GUIDE TO FURTHER READING

Broadly speaking, important sources for human environment interaction, village life, and social organization are Hole et al. (1969), Johnson (1973), Wright (1981b), and Hole (1987a). For the early archaeological history of the region, see Morgan (1894–1905) and Le Breton (1957). Standard works on the classification of pottery in Khuzestan are Delougaz and Kantor (1996), Weiss (1976), and Dollfus (1978, 1983a, 1983b). On settlement patterns, see especially Adams (1962), Dittmann (1986), and Neely and Wright (1994).

PART V

Bronze Age Cities of the Plains and the Highlands

CHAPTER TWENTY-EIGHT

Southern Mesopotamia

Jason Ur

1 Introduction

The Bronze Age (c.3000–1500 BC) cities of southern Mesopotamia are not only critical for the development of urbanism in Mesopotamia and the Near East more generally, but for comparative early urban studies worldwide. Early archaeological work in southern Iraq caught the attention of the great archaeological synthesizer V. Gordon Childe, who included detailed descriptions of Sumerian cities in his books (e.g., Childe 1952). His Mesopotamian-influenced list of urban traits (Childe 1950) has served, for better or worse, as a template for what is or is not "urban" in the archaeological record globally.

This overview will consider urban places on the alluvial plains of southern Mesopotamia (southern Iraq; Figure 28.1) at the time of their first appearance at the end of the 4th millennium BC; their expansion and elaboration in the 3rd (Early Dynastic, Akkadian, and Ur III periods) and early 2nd (Isin-Larsa and Old Babylonian periods) millennia BC; and their reduction and dispersal under the Kassite Dynasty of the late 2nd millennium BC (Table 28.1).

The study of Mesopotamia can be approached archaeologically, epigraphically, or art-historically. This review will emphasize the archaeological evidence. Because temple and palace institutions were largely (but not exclusively) responsible for the written and iconographic record, epigraphic and art-historical studies tend to privilege elites in the operation and evolution of Mesopotamian society, but Bronze Age cities were also the product of the aggregate daily activities of their

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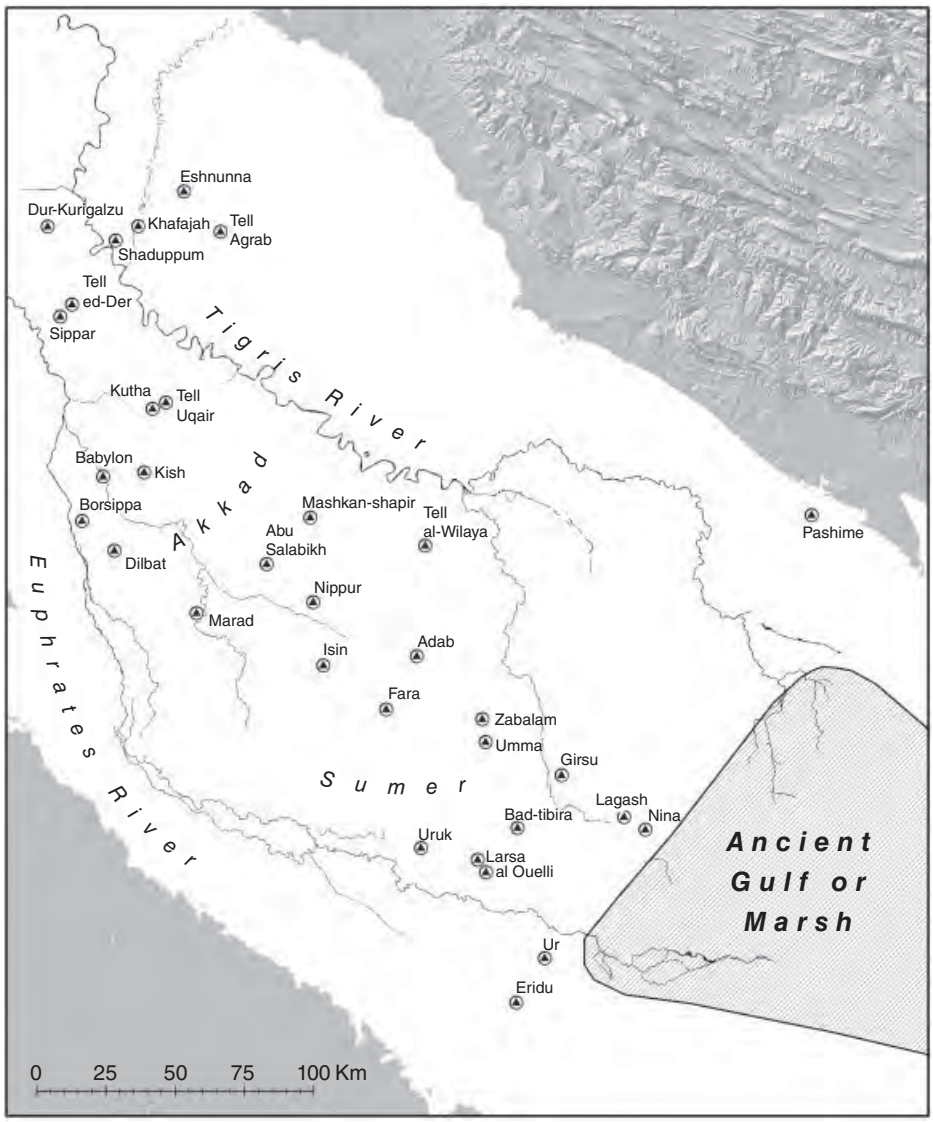

Figure 28.1 Southern Mesopotamia, with major Bronze Age settlements and modern watercourses indicated. Land over 100 meters is hill-shaded.

non-elite inhabitants. It would be irresponsible to disregard texts and iconography, which can illuminate social, political, and ideological aspects that are simply unobtainable via the rest of the material record, and they will be introduced when they contribute to a social history of Mesopotamian urbanism. The dataset for Bronze Age Mesopotamian cities has emerged over the last century and a half

Table 28.1 Mesopotamian chronology, 3100–1000 BC (calendar dates are approximate)

Cal Years BC	*Archaeological periodization*	*Historical periodization*
3500	Late Chalcolithic/Late Uruk	
3000	Jamdat Nasr	
		Early Dynastic
2500	Early Bronze Age	
		Akkadian
		3rd Dynasty of Ur
2000	Middle Bronze Age	Isin-Larsa
		Old Babylonian
1500	Late Bronze Age	Kassite
1000		

and is very uneven in time, space, and research focus. It can be subdivided generally into three groupings. The *archaeological record* consists of monumental and residential architecture, artifacts, ecofacts (plant remains, animal bones, and micromorphological data), and the spatial relations between them. Emphasis has been on the recovery of monumental architecture, tablets, and objects of art-historical significance. The earliest excavations recorded the provenience of only "major" finds and stratigraphic control was highly variable. At the time of the cessation of most excavations in 1990, only a few projects systematically incorporated paleobotany, zooarchaeology, or micromorphology. The excavation dataset weighs so heavily in favor of large institutional households (e.g., palaces and temples) that reconstructions of daily life and social change are difficult or impossible to evaluate for many time periods. Furthermore, many excavations have focused narrowly on issues of architectural history and chronology, and, as a result, the finds and the methods used to record them are often insufficient to address the sorts of social issues emphasized here. Almost all of the excavations discussed in this chapter were undertaken prior to 1990, but Iraqi archaeologists have resumed excavation at sites under the threat of looting.

The *written record* consists mostly of clay tablets inscribed with Sumerian or Akkadian cuneiform, but also includes inscribed statuary and other objects of stone and metal. From an exclusive concern with economic matters in the late 4th millennium BC, the realm of subject matter was gradually expanded to include legal, epistolary, and literary subjects in the 3rd and 2nd millennia BC. Since the late 19th century inscribed material has been a favorite target of looters and collectors; as a result, most known texts lack provenience. Although even looted tablets can provide some information, the most significant studies for Mesopotamian social history recognize that inscriptions are artifacts whose archaeological context is meaningful, and these studies will be emphasized in this review.

Finally, the record of the *archaeological landscape* is of particular importance in Mesopotamia, where human communities were closely attuned to the geographic distribution of water, soils, and other natural resources. Landscape studies include topography and the spatial distribution of artifacts at individual sites, the results of settlement pattern surveys, geoarchaeological studies of the alluvial plain, and remote sensing studies using aerial photography, satellite imagery, and other sources. Cities can only exist in relation to their hinterlands, both the cultural aspects (fields, canals, tracks, and other settlements) and the natural environment. The archaeological surveys of Robert McC. Adams and colleagues (Adams and Nissen 1972; Gibson 1972; Adams 1981; Wright 1981a) have mapped spatially the shifting constellations of early urban polities. New research using satellite imagery is reconstructing the dynamic alluvial landscape, and indeed this is the only realm of archaeological research that has flourished in recent years (e.g., Gasche and Tanret 1998; Pournelle 2003b; Stone 2003; Hritz and Wilkinson 2006).

2 Urban Origins in the 4th Millennium BC

Bronze Age Mesopotamian cities represent a direct evolution from the nascent cities of the later 4th millennium BC, most particularly Uruk (modern Warka), the source of the most abundant excavation and survey information. Although it is commonly referred to as the world's first city (e.g., Liverani 2006), an earlier urban center had developed at Tell Brak in northern Mesopotamia (Oates et al. 2007; Ur et al. 2007); the relationship between these developments is not understood at present. The southern Mesopotamian dataset is overwhelmingly biased by the extensive excavations at Uruk, and very little can be said about other cities of the time on the southern alluvial plains, aside from some indication of their scale via surface survey.

The urban core of Uruk (Figure 28.2) contained a group of monumental structures that had been heavily ornamented via niching and painted mosaic cones pressed into their plastered walls. Most were built according to a tripartite plan with a long central hall and rooms on either side of it and a T-shape at one end. In the western core, a tripartite structure (the "White Temple") was plastered in white and rebuilt several times according to the same plan, atop a high terrace; to its east, a shifting arrangement of tripartite structures was spread over a large area known as the Eanna Precinct. Their scale was greater than anything known previously, but their form was not new, having origins in houses of the Ubaid period (e.g., Roaf 1989). Several other structures do represent innovations, however. Building E was almost 50 meters square, with multiple exterior openings around an enormous central space that could have held large gatherings. For the excavators, the tripartite structures were temples (Lenzen 1974). Others emphasize their architectural similarities to earlier domestic houses, and interpret them as elite residences or palaces (e.g., Aurenche 1982).

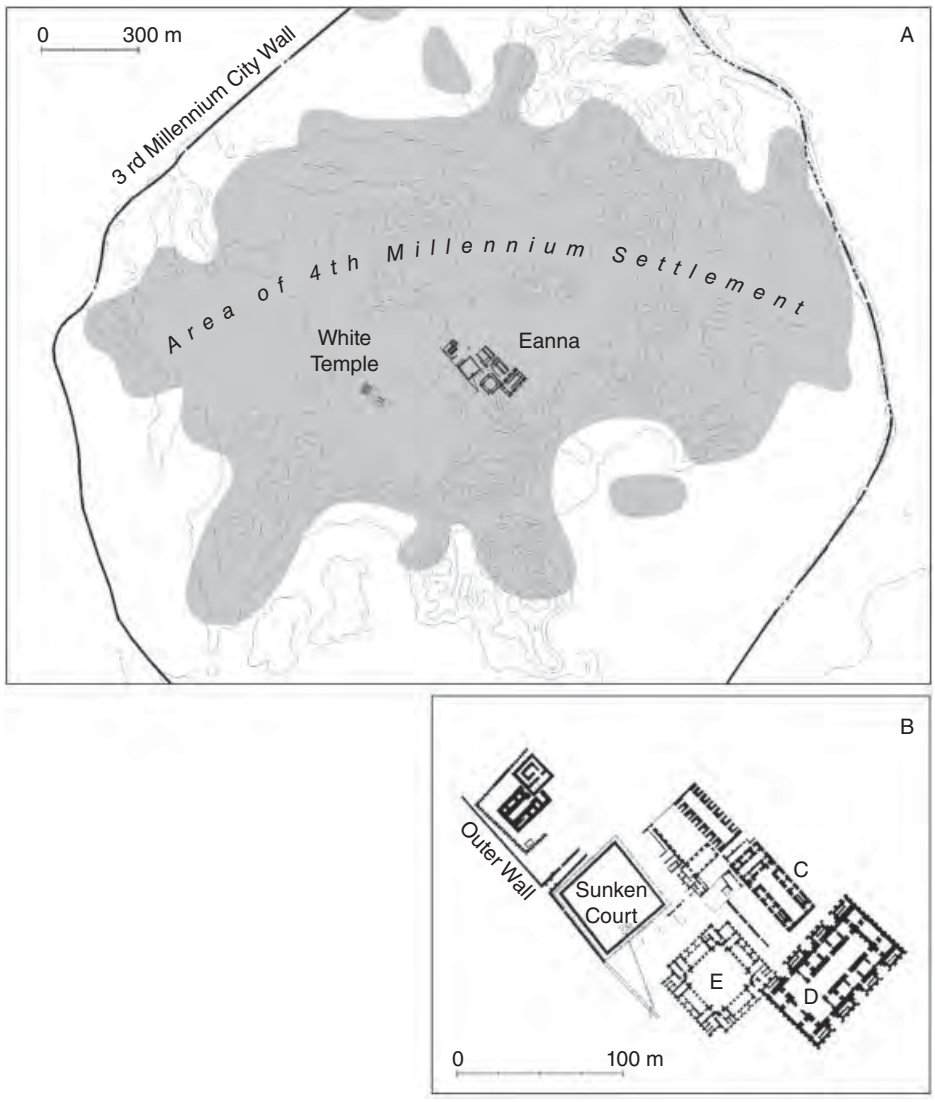

Figure 28.2 Uruk, c.3100 BC. A. Area of 4th millennium settlement. B. Monumental tripartite buildings and other structures in the Eanna area (based on Finkbeiner 1991: Beilage 23; Forest 1996: Fig. 91).

Despite the great volume of excavation at Uruk, not a single non-monumental domestic structure has been excavated there. A glimpse of what Uruk neighborhoods might have looked like comes from outlying sites of the so-called "Uruk Expansion," a phase in the mid/late 4th millennium BC when the bearers of Uruk material culture spread out across Mesopotamia and Iran (Algaze 2005a). At Habuba Kabira, on the Syrian Euphrates, monumental tripartite structures

were surrounded by a dense fabric of smaller residential structures. House complexes varied, but most were also tripartite in plan and had associated exterior spaces and sometimes large reception rooms (Vallet 1996). Structures were built along several streets, which articulated with gates in a massive city wall, the first of its kind.

Elsewhere, our knowledge of Uruk settlements is limited. Temples are known from great sequences at Eridu, Khafajah, and Nippur (Delougaz and Lloyd 1942; Hansen 1965; Safar et al. 1981), but they add little to our understanding of Uruk society. More holistically oriented research, such as the program at Abu Salabikh (Pollock et al. 1996), was cut short by the first Gulf War.

Unfortunately, almost all objects found in the great structures at Uruk were in a secondary context and cannot be tied directly to them. These include the world's first written documents, clay tablets (the so-called Archaic Texts) with a pictographic script (Englund 1998). The 5,400 tablets recovered are primarily concerned with economic matters and record great quantities of sheep, agricultural products, beer, and land. They are often assumed to be the economic records of temples, but this assumption is complicated by their secondary archaeological context.

The most significant artifact for many interpretations of Uruk society is also perhaps the least striking, at least from an aesthetic perspective. The bevel rim bowl, a coarse mold-made vessel with a distinctive rim, is the most frequently occurring type of ceramic from late 4th millennium BC sites. One influential hypothesis interprets it as a standardized vessel for state-based distribution of cereal rations (Nissen 1970; Johnson 1973), although its standardization has been questioned (Beale 1978). Alternative interpretations include bread-baking (Chazan and Lehner 1990; Potts 2009), which is supported by experimental archaeology (Goulder 2010). These interpretations are based on the qualities of the bowls themselves and their abundance; a consideration of their archaeological contexts led Forest (1987) to conclude that they served in elite feasting events.

At the regional scale, the urbanization process manifested itself in the growth of several true cities that exceeded dramatically the scale of their neighbors. Throughout the 4th millennium BC, towns across the alluvium expanded, some reaching as much as 40–50 hectares (Adams 1981). Uruk itself grew to 250 hectares, 10 times the size of any of its contemporaries (Finkbeiner 1991).

Within the limitations of this dataset, several models for Uruk society have been advanced. Some see the first cities as a development of a bureaucratic state administration that centralized many aspects of production and distribution (Johnson 1973; Rothman 2004). Algaze (2008) interprets the rise of Uruk urbanism as the unintended consequence of economic competition among settlements that took advantage of particular environmental niches across the alluvium. These models see urbanism as beneficial to the community because of the efficiencies of scale and hierarchical organization; other models suppose that elite households benefited disproportionately. For Pollock (1999), onerous

tributary demands from urban institutions appropriated the production of otherwise autonomous households. Adams (1972, 1981) sees increasing social stratification, the rise of temple institutions, and the decline of kinship as elements behind urban growth. These models all connect urban origins to new institutions and a radical social break, particularly regarding kinship.

The archaeological evidence, weak as it is, allows for an alternative interpretation in which the social changes behind the earliest cities were less radical, changes in degree rather than kind. The large palatial or temple institutions, best known from Uruk, are architecturally elaborated versions of a house structure that had existed since the Ubaid (Figure 28.3). Evidence for bureaucracy is also ambiguous: the use of sealings for property control does not by itself signify centralized authority, since their use extends back into the Neolithic. Pictographic tablets are indeed an innovation, but a late one that postdated the origins of urbanism, and probably not a critical element of urban administration. Despite the extent of excavation at Uruk, the entire known corpus could have been produced in about 15 years at a rate of one tablet per day. In later times, palaces, temples,

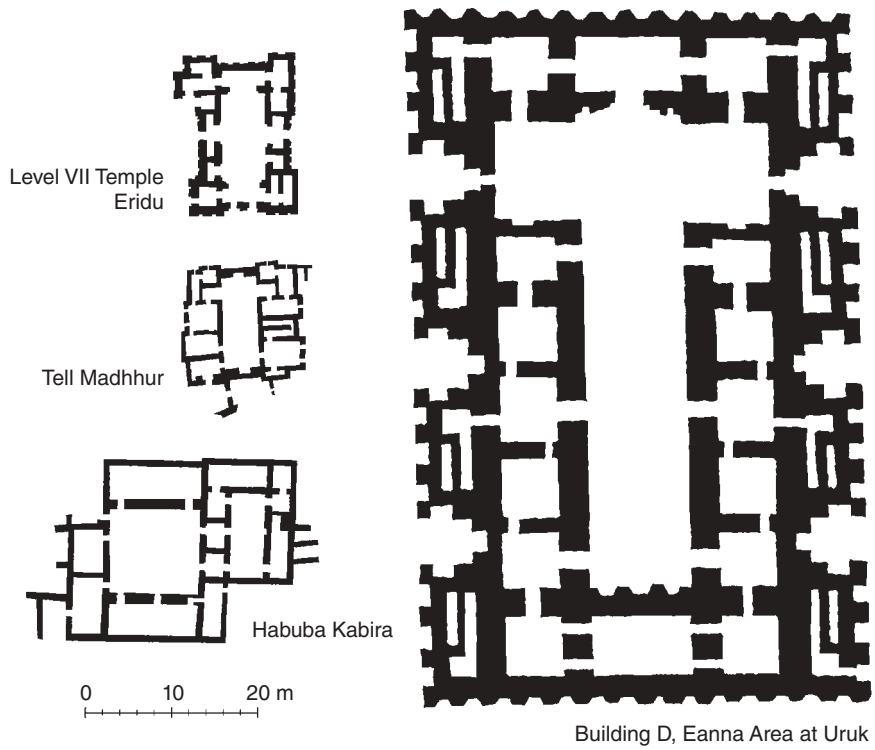

Figure 28.3 Uruk period tripartite buildings from Habuba Kabira and Uruk, with earlier Ubaid tripartite buildings from Eridu and Tell Madhhur (based on Safar et al. 1981; Roaf 1989: Fig. 1; Kohlmeyer 1996: Fig. 3a; Forest 1996: Fig. 91).

and even kingdoms were organized under the metaphor of the household (Schloen 2001; discussed further below); the evidence from the 4th millennium BC, uneven though it is, suggests that the metaphorical extension of the household may have begun at this time, and was connected to the striking expansion of urban settlements.

3 Urban Expansion and Rural Abandonment in the Early 3rd Millennium BC

The process of urbanization reached an apex at the beginning of the 3rd millennium BC (Early Dynastic I). Despite its significance, our ability to derive a social history of the time is handicapped by an almost complete reliance on the results of archaeological survey. Excavations have been limited, and few tablets have been recovered.

The surface record, however, is abundant and unequivocal. Kish, for example, may have covered 60 hectares (Gibson 1972: 118–22). The city wall of Uruk enclosed 400 hectares, most of which was settled according to an intensive surface collection (Finkbeiner 1991). Other large cities included Zabalam, Umma, and Bad-tibira. Simultaneously, small sites were abandoned, suggesting that urban growth was at the expense of the countryside. In the region around Nippur, over 70 percent of the population lived in settlements of 10 hectares or more; around Nippur the percentage was even greater (Adams 1981: 81–94).

Little can be said about these cities. Excavations of long sequences of temples at several sites show that such religious institutions existed and were monumental in scale compared to adjacent residential architecture. Such structures are labeled as "temples" because of the presence of podia, statuary, and their positions in long sequences of rebuildings that manifest the sacred importance of the spatial location of the divinity. However, as in the 4th millennium, these structures share organizing principles with smaller domestic structures, in keeping with their identities as "houses of the gods."

A small group of clay sealings found in ED I levels might give clues to the political organization of the time. The impressions include the pictographs for the names of major cities, including Ur, Nippur, Larsa, Uruk, Adab, and Eridu (Matthews 1993). Since the act of sealing expresses authority and control, the grouping of city names suggests some form of unification. Indeed, they represent the only contemporary empirical evidence for Jacobsen's proposed Sumerian "league" (Jacobsen 1957: 109) and recent discussions assume some sort of economic or military confederation (Matthews 1993: 49–50).

Such intercity cohesion conflicts with the settlement pattern data. In general, under stable regional polities, settlement will extend beyond city walls into the countryside – e.g., under the Neo-Assyrian and Sasanian empires (Adams 1981: 88). On the other hand, endemic rivalries result in nucleated and evenly spaced

urban places where people could seek protection. A short-lived political arrangement might be seen in the city seals, but it is unlikely that any coalitions endured long enough to alter patterns of settlement. Although we know almost nothing about the cities themselves, the age of city–state conflict known from later 3rd millennium texts had probably already begun.

4 Competing Cities of the Mid- to Late 3rd Millennium BC

This landscape of competitive polities entered the light of history in the mid-3rd millennium BC. Writing was used for a range of political, economic, and literary purposes. The script adhered more closely to spoken Sumerian and Akkadian language, providing linguistic clues to the multiethnic nature of Mesopotamian cities (Woods 2007). For the first time, it is possible to get a sense of what literate Mesopotamians thought about their cities: they were the homes of the gods, who resided within temples and to whose favor the fate of the city was closely tied (Postgate 1992: 26). The cities themselves were ruled by men who presided over them in the name of the city god. These rulers frequently fought with their neighbors for control of land and water resources. For example, the kings of Lagash and Umma fought for generations over land and irrigation water along their frontier (Cooper 1983a). Short periods of unification certainly existed, but the predominant situation was one of small polities in political equilibrium until the end of the millennium, when the dynasties of Akkad and Ur unified the plain and extended their hegemony beyond it.

The great palace and temple institutions remained the foci of urban structure. Temples evolved forms clearly distinguishable from palaces, often including inscribed statuary, architectural elements, and foundation deposits that identify the deity and the king who commissioned the temple. Several distinctive monumental forms emerged. One type, best known from the Temple Oval at Khafajah, consisted of an elevated shrine in a large courtyard surrounded by rooms and a curved outer wall. A distinctive temple form called the *ziggurat* appeared by the end of the millennium. *Ziggurats* had a tiered rectangular core with sets of stairs leading to the top, where a shrine was presumably located. The best-preserved example is at Ur (Woolley 1939), but others are well known from Uruk, Larsa, and elsewhere. The temples represented huge expenditures of labor, and were constructed under the impetus of city rulers, who took great pride in the results. Temples served a religious purpose, but were also economic engines that controlled large amounts of land and other resources.

City rulers also expended a great deal of labor and resources on their own residences. For the first time, unambiguous palaces were constructed, including Palace A at Kish and an enormous building at Uruk, of which only the foundations survive. These structures can be compared to private houses, few of which are in excess of 150 square meters (Figure 28.4; Henrickson 1981; Matthews

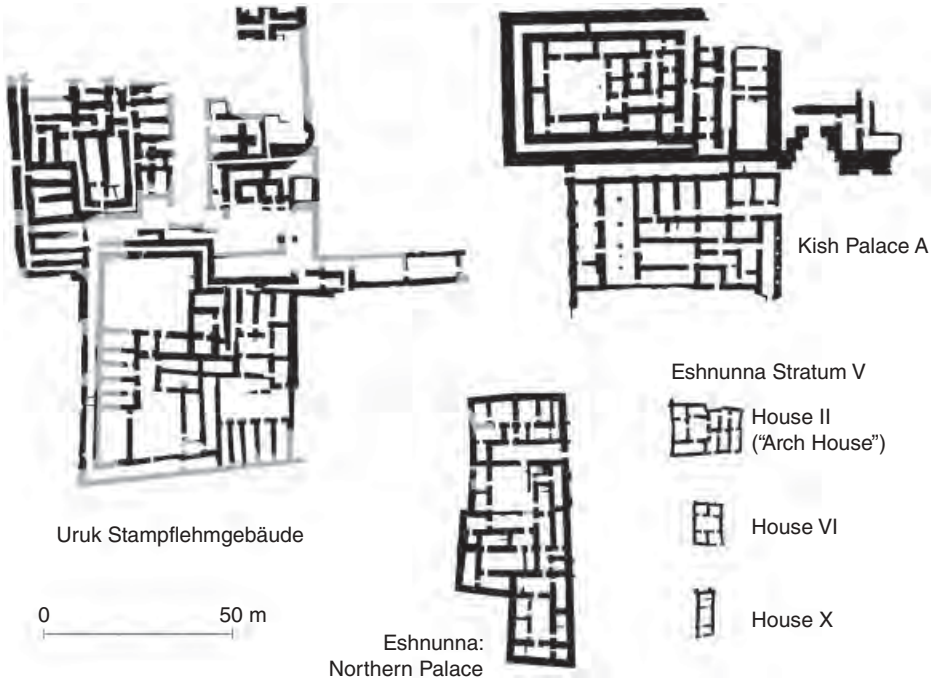

Figure 28.4 Households of the later 3rd millennium BC: palaces from Uruk, Kish, and Eshnunna; domestic houses from Eshnunna Stratum V (Eichmann 2007: Beilage 157; Delougaz et al. 1967; Mackay 1929: Pls. 21–22).

and Postgate 1987: 118). Like palaces and temples, houses were built around a square central courtyard where most household activities probably took place. On one side the entrance to the street could be found through a small vestibule. A well-maintained rectangular room served for receiving guests and other formal activities of the household. At Abu Salabikh, courtyard size varied with the overall size of the house and, indeed, larger houses might have two courtyards (Matthews and Postgate 1987: 117–18). Also around the courtyard were rooms for cooking, storage, washing, and accommodation (Matthews and Postgate 1994).

Houses, temples, and palaces could be found in close proximity within the urban fabric (Figure 28.5). At Eshnunna, the Northern Palace was an 1825 square meter structure with evidence of stone-working, ceramic manufacture, and textile dyeing, in addition to its residential functions (Henrickson 1982: 24–32). Its southwest corner accommodated the Abu Temple, which had existed in that spot for almost a millennium. To the south, and presumably surrounding them, were dense areas of small residential structures. Many were accessible from a large street, but others were accessible only via narrow alleyways. The major streets connected these houses and larger institutions with gates in the city wall.

Figure 28.5 Temples, palaces, and domestic houses in the urban fabric of Eshnunna, c.2200 BC (compiled from Delougaz et al. 1967).

At Abu Salabikh, a 50 hectare town in the center of the floodplain (Matthews and Postgate 1987, 1994; Postgate 1994), the town itself was divided into several discrete mounds. On the primary mound the grid-like street pattern created residential blocks of 25–30 meters on each side, although probably not formally planned. Debris from the houses was dumped directly into the streets, where it was consumed in part by the pigs that ran loose (Matthews and Postgate 1994).

Occasionally, internal divisions separated large households and residential areas. At Khafajah, a group of houses near the Temple Oval was enclosed within a thick wall (Henrickson 1982). Some of the houses inside were large and apparently wealthy, but others were substantially smaller, suggesting the division was related to kinship rather than class. The separation of precincts reached an extreme at Ur, where a central complex contained the *ziggurat* of the moon god Nanna, several other temples, a large storehouse, and a possible palace, all within an enclosure wall.

In many cities, the urban dead were buried beneath the floors of their homes. Some of these tombs were reused over multiple generations. Some cities, however, had districts that were given over entirely to the dead. The most prominent

example is the Royal Cemetery at Ur, which contained approximately 1,850 burials of its late Early Dynastic inhabitants, including some with breathtaking amounts of luxury items (Woolley 1934; Zettler and Horne 1998). The largest tombs contained donkeys and oxen, carts and sledges, and even male and female servants who went to their deaths with their masters. The tombs reveal the wealth of the royal households, which had access to exotic materials from far-off lands and even controlled the lives of their household members. They also reveal a degree of socioeconomic inequality that is absent in the relatively modest size differences in private houses.

Cities grew to massive scales. Perhaps the largest was Lagash, estimated at 400 hectares (Carter 1989–90: 62). The other major cities were smaller: e.g., Shuruppak at 100 hectares (Martin 1983). At the same time, the percentage of the population living in cities declined steadily throughout the 3rd millennium BC, from 78 percent at the end of the Early Dynastic period to 63.5 percent in the Akkadian period and 55.1 percent at the time of the Ur III Dynasty (Adams 1981: 138–9).

Archaeological survey probably underrepresents a flourishing rural landscape. The inhabitants of even the largest cities were closely connected to their lands for agriculture, animal husbandry, fishing, and other sorts of economic activities that took them beyond the city walls. For example, most of the region of Umma was surveyed, and 19 sites from the time of the Ur III Dynasty (2100–2000 BC) were identified (Adams and Nissen 1972; Adams 1981). However, at least five times that many settlements existed in the region, according to the cuneiform record, which describes places that may not have amounted to more than a threshing floor and grain storage area (Steinkeller 2007). Such ephemeral sites are likely to have been washed away by shifting rivers, covered over by flood-borne silts, or scoured away by the wind; some may have been constructed largely of reeds.

The use of writing increased dramatically at this time, especially in association with the great institutions. Centralized administration reached a pinnacle under the royal household of the Ur III Dynasty, from which at least 92,000 administrative texts are known (CDLI 2010). This increasing concern with administration is often described as "bureaucratic" (Yoffee 1995). For some, this term is used as a synonym for administration (Civil 1987: 43), but for others it takes on the Weberian sense of a hierarchical governmental system composed of "offices" that exist independently of the individuals who hold them; the office-holders ("officials") owe their allegiance to the hierarchical system, rather to any individual within it (Weber 1978).

There is evidence against the existence of such a system in 3rd millennium BC Mesopotamia from both texts and archaeology. A marker of administrative power was the cylinder seal, a visible indicator of authority not only on cuneiform documents but also on one's person: there is evidence that they were worn pinned to the front of a garment. Yet the inscriptions on seals emphasize not the office, but

the seal-holder's personal relationship with the king. With the installation of a new king, new seals were issued, even without a corresponding change in office (Zettler 1977:33). If the seal-holder's position was in a true bureaucracy, a new seal would have been unnecessary (Schloen 2001: 265). On this and other evidence, the Ur III Dynasty is best described as a patrimonial state in which Weberian bureaucracy was unknown (Michalowski 1987; Steinkeller 2004).

For much of the 20th century AD, scholars of Mesopotamian cities thought that they were dominated by temple-based states in which the gods (through their priest-administered households) owned all of the land and its products. Subsequent research has shown that they were actually composed of many such households of varying scale, some conceptualized as the houses of gods (i.e., temples) and others as the "secular" households of kings and other elites (Foster 1981). Secular households were dominant on the northern plain, while temple households were more powerful in the south (Steinkeller 1993).

The structuring metaphor for Mesopotamian society at this time was the household (Sumerian **é**, Akkadian *bītum*). These terms had the same range of meanings in the cuneiform languages as they do in English: they referred to buildings ranging in size from a single room to an entire palace, but also to social units like families, lineages, or dynasties, and also their property, including fields, animals, and slaves (Gelb 1979). The largest households were the temples, ruled by hereditary lines of priest-administrators, sometimes with hundreds of dependents. Some scholars assume that most urban residents were dependent on these households (Pollock 1999). In this view, the institutional "household" was a means of economic and political organization in the absence of kinship ties. To the Mesopotamians themselves, however, the large palace and temple institutional households and the smaller "domestic" households were different in degree, not in kind, and they could be nested within each other hierarchically (Schloen 2001). The dependents of a temple household, for example, devoted some of their energies to its functioning, but also worked to sustain their own domestic households (Steinkeller 2004). At a higher scale, provincial and city governors presided over their households, which encompassed the provinces and cities, but themselves were "servants" in the household of the king. Instead of an impersonal bureaucracy, all these relationships were personal ones, couched in kinship terminology. At a general level, patrimonial household organization was found throughout the Bronze Age Near East (Schloen 2001).

With the increasing place of writing in temple and palace administration, it is finally possible to consider aspects of ethnicity in Mesopotamian cities. Ethnicity is a matter of self-ascription, generally in opposition to one or more other groups and almost never coterminous with language groups; nonetheless, it is uncommon that an ethnic group will encompass communities speaking different languages (Emberling 1997). If one considers linguistic aspects of personal names, from an early time, there appear to be Sumerian and Akkadian speakers living together in Mesopotamian cities and many were bilingual (Woods 2007).

There appear to be no archaeological distinctions, however, between these foreign groups and other indigenous urban dwellers, nor between "Sumerian" and "Akkadian" material culture on the southern and northern plain, respectively.

5 Cities of the Middle Bronze Age

After the fall of the Ur III Dynasty, competing polities re-emerged, with foci at Isin, Larsa, Babylon, Uruk, Eshnunna, and Marad. To the east, the Elamites were centered at Susa and a large kingdom was ruled from Mari on the Euphrates and Shubat-Enlil in the Jazirah. Brief moments of unification emerged, particularly under Shamsi-Addu and Hammurabi, but the predominant pattern was of small competing polities, albeit fewer and larger than those of the later 3rd millennium BC (Charpin 2004).

The Isin-Larsa and Old Babylonian periods (early 2nd millennium BC), as this time is also labeled, provide perhaps the strongest dataset for the comparative analysis of Mesopotamian cities. Excavations have revealed great palaces, most notably at Mari but also at Uruk, Larsa, and Eshnunna. On the other hand, archaeologists have exposed broad residential areas that allow insights into urban structure. If the distribution, quantity, and variety of texts are indicators, this was perhaps the time of greatest literacy in Mesopotamian history. Palaces and temples produced great quantities of texts, but so too did smaller households. Where tablets have been excavated in situ, it is possible to reanimate their owners to reveal some of the social dynamics behind the evolution of neighborhoods and cities (see esp. Charpin 1986; Stone 1987; Van de Mieroop 1992a).

Houses remained the basic building block of urban structure, most extensively revealed at Ur, where more than 8,000 square meters of domestic housing were uncovered (Figure 28.6; Woolley and Mallowan 1976). Their builders invested heavily in them by using baked bricks in their lower walls, foundations, and courtyards. As in earlier times, many houses had sub-floor burials, now often elaborately constructed beneath altars for the veneration of the family's ancestors. House size varied, but can generally be divided into rectangular houses with rooms on four sides of a central courtyard and smaller houses with rooms on only two sides. These forms are two stages in a continuous process of household evolution, as a father's house was physically divided between sons at the time of his death, a situation vividly illustrated at Nippur (Stone 1981). This process was repeated thousands of times across the city; neighborhoods – and, by extension, cities – evolved from the bottom up.

House evolution was not limited to subdivision, however. Old Babylonian houses at the northern edge of Larsa were very large, on the order of 500–1,000 square meters, and were built according to an ideal plan (Calvet 1996). Their wealthy merchant owners acquired adjacent urban plots over years in order to construct these palatial houses (Charpin 2003). Because Larsa was abandoned

Figure 28.6 A Middle Bronze Age neighborhood at Ur (based on Woolley and Mallowan 1976: Pl. 24). Gray areas are public space; buildings identified as neighborhood chapels are marked "C."

shortly after these houses were constructed, the divisive process of inheritance never occurred, thus preserving a snapshot of an urban neighborhood before it evolved into a form like that seen at Ur and Nippur.

In addition to domestic residences, other facilities existed within Old Babylonian neighborhoods (Keith 2003). Within the houses at Ur were small chapels with recessed entryways, courtyard altars, and recesses for small divine statues. These small temples were clearly the households of their gods; without these few internal elements, they are indistinguishable from the houses surrounding them.

Monumental temples also existed at this time, but the Ur chapels show that the households of the gods came in a range of physical sizes.

Many houses in Ur contained the cuneiform archives of their former inhabitants. Of the 51 houses in Area AH, 16 contained tablets; the merchants and traders living in them were involved with various sorts of financial transactions in silver (Van de Mieroop 1992a: 163). Many of these transactions involved the temple of the moon god Nanna but the individuals themselves seem to have operated independently. Area EM, which was closer to the Nanna precinct, contained the houses of priests and other individuals closely connected to the temple (Charpin 1986).

Most productive activities were distributed throughout cities. At Mashkan-shapir an intensive surface survey found some crafts clustered in ways that suggested that some neighborhoods had manufacturing specializations, but with minor scatters of debris from lapidary, ceramic, and metal production found throughout the city (Stone 1997: 20; Stone and Zimansky 2004). For the spatial organization of Middle Bronze Age cities as a whole, our best evidence comes from Larsa and Mashkan-shapir (Huot et al. 1989; Calvet 1996; Stone and Zimansky 2004). Both were surrounded by city walls for defense against invaders and flooding. Water was an important structuring element; rivers flowed around them but also through them. Intra-city canals defined neighborhood districts at Mashkan-shapir and probably also Larsa, and harbors are known archaeologically and textually from several cities, where they were important economic loci. Within Mashkan-shapir, canals also structured streets and possibly also formalized neighborhood subdivisions. In Ur and Nippur, the urban fabric was dense, with narrow streets and alleys and very little unbuilt space. Neighborhoods in Larsa, however, may have been more diverse.

For the Old Babylonian period, two small sites allow for comparison with these cities. Prior to excavation, the small towns of Haradum and Shaduppum were concealed beneath low mounds of roughly 1 hectare, well within the smallest size category of the major surveys. Surprisingly, excavations revealed within them all the characteristics of urban centers, apart from size (Baqir 1946, 1948; Kepinski-Lecomte 1996). Both were surrounded by strong walls and showed evidence of planned street patterning. Near its eastern gate, Shaduppum contained a major temple to the goddess Nisaba, along with several smaller shrines, several large households, and many tablets (Figure 28.7). Haradum also had a single gateway which led directly to a central, open space with an adjacent temple and the house of the mayor. At both places, the fabric of the town consisted of dense, central courtyard houses of the sort known from the major cities of the central plain. One might argue that Shaduppum and Haradum are special planned places, but until archaeologists make extensive excavations at other small sites, the possibility that they are typical of rural settlement cannot be ruled out.

The progressive decline in urbanization across the plains continued into the Middle Bronze Age; by the Old Babylonian period, just over 50 percent of all settlement was in excess of 40 hectares, compared to almost 80 percent in the

Figure 28.7 Shaduppum, a Middle Bronze Age town (based on Baqir 1946: Fig. 1).

late Early Dynastic period (Adams 1981: 137–41). Settlement patterns could change dramatically, however, within ceramically defined periods. In the decades following Hammurabi's unification, economic or environmental crises led to regional abandonments: first, the southern plain around Ur and, 20 years later, the central plain around Nippur and Isin (Gasche 1989). The priests and administrators of individual temple households are known to have migrated; for example, the priests of Enki at Eridu moved to Ur and several cults at Uruk shifted to Kish (Charpin 1986: 343–418). A shift in river channels, either intentional or via natural processes, was probably to blame. The cities of the northern plain, particularly Sippar and Babylon, continued to flourish, but the later Old Babylonian kings were unable or unwilling to restore the old river channels and the cities of the central and southern plains could not be resettled.

6 Cities of the Late Bronze Age

After the dissolution of the Babylonian Dynasty and the dramatic reorganization of the settlement landscape that preceded it, a new dynastic line solidified political control over the plain. These Kassite kings had names and a language wholly

unfamiliar to Mesopotamia and, indeed, from what little we know if it, completely unrelated to any other known language. Although they had a non-Mesopotamian origin, they were quick to employ the Babylonian dialect of Akkadian and to embrace most aspects of indigenous Mesopotamian culture. At almost 450 years, it was the longest-attested political dynasty in Mesopotamian history (Sommerfeld 1995).

Nonetheless, the Late Bronze Age is one of the most poorly known times in Mesopotamian history. Archaeologists have focused on earlier periods and have given Kassite levels only a cursory treatment. Fewer known Kassite written records exist than from other periods, and the only large archive, some 10,000 tablets from Nippur, is mostly unpublished and understudied. The physical environment has also discouraged the archaeology of the Kassite period. Following the Middle Bronze Age, Euphrates water flowed mostly through western branches (Gasche and Tanret 1998), leaving the old cities of Sumer and Akkad without reliable water. The main branch ran past Babylon; as a result, settlement has continued in this western part of the plain up to the present, sealing the Kassite levels and causing them to sink beneath the water table, where they are inaccessible to archaeologists. Babylon, the capital of the Kassite kingdom, is almost completely unknown in this period.

In maintaining traditional aspects of Mesopotamian kingship, the Kassite kings resuscitated many of the old cities, including Ur, Uruk, Larsa, Isin, and Nippur. For cities in the center of the plain, they restored water to the area via long canals from the Euphrates. The most visible form of royal investment was in religious institutions, especially *ziggurats*; the temples at Nippur and Ur were restored, as was the Shamash temple at Larsa and Gula's temple at Isin. Door sockets and foundation documents at these and other temples name the kings and the gods in Sumerian, a language that had long since ceased to be spoken.

We can speak of individual temples but, with a few exceptions, it is very difficult to discuss Kassite cities holistically. Dur-Kurigalzu (modern Aqar Quf) was founded on a long limestone outcrop. The southeastern end of the city was dominated by a *ziggurat* and temple complex in typical Mesopotamian form dedicated to Enlil and other traditional gods (Baqir 1944). One kilometer to the northwest sat an enormous palace with multiple courtyards and a smaller one to its south (Jasim et al. 2006). The mounded area between the palace and *ziggurat* complexes was assumed to be the residential quarter (Baqir 1945: 4), but this remains untested by excavation. The elongated urban form at Dur-Kurigalzu is unknown among the older Bronze Age cities and was perhaps related to the nature of the limestone outcrop, pre-existing river channels, or both.

At this time, Nippur was a large walled city that was home to restored temples to Enlil, Inanna, and Gula, a major administrative palace and large domestic structures at its southwestern corner (Zettler 1993). These isolated structures can be placed into a broader urban plan with reference to an ancient plan of the city, drawn on a clay tablet (Figure 28.8; Gibson 1993b: 4–7). Three aspects of the

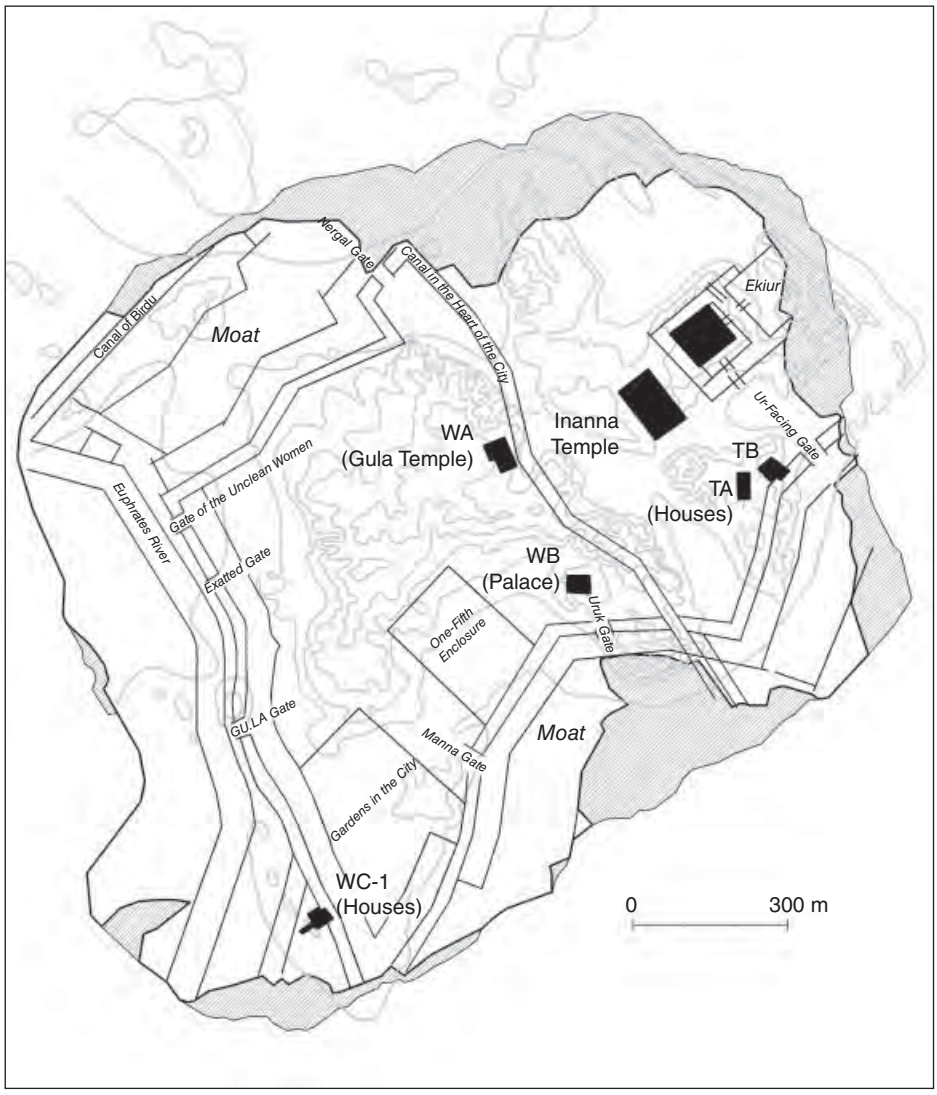

Figure 28.8 Nippur in the Kassite period, based on an ancient cuneiform map (black lines) and modern topography (gray lines). Italic labels are translated from the cuneiform inscriptions; all others are modern designations (based on Zettler 1993: Pls. 6–7).

city's topography were significant to its cartographer: watercourses, the city wall and its gates, and three major precincts. Most prominently, the Euphrates flowed west of the city, with an off-take labeled the "canal of Birdu"; a watercourse running through the center of the city was labeled the "canal in the heart of the city." The city wall is depicted with particular attention to its angles and the positions of gates. The gates themselves are mostly named after specific places

beyond them, or the gods that lived in those places (e.g., the Ur Facing Gate and the Nanna Gate both face to the southeast toward Ur), but others, such as the "Gate of the Unclean Women," hint at neighborhood identities that are otherwise unknown. Finally, the Ekur temple precinct, dedicated to Enlil, the chief deity of Nippur, is prominently indicated, as are the enigmatically named "One-Fifth Enclosure" and an area of gardens. Omitted features include the large, archaeologically known palace on the western mound, the other temples known from texts, streets, and named residential neighborhoods. In light of the otherwise scanty information at hand, it is tempting to see in the Nippur map an indigenous understanding of the most significant elements of the Kassite city, but nothing is known of the reason for its composition or its institutional context.

7 Discussion and Conclusions

Mesopotamian cities varied in time and space, but some aspects remained consistent throughout the Bronze Age. Most importantly, the building block of cities at all times was the household, which was conceptually identical at the level of the family, the lineage, the city, or the kingdom (Schloen 2001). Households were manifested as small domestic structures, but also as large institutions that are called temples and palaces by archaeologists and philologists. The indigenous terminology used to describe relationships between household members, both small-scale and institutional, was that of kinship, including father, son, brother, and especially master and servant. The household basis for Mesopotamian institutions may have been established by the Uruk period, when the physical layouts of temples, palaces, and more modest structures all conformed to the same tripartite plan. The ruling institutions, whether interpreted as religious or, more likely, secular, were conceptualized on the model of the household, and this organizational structure remained in place throughout the Bronze Age. A distinction is often made between "public" and "private" sectors of Mesopotamian society, but the textual and archaeological record does not support this division. At some sites a real dichotomy does appear to exist between large institutions and domestic houses, but not in all cases. At Larsa, houses existed in the range of 500–800 square meters, which is large for a "private" house but small for a palace. Recent remote-sensing research is showing that these intermediate forms are not uncommon. In one such structure at Larsa was found an administrative tablet that would generally be classified as the record of a "public" institution (Charpin 2003: 313–14). "Private" estates were not copying the behavior of kings; in fact, all households engaged in the same sorts of behaviors, just at different scales and some better documented by texts than others (Charpin 1996: 226–7; Steinkeller 2004). Administration was a concern of all households, large and small, and even households that did not make use of writing used other administrative technologies, such as clay sealings, as far back as the Uruk period.

Likewise, texts and archaeology do not support the existence of a "bureaucracy" attached to palace or temple households. From the earliest times, the supposed elements of bureaucratic administration are either too infrequent (e.g., pictographic tablets) or too widespread (seals and sealings, bevel rim bowls) to be critical elements of a state apparatus. The notion of bureaucracy under the Ur III Dynasty, the time of maximal centralization of administration, is equally suspect and better explained in patrimonial terms (Michalowski 1987; Steinkeller 2004). The organization of cities was dependent on personal relationships between individuals and households, relationships that had to be reinforced when kings died, and which were created and extended through diplomatic marriages inside and beyond the southern plains. The complex administration that often characterized Mesopotamian cities can be better explained as large-scale patrimonialism and the metaphorical extension of kinship.

Bronze Age cities appear not to have been structured on the basis of social classes. With the exception of the northern residential area at Larsa, neighborhoods were socioeconomically heterogeneous, with large and small houses occurring side by side (Stone 2007a). Temple districts were walled off, but where residential areas were subdivided – e.g., at Khafajah – the internal areas are equally heterogeneous. In general, production was scattered throughout cities at the household level; when clustering can be identified, it was because smokestack industries such as metalworking and ceramic firing were isolated, most often on the leeward site of the city. Where occupational clusters did exist, they probably emerged over time through father–son transmission, rather than by conscious design (Keith 2003: 77). In general, the evidence currently at hand suggests that the divisions within Mesopotamian cities were vertical, corresponding to lineages and their affiliated households at various scales, rather than a class-based horizontal structure (Stone 2007a).

Mesopotamian cities were closely integrated with their natural environments. Modern cities are defined in part by their high proportion of non-producers, but ancient Mesopotamian cities were always closely connected with subsistence. The records of the large institutions show a deep concern for the management and distribution of the products of the urban hinterland: cereal harvests, herds, and lacustrine resources like fish and reeds. There is no evidence that non-producers represented a large percentage of the urban population in the Bronze Age. Mesopotamian cities were populated largely by farmers, herders, and fishermen, and are better considered as "agro-towns," in the terminology of cultural geography.

This evidence for economically productive cities contradicts a widely held model that opposes an extractive urban sector and a productive rural sector. The idea of a non-productive urban sector can be dismissed (see above), but the rural side of this model is difficult to evaluate from an archaeological perspective because so few small Bronze Age sites have been excavated. The major exceptions, the Old Babylonian settlements at Haradum and Shaduppum, reveal all

the characteristics of urban centers. Close attention to the texts also reveals an unexpected level of rural complexity. Settlements in the hinterland of Umma, for example, possessed a variety of "urban" features, including temples and storage facilities (Steinkeller 2007: 188–95). Instead of a dichotomy, the admittedly limited evidence suggests a continuum of functions between large and small settlements, all of which were closely integrated economically and socially (Steinkeller 2007: 200–2).

If small and large settlements shared many functions, what distinguishes these large settlements? Or, more specifically, what about them caused people to immigrate into them, and to remain there? Large temple and palace institutions were critical elements. These institutions attracted individuals or groups to come to these places either voluntarily, via their economic strength and the attractiveness of joining such a household, or (less likely) through coercion, by forcing dependents to cluster. The latter arrangement is a particularly dysfunctional one for an agricultural civilization, where the most efficient pattern of labor is closer to fields and pasture. The most likely reason for the growth and continuation of Bronze Age Mesopotamian cities is ideological. Cities were literally the homes of the gods, who favored these places by making them strong and productive, as evidenced by the success of the temple and large secular households based in them. To extend, improve, or resuscitate a city was to behave like a king; such actions inspired the favor of the city's gods, and lent legitimacy to claims of political authority. It was the enduring significance of these places that kept people within them, and inspired people to return to them repeatedly over millennia.

GUIDE TO FURTHER READING

The most accessible holistic treatments of Bronze Age Mesopotamian cities are Postgate (1992) and Van de Mieroop (1997); both focus primarily on textual evidence but provide good syntheses with archaeological data. Well argued (but conflicting) theories for the origins of Mesopotamian cities are Adams (1981), Pollock (1999), and Algaze (2008). Englund (1998) is a good review of what is known about the earliest pictographic tablets. For the 3rd millennium BC, the publications of the research program at Abu Salabikh are particularly broad and insightful (see especially Matthews and Postgate 1987; Matthews and Postgate 1994; Postgate 1994). On the sociopolitical and economic structures of the late 3rd millennium BC, reviews by Steinkeller (2004) and Michalowski (1987) are especially valuable. The conclusions of Steinkeller's study (2007) of the urban settlement geography of the Umma region are far-reaching and applicable to southern Mesopotamia in general. For the 2nd millennium BC, several excellent studies synthesize texts and archaeology in Old Babylonian Nippur (Stone 1987) and Ur (Van de Mieroop 1992a; Charpin 1986). Holistic treatments include Stone (2007a) and Keith (2003). Although its primary case study is the LBA Levant, Schloen (2001) is a masterful study of the

household basis of Near Eastern society throughout the Bronze Age, including Mesopotamia; it also includes succinct reviews of earlier social models.

On settlement and landscape in Bronze Age southern Mesopotamia, see especially Adams (1981) and Wilkinson (2003a). An important critical appraisal of survey data and its use for demography is Postgate (1994).

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CHAPTER TWENTY-NINE

Northern Mesopotamia

Timothy Matney

1 Introduction

Northern Mesopotamia has long been considered a cultural backwater on the periphery of the Sumerian world. However, new archaeological research over the past few decades has radically altered this assumption forcing two very substantial modifications to our understanding of the long-term developmental trajectory of societies across the high plains of northern Mesopotamia. The first modification is the idea that southern Mesopotamia was the cradle of urban civilization whose bearers subsequently brought with them urban life to the un- or under-developed northern Mesopotamian villages while in search of timber, ores, and other commodities (e.g., Oppenheim 1977: 110–11; Ch. I.23). New data from sites such as Tell Brak and Hamoukar in northeastern Syria leave no doubt that, at least in the fertile plains watered by the various tributaries of the Khabur River, an initial phase of urban development had started to unfold already by the end of the 5th and the beginning of the 4th millennium BC that was as early as comparable developments in the Sumerian heartland. The scale of that development was similar to the better understood processes of urban growth in the south, and the initial evolutionary processes of cities in northern and southern Mesopotamia were connected in ways far more complex than could have been imagined by earlier generations of scholars (Kouchoukos and Wilkinson 2007; Oates et al. 2007; Ur et al. 2007). The second modification made necessary by recent scholarship is the realization that, albeit with some interruptions, by the

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succeeding Bronze Age, roughly spanning the 1,800 or so years between 3000 and 1200 BC, urbanism in northern Mesopotamia was no longer confined to the upper Khabur region, but rather became endemic within the plains straddling the upper Euphrates and upper Tigris Rivers. These Bronze Age cities, we now know, were based upon the considerable potential of rain-fed agriculture across the area (Weiss 1983, 1990; Wilkinson 1994) and, on occasion, could – and did – rival in power and prestige the historically better-documented polities of southern Mesopotamia (Matthiae 1981; Ch. I.28). The discussion that follows provides an overview of our current understanding of this second phase in the development of urbanism across northern Mesopotamia.

2 Geography

Spatially, this chapter examines the long-term development of urban settlements across northern Mesopotamia – an area corresponding to portions of modern-day northern Iraq, northeastern Syria, and southeastern Turkey. This area is also referred to as "upper Mesopotamia," or sometimes, using the useful Arabic designation, the "Jazirah" (lit. "island," referencing the area between the great rivers). Traditionally, northern Mesopotamia is defined by archaeologists as the region stretching between the Euphrates and Tigris rivers, from the Taurus mountains of Turkey in the north to a less well-defined, southern boundary that is structured by the annually fluctuating 250 millimeter precipitation isohyet, generally acknowledged as the minimum necessary for stable rain-fed agricultural systems. In most years, that boundary falls well north of an imaginary line drawn roughly between the modern towns of Hit on the Euphrates river and Samarra on the Tigris river in central Iraq (Lloyd 1978: 19).

This is an immense area of nearly 225,000 square kilometers, which holds substantial differences in local geography and elevation within its boundaries and is affected by significant variations in climate, temperature, and rainfall. These variations structure important differences in local productivity and ease of transport across northern Mesopotamia and, accordingly, all generalizations about the long-term development of the area over millennia must necessarily be tentative, and all attempts to present a "unified" archaeological scheme for the 1,800 years of the Bronze Age of this vast area, as attempted here, must necessarily be understood as useful over-simplifications.

T.J. Wilkinson (2003a: 100–4) described this area as a rolling steppe between 200 and 600 meters above sea-level with a mean annual rainfall from 700 millimeters in the north to 150 millimeters in some southern areas. Bronze Age crops included rain-fed wheat and barley, with some areas in the north also producing lentils, grapes, olives, and nuts (e.g., Miller 1997; Hald 2010). Farming across northern Mesopotamia was mixed, with pastoralism based on sheep- and goat-herding forming a significant part of the Bronze Age economy (Wilkinson

2003a). Cattle and pigs would also have played a significant role in many urban economies (Wattenmaker 1998). Of vital importance to Bronze Age populations were the Euphrates and Tigris rivers, their principal tributaries – the Balikh, Khabur, Batman, Garzan, Bohtan, Greater Zab, and Lesser Zab rivers – and the myriad smaller tributaries and *wadi* systems that provide water for the region. The modern, semi-arid climatic regime of northern Mesopotamia is characterized by cold, wet winters and hot, dry summers. Even minor annual fluctuations in the rainfall patterns would have had significant impacts on the Bronze Age farmers of northern Mesopotamia, especially in the areas nearest its southern boundary where the reliability of rain-fed agriculture was marginal.

3 Chronological Schemes

An exhaustive comparison of Bronze Age chronological schemes is not the central concern of this chapter. However, it is important in a broad synthesis to outline the general terminology employed by scholars in their description of Bronze Age sequences in northern Mesopotamia. The temporal range of this chapter is the periods traditionally labeled Early Bronze Age (EBA, c.3000–2000 BC), Middle Bronze Age (MBA, c.2000–1600 BC) and Late Bronze Age (LBA, c.1600–1200 BC). Variant terminologies include a southern Mesopotamian-derived sequence that was the dominant paradigm for northern Mesopotamian archaeology for decades: Jamdat Nasr, Early Dynastic I, II, III, Akkadian, Ur III, Isin-Larsa, Old Babylonian, Kassite (see Chs I.28, II.37). Alternative schemes reference long-established western Syrian and Levantine chronologies that rely on subdivisions of the "Early–Middle–Late Bronze Age" terminology as understood in those latter areas. In both these cases, the northern Mesopotamian chronology is conceptually tied to stratified sequences found elsewhere. An earlier variant on the southern Mesopotamian sequence applied specifically to northern Mesopotamia references major sites and polities found in the north: Ninevite 5, Akkadian, Old Assyrian, Hurrian (Nuzi), and Middle Assyrian. This scheme, as a whole, has few adherents, although these terms are found in older literature and are still widely used as chronological shorthand by contemporary scholars. A significant revision of the traditional terminology for the EBA specific to northern Mesopotamia was recently introduced by Pfälzner (1997, 1998) and Lebeau (2000). This scheme divided the EBA of northern Mesopotamia into seven periods of the "Early Jazirah" horizon (EJ0–EJV, with EJIII being subdivided into EJIIIa and EJIIIb) and was based on regional ceramic variations within the Syrian Jezirah. This terminology was conceived as independent of the sequences of western Syria and the Tigris valley (Lebeau 2000: 169). Unfortunately, the EJ scheme does not cover the 2nd millennium BC and cannot easily be applied to sites in the upper Tigris and upper Euphrates basins, so it is of limited utility in the sort of broader synthesis presented here. In this chapter, therefore, given the wide-ranging broad

spatial and temporal scope covered, the most general Early–Middle–Late Bronze Age chronological scheme has been retained, while acknowledging its shortcomings even as a heuristic device.

4 Northern Urban Trajectories

The larger theoretical issue to be addressed in this chapter is the broad trajectory of urban development in northern Mesopotamia between 3000 and 1200 BC. This subject has received considerable attention in recent decades due to the existence of a wealth of new data from salvage excavations along the major rivers and tributaries in Turkey, Syria, and Iraq, as well as the continued publication of long-standing excavations at urban centers across the region. Earlier, T.J. Wilkinson (1994) had attempted to understand the dynamics of urban growth and collapse in the area in terms of the ability of urban elites to mobilize resources from their immediate hinterlands. He concluded that difficulties inherent to overland transport across the northern Mesopotamian plains introduced important limitations to the upper size threshold that such cities could achieve in climatically favorable times, as well to their flexibility to successfully circumvent climatic downturns of substantial duration. Similarly, Ur has recently discussed the emergence of urbanism in northern Mesopotamia in terms of "cycles of civilization," where periods of urban agglomeration alternated with periods of urban dissolution and population dispersal (Ur 2010a: 415). While acknowledging the importance of the material limits that Wilkinson identified in the ability of northern Mesopotamian urban elites to amass risk-abating surpluses, Ur focused instead on a shift from "kin-based identities" to "class or residentially based forms of social identification" as the key to the dynamic cycle or early urbanism in northern Mesopotamia during the Chalcolithic and EBA, c.4400–2000 BC (Ur 2010a: 388).

Looking broadly at northern Mesopotamia, the MBA and LBA in the area do not hold to the cyclical patterns previously identified by Wilkinson and Ur as prevalent in the 4th and 3rd millennia BC. The pattern of cities with tiered site hierarchies, political centralization, notable social stratification, territorial expansion, and other urban features is seen consistently across northern Mesopotamia during the 2nd millennium BC, until the beginning of the Iron Age. Of course, not all urban centers were continuously occupied, but spatial shifts in political and economic prosperity between cities meant that, in the aggregate, there was a continuous *urban tradition* across the region during the Middle and Late Bronze Ages, even if the focal points changed from time to time. Wilkinson (2000: 242) referred to this process as "settlement flux and patchiness." Ur's cycles of civilization are, thus, experienced in local or regional contexts, but do not appear to hold across the entire region during the 2nd millennium BC. It might be appropriate, then, to characterize the Chalcolithic and EBA as periods of "urban establishment" in which the idea and technologies of power necessary

for urban life first evolved and became firmly rooted in northern Mesopotamian culture. The subsequent MBA and LBA are perhaps better characterized as a period of "urban maturation," during which we see a variety of urban sizes and forms, and a shifting mosaic of population concentrations due to the social, political, and environmental vicissitudes affecting the various regions that comprise northern Mesopotamia.

5 The City Defined

At the outset it is important to define clearly what is meant by the concepts "city" and "urban." The most fundamental question we must ask in defining ancient urbanism is, why did people choose to live together in cities at all? This decision is counterintuitive in many respects. Cities are crowded places with endemic diseases, intensified social conflict, difficult access to water, and persistent pollution. Their inhabitants are often physically cut off from arable land. Cities are inevitably hierarchical as wealth is not evenly distributed, as seen in the ubiquity of elite dwellings and markers of status at all urban sites. Accordingly, the presumed advantages to urban life – e.g., access to a wider range of goods and services, an economy capable of supporting craft specialists, etc. – are, in my opinion, all *post facto* arguments for its genesis. I would argue that the desire for urban goods and services arose as a symptom of urban life and cannot be cited simultaneously as its cause, except as positive feedback within an entirely hypothetical closed systems model.

In my opinion, early population agglomerations during the Neolithic period primarily served cultic or social functions. These early centers were permanent manifestations of earlier, temporary regional meeting places that had been used for necessary public rituals such as initiation rites or for the exchange of information, raw materials, and finished goods, and, last but not least, the procurement of suitable, culturally related but genetically distant mates. Through time, these places became fixed focal nodes on the landscape and accumulated other attributes (political, economic, and technological) as well as permanent populations. A particular place in the landscape was thus imbued with meaning amongst a group of people who might otherwise be spatially distributed for much of the year into separate households, camps, or villages, or any combination of these. The city, as I define it here, is thus a nexus or node, physical space transformed by human practice and consensus into a meeting point. In some cases, cities emerged in an organic fashion as tightly clustered villages that were spatially connected through natural population growth. In other cases, cities were built as new places, creating a new nexus by political fiat. In either case, however, the value of the ancient city remains the same – it is a nexus for information and commodity exchange – and, over time, each city took on a specific historical meaning that in many cases proved durable over the course of generations.

As noted earlier, in the Near East this general process started in the Neolithic period and, as briefly discussed below, became institutionalized in the Chalcolithic and EBA. Certainly by the early 2nd millennium BC, and perhaps during the last third of the 3rd millennium BC, the landscape of northern Mesopotamia was fully urbanized. The city (as both a concept and reality) was by then the most important and most permanent social, political, economic, and technological nexus for all social groups, although the disparate elements of the population would have participated differentially in urban life. This definition of the city is hardly new, following in general Mumford's concept of the earliest cities arising on established "sacred spots" and Wheatley's idea of the city as an organizing force within a particular geographic context (Mumford 1961: 95; Wheatley 1971; cf. Van de Mieroop 1997: 11). The task of the archaeologist studying urbanism is to document the early historical trajectory of particular cities and to understand how each functioned as central exchange and administrative nodes within the physical and social landscapes they occupied.

This definition of the city and of urbanism is vital for three reasons. First, it disallows explanations tied to mono-causal, mechanistic economic, environmental, or political "prime" movers, while still allowing us to understand what role each of these factors played in the functioning of the early city. Second, it removes the severe theoretical limitations of scale; cities tend to be large population agglomerations where particular social, economic, political, and ritual functions take place, but we are not limited to an overly restrictive or specific population size, type of settlement hierarchy, or laundry-list of features in defining a settlement as a city or a society as urban (cf. Childe 1950). That said, the drawbacks to urban life discussed above have to do with demography, density, and scale, so it makes no sense to completely disregard scale. In order to overcome the tendency toward fission into smaller communities, there must be some greater social meaning, function, or significance to a particular place. Size, then, is a proxy indicator of these values that inspire immigration to a city despite its inherent instabilities (Ur in press b). Finally, this definition allows us to consider that even during a time when a particular urban center was abandoned or thinly populated, the specific historical meaning of that city was not necessarily lost or unimportant. The idea of the city has a tangible value capable of being seized and manipulated by subsequent city-builders as long as it remains viable within the popular imagination.

6 Prolegomenon to Bronze Age Urbanism in Northern Mesopotamia

As discussed above (cf. Ch. I.22), one of the most important developments in our understanding of emerging urbanism in northern Mesopotamia pre-dates the Bronze Age. For decades scholars assumed that the first cities arose in southern

Mesopotamia, with Uruk as the archetypal site, while urbanism in northern Mesopotamia was a "secondary" event brought about in large part through stimulation and contact from the south (Nissen 1988; Liverani 2006). Fieldwork at sites such as Tell Brak and Hamoukar (and its suburban area of Khirbat al-Fakhar) in Syria (Oates et al. 2007), Tell al-Hawa in Iraq (Ball et at. 1989; Lupton 1996), and Arslantepe in the Malatya region of southeastern Turkey has demonstrated that stable urban centers were present in the north by the late 5th and 4th millennia BC. The idea of the temporal primacy of southern Mesopotamia as the location of the first cities, long taken as a given in Near Eastern archaeology, no longer holds. That said, it is still important to recognize that the "Uruk achievement" – as David and Joan Oates (1976a) called the southern Mesopotamian urban expansion during the 4th millennium BC – had a significant impact on the development of Chalcolithic urbanism in the north (Algaze 1993, 2001a, 2005a, 2008; cf. Lupton 1996) and it would be incorrect to discount or underestimate the influence of southern cities on northern Mesopotamian urban genesis, and vice versa.

7 Urbanism in the EBA (3000–2000 BC)

The end of the Uruk expansion at the close of the 4th millennium BC marks an apparent downturn in the social complexity of northern Mesopotamia, and introduced – in broad terms – a period of decentralization. This was no doubt the first significant oscillation in the civilizational cycle described by Ur and mentioned earlier. Akkermans and Schwartz (2003) have correctly described the early centuries of the 3rd millennium BC as a period of regionalism and local trajectories. Across much of northern Mesopotamia this period was marked by the appearance of a new ceramic style – Ninvite V – a term that covers a range of painted and incised/excised wares first documented in the deep sounding at Nineveh (Campbell Thompson and Mallowan 1933). This style, as well as other elements of material culture associated with the Ninevite V ceramics, appears to have been of local derivation (Schwartz 1987; Akkermans and Schwartz 2003: 213) and is often found at village or town-sized sites, e.g., Tell 'Atij, Kerma, and Raqa'i, as well as Tell Leilan on the Syrian Khabur (Schwartz 1987; Crawford 2004: 120–1), which constituted the predominant form of settlement across the northern Mesopotamian landscape.

However, there was not a complete abandonment of the 4th millennium BC cities in the north. For example, Tell Brak, with a size of c.40–65 hectares in the early centuries of the EBA (Phases H/J), is one of a few sites that maintained clearly urban proportions following the collapse of the Uruk polities (Oates et al. 2001: 380). Excavations between 1994 and 1996 showed a clear continuity of occupation at Tell Brak, a major early EBA center with a long-lived shrine (the HS4 shrine) although there is a lack of monumental temples and other

buildings during his period (Matthews 2003a: 97–192). Based on surface finds, Tell al-Hawa (on the Sinjar plain, northern Iraq), with an estimated 42 hectares of occupation, may have been of similar size during the early 3rd millennium BC, only marginally smaller than it was during the preceding Uruk period (Ball et al. 1989: 34). Margueron (1987b, 2008) suggested tentatively that Mari (modern Tell Hariri on the Euphrates river just below its confluence with the Khabur) may have been occupied on a massive scale during the early EBA, but firm evidence of this is lacking. Other settlements appear to have been in the process of urban transition during the Ninevite V period. This includes Tell Leilan, which was c.15 hectares during this period (Stein and Wattenmaker 1990) but did not reach its greatest urban proportions until around 2600 BC when the site expanded to 90 hectares (Weiss 1983; Weiss et al. 1993; Ur in press a). Matthews (2003a: 123–31) provided a summary of numerous other early EBA/Ninevite V settlements in northern Mesopotamia (Tell Barri, Tell al-Haidiya, Girnavaz, Chagar Bazar, Tell Mozan, Ailun, Tell Hazna, Tell Beydar, Kashkashok III, Melebiya, Tell Bderi, Tell Chuera, Tell Taya, and dozens of others), although the remains from many are from burials rather than occupational levels, or from small non-urban settlements.

Despite the extensive evidence for early EBA settlement in northern Mesopotamia just cited, the general picture painted by most scholars is one of diminished social complexity across northern Mesopotamia at that time. Although some larger settlements existed, it is generally the case that Ninevite V settlements at the beginning of the 3rd millennium BC lacked monumental palace and temple complexes, written texts, and mass-produced pottery. Settlement patterns were largely limited to two-tier hierarchies of small centers (15–20 hectares) with a penumbra of surrounding villages (Matthews 2003; Akkermans and Schwartz 2003: 217; Ur 2010a: 402). Along the middle Khabur river, dozens of small, early 3rd millennium BC sites have been discovered, many providing evidence of "specialized, surplus grain production" (Akkermans and Schwartz 2003: 223). The nature of this surplus production and storage is still not fully understood, but it suggests that, even without massive urban centers, the social fabric of early EBA society was more complex than one of simple, independent villages.

Starting around 2700 BC, fully evolved urban centers emerged rapidly out of pre-existing settlements. Some of the best documented examples include Nineveh, Tell al-Hawa, Tell Taya, and Tell Khoshi in northern Iraq; Tell Leilan, Tell Brak, Hamoukar, Tell Mozan, Tell Beydar, Tell Chuera, Tell Bi'a, and Mari in Syria; and Kazane Höyük, Titriş Höyük, Karkamish, and Tilbeşar in southeastern Turkey (Matthews 2003: 134; Ur 2010a). These sites covered 40–120 hectares and stood at the apex of local settlement hierarchies, as documented by a number of regional surveys (e.g., Stein and Wattenmaker 1990; Algaze et al. 2001). These urban centers, then, formed the nodes for competing indigenous EBA polities spread across northern Mesopotamia, each based around a fortified center of considerable size, surrounded by a corona of dependent towns and villages. From

the Ebla texts it seems certain that information, raw materials, and goods, as well as some human migrants, continually flowed between these cities. Studies of the urban landscape, beyond the scope of this chapter, now form a particularly valuable addition to our understanding of the EBA city (Wilkinson 1993, 1994; Ur 2003, 2009).

Many of the cities that emerged in northern Mesopotamia by the middle of the 3rd millennium BC took a particular form that is worthy of note here. These are the settlements broadly referred to in the literature as *Kranzhügel*. *Kranzhügel* are found between the Balikh and Khabur rivers in northeastern Syria and comprise a roughly circular settlement with a high mound encircled by a lower city, each with a fortification wall. Tell Chuera (65 hectares) and Tell Beydar (28 hectares) are typical *Kranzhügel* cities (Akkermans and Schwartz 2003: 256–9; Crawford 2004: 124–6). Mari was founded in the early 3rd millennium BC and expanded to c.100 hectares in the middle EBA, its general form like that of a *Kranzhügel* (Akkermans and Schwartz 2003: 263). It is not yet certain whether *Kranzhügel*-type sites also extended into portions of the upper Balikh and upper Khabur watersheds in southeastern Turkey, although it would not be surprising if future research in the area eventually identified such sites. To summarize, across northern Mesopotamia, the urbanization process that started in earnest at the end of the Ninevite V period continued to build during the second half of the 3rd millennium BC. In the aggregate, this urbanizing phase, therefore, lasted for about 500 years, with many of the largest such cities continuing to be occupied at least until 2200 BC.

8 Reassessing the "Collapse" of Late EBA Cities

In the late EBA, c.2200 BC, a significant shift in urban settlements is seen in some regions of northern Mesopotamia, initiating yet another turn in the Chalcolithic–EBA civilizational cycle that characterized early urbanism in northern Mesopotamia. Many urban centers were abandoned, although the timing and documentation of this abandonment is not without dispute (Oates et al. 2001: 392–4; Ur in press a). Explaining the collapse of some late EBA cities and smaller settlements has been a topic of considerable discussion for decades. In a seminal article that in many ways focused the research agendas of urban scholars for the next two decades, Weiss et al. (1993) argued for a regional, environmental collapse with aridification, dust, and lowered seasonal temperatures due to volcanic activity at this time, bringing an end to the EBA cities of northern Mesopotamia. With the incorporation of global tropospheric flows and precipitation patterns, the model was later modified (Staubwasser and Weiss 2006).

McMahon has provided a critique of the environmental collapse model elsewhere in these volumes (Ch. II.34) and the details of her discussion will not be reiterated here (cf. Ur in press a). Other possible explanations for the disruption

to certain urban trajectories include the political ramifications of the collapse of the Akkadian empire in southern Mesopotamia (e.g., Nissen 1988) and environmental degradation due to stresses produced by urban centers: fallowing regimes, need for fuel, food for people and draft animals, trade or exchange needs, new demographic and social patterns (Algaze and Pournelle 2004; cf. Wilkinson et al. 2007 for a recent and far more sophisticated, agent-based modeling approach to urban stress). The nature and extent of Akkadian rule in the north, including the important religious and administrative buildings found at Tell Brak (Oates et al. 2001; Ch. II.34), is discussed elsewhere and needs no further elaboration here. It is worth noting, however, that the Akkadian kings, and most significantly Naram-Sin, claimed to have conducted military raids in the Khabur plains of Syria and the Tigris plains of southeastern Anatolia (ancient Subartu) as well as in the upper Euphrates area. The destruction of Ebla and Mari is often attributed to military activity by either Sargon or Naram-Sin (for upper Tigris region, see Peasnall and Algaze 2010; for the upper Euphrates region, Ch. II.34).

In short, the idea of urban collapse based solely on environmental catastrophe appears at best to be only regionally applicable (Gremmen and Bottema 1991; Kuzucuoğlu and Marro 2007; Rosen 2007; Ur in press a). Akkermans and Schwartz (2003: 282–3) noted that, with the exception of Tell Brak and Tell Mozan, the capitals of the small states of Nagar and Urkesh, respectively, the majority of upper Khabur sites (e.g., Tell Leilan, Tell Chuera, and Tell Beydar) were abandoned at this time, exactly as Weiss and his colleagues claimed (although see Ch. II.34; Oates et al. 2001; Koliński 2007; Schwartz 2007a), as were the middle Khabur settlements mentioned earlier. However, in addition to Tell Brak and Tell Mozan, some smaller settlements, such as Chagar Bazar, continued to be occupied, albeit in some cases with a much reduced settlement size. Hamoukar on the modern Syria-Iraq border also demonstrates clear post-Akkadian occupation.

These results from the Khabur basin are by no means exceptional. Recent research at Pir-Hussein on the Tigris river near Diyarbakır shows that urban traditions survived well into the late 3rd and the transition to the 2nd millennium BC (Peasnall and Algaze 2010). Lying outside of the more deeply affected upper Khabur area, the upper Euphrates river sites provide some of our best evidence for the flourishing of an urban tradition in northern Mesopotamia during the turbulent climatic times of the last two centuries of the 3rd millennium BC. Although Titriş Höyük was abandoned at this time (Algaze et al. 2001), many other urban sites further south were not. Mari, for instance, flourished in the period of the *šakkanaku* rulers, c.2250–1900 BC, as evidenced by the building of monumental architecture there, as did the city of Tell Bi'a (ancient Tuttul) where a palace was built at this time (Akkermans and Schwartz 2003: 286–7). Tell es-Sweyhat on the Euphrates expanded in the mid-/late EBA, reaching 45 hectares in the last centuries of the 3rd millennium BC (Zettler 1997) and the city of Karkamish, upstream from Tell es-Sweyhat, emerged as a significant urban

center of comparable size only at the very end of the 3rd millennium BC (Algaze et al. 1994).

Recently, Ur (in press b) reviewed the landscape data around Tell Leilan, Tell Brak, and Hamoukar, presenting a strong case for the localized effect of climatic change on the fortunes of these cities as manifested in social responses through differing agropastoral practices – e.g., agricultural intensification and extensification. Given the numerous exceptions to the idea of broad civilizational collapse, it now seems apparent that, whatever the regional disruptions to some northern Mesopotamian EBA cities around 2200 BC, when considered in the aggregate, the last two centuries of the 3rd millennium BC are still best characterized as urban in character (Lebeau 2000: Table IX).

9 Urbanism in the MBA (2000–1600 BC)

As discussed above, Weiss and his colleagues argued for an abrupt climate change event beginning c.2200 BC and ending at 1900 BC (Staubwasser and Weiss 2006), thus straddling the traditional boundary between the EBA and the MBA. Regarding the cultural response to the end of this event, Weiss argued that in the early MBA entire regions of northern Mesopotamia were "resettled intensively and reorganized fundamentally" and that these "reoccupied settlements now served different functions with regions resettled on a different scale, with ethnically different populations, sedentarized nomadic pastoralists, and regional economic and spatial organization adapted to the previously abandoned, now open, arable, dry-farming 19th century BC landscapes" (Staubwasser and Weiss 2006: 382). Certainly, there was a reorganization of the human landscape during the MBA and new groups came to prominence. Surveys around the Tell Beydar area, for example, show a dramatic decrease in the settled area as the 62 hectare city of Beydar was abandoned and the 4 hectare site of Tell Sekar Foqani remained the only permanent MBA settlement near Beydar. This has prompted some to suggest that the western Khabur basin was a "zone of pastoralists" at this time (Ur and Wilkinson 2008: 308), although "strongholds," such as Chagar Bazar, described as having a "dense arrangement of structures, mixture of houses and administrative buildings" (McMahon 2009b: 220), still existed within this zone. If we simply looked at Chagar Bazar's size in the early MBA – 10 hectares – it would be tempting to class the site as a large village or a small town, rather than as an urban center. However, Mallowan's excavations uncovered the remains of an early MBA palace there (Curtis 1982b: 82) suggesting that, while some urban functions may have been transferred to smaller centers, the urban tradition remained alive and well even in regions lacking large cities. As Van de Mieroop (1999: 10) pointed out, the cuneiform texts do not appear to classify or distinguish settlement types on the basis of size, suggesting that for the ancients other criteria may have been more important for understanding urban function.

Elsewhere (e.g., at Mari), there was continued occupation and building on a monumental scale during the MBA. Likewise, just upstream from Mari at Tell Bi'a, a contemporary palace was in use during the early MBA (Strommenger 1994; Kohlmeyer and Strommenger 1995; Akkermans and Schwartz 2003: 297). More importantly, the beginning of the MBA saw the emergence of a new economic element, a formalized long-distance trading network centered at the city of Assur on the Iraqi Tigris and stretching across northern Mesopotamia and into central Anatolia. Thus, when viewed broadly, the cultural pattern of northern Mesopotamia may have shifted between nodes during the MBA, but it remained nevertheless an urban landscape.

10 A New Paradigm: Old Assyrian Trading Colonies

Textual evidence, in the form of well over 20,000 cuneiform tablets found at Kültepe (ancient Kanesh) in central Anatolia, documents a lively international trade originating in the northern Mesopotamian city of Assur, situated on the Tigris River c.100 kilometers downstream from Mosul. The majority of the Kanesh texts, dated to between 1910 and 1830 BC, document the activities of a colony of Assyrian traders who established a *karum* (lit. "harbor" – i.e., a trading colony) there for servicing long-distance trade. The texts tell us that large quantities of tin and textiles were transported via donkey caravan across northern Mesopotamia to Kanesh, where they were exchanged for silver and gold. What is particularly striking about this trade is that it was entirely organized as a private venture, operating outside any direct palace control. Along the trade routes, kings and chiefs were paid taxes or bribes, thus allowing the Assyrian merchants passage and access to local trading districts (Van de Mieroop 2007: 98). Some 40 of these Assyrian colonies are known to have existed in Anatolia (Larsen 2008), although excavated evidence is still limited. In a manner vaguely reminiscent of the Uruk colonial settlements (Algaze 1993), this extensive mercantile web offers an early example of how otherwise unrelated urban nodes were connected by the flow of information, raw materials, goods, and people. Without the Kültepe texts, we would have few indications that such a mercantile web even existed, and fewer still about its prodigious scale.

Despite extensive German excavations (Ch. II.46; cf. Andrae 1977[1938]; Dittmann 1992; Lamprichs 1997), we know comparatively little about the city of Assur (modern Qalat Sherqat) itself, the home of the Old Assyrian traders, during the early MBA. A sounding in the Ishtar Temple and the Old Palace areas show that Assur was founded in the middle EBA, but very little is known of the city during this time (Miglus 1989) other than the meager and fragmentary archaeological remains uncovered by Assur's early excavators. The situation becomes clearer, however, in the early 2nd millennium BC because of the already noted abundance of Old Assyrian texts, the overwhelming majority of which

come from Kanesh. In any event, these leave little doubt that Assur became the administrative, economic, and religious capital of a small state at this time that was ruled "by an oligarchy of leading businessmen with a king who may perhaps be described as a first among equals" (Larsen 2008: 70–3).

11 State Formation Under Shamshi-Adad I and the Lim Dynasty

Although already an old city, Assur came to prominence during the reign of Shamshi-Adad I (1813–1781 BC), who seized the throne late in the 19th century BC and proceeded to expand the power of the Assyrian state into northern Syria, annexing the Khabur region. He subsequently moved the capital of his kingdom to Shehna (Tell Leilan), which he renamed Shubat-Enlil (Weiss 1983; Weiss et al. 1993: 1002). Assyrian military successes took them along the Euphrates river, where they conquered the strategically situated city of Mari, traditionally a contact and transshipment point for exchanges between northern and southern Mesopotamia. Van de Mieroop (2007: 107) refers to Shamshi-Adad's territory as the "Kingdom of Upper Mesopotamia." The historical details of Shamshi-Adad's rule are well documented, and a lengthy discussion is beyond the scope of this chapter (cf. Roaf 1990a; Kuhrt 1995: 81–89; Akkermans and Schwartz 2003: 308–13; Van de Mieroop 2007: 107–11). One primary theme that emerges in the secondary sources is the short-lived nature of Shamshi-Adad's kingdom, which largely collapsed after his death. Schwartz and Akkermans (2003: 311) cite evidence that a group of warlords competed for control of Shubat-Enlil after Shamshi-Adad's death until a minor dynasty under the "Kings of Apum" gained the upper hand, only to be conquered themselves by Samsuiluna of Babylon in 1728 BC. A second primary theme that emerges is the relationship between Shamshi-Adad, Assur and the Lim Dynasty of Mari.

Perhaps the best-known MBA city in northern Mesopotamia is that of Mari, situated at a point on the south bank of the Euphrates where the river meanders through a wide valley. As noted earlier, Mari flourished in the middle part of the EBA. Our knowledge of Mari's role as an important middle EBA center comes primarily from an archive of more than 20,000 cuneiform texts, mostly administrative documents, and from the near-complete excavation of an immense palace covering c.2.5 hectares (Dalley 2002). The palace was a sprawling structure with nearly 300 ground floor rooms and was in use, with modification, for several centuries starting before 2100 BC, although it is often referred to as the palace of Zimri-Lim. Its extraordinary preservation was the result of its having been burnt when Mari was sacked by Hammurabi of Babylon in 1757 BC (Roaf 1990a: 119). The artifacts left behind by Hammurabi's army form an important corpus of MBA art, demonstrating that the strong ideological connections that Mari had had with Mesopotamian culture throughout the EBA continued well into the MBA, although influences from western Syria and other diverse areas with which the Mari elite were in contact at that time are also evident (Margueron 2008).

While major urban centers existed at Assur, Shubat-Enlil (Tell Leilan), and Mari, we also have archaeological evidence for elite buildings or palaces at smaller cities contemporary with Shamshi-Adad. One such site is Tell al-Rimah (ancient Karana). Here, British excavators documented a fortified city with a high citadel mound and surrounding lower city c.28 hectares in extent that appears to have been founded in the time of Shamshi-Adad (Oates 1982: 88; Postgate et al. 1997). Excavations uncovered a massive MBA palace in the lower town. The important excavated finds included a collection of cuneiform tablets which describe Karana first as a client state under Shamshi-Adad, and then as an independent state following his death (Dalley et al. 1976; Oates 1982: 89–91). Nineveh, too, was captured by Shamshi-Adad as part of his conquest of the province of Nurrugum, and he claims in a building inscription to have renovated the temple of Ishtar there (Oates 1968: 40). Palaces similar to those at Mari and Karana have also been found at smaller sites in the upper Khabur area as well, such as Chagar Bazar (Mallowan 1947; Curtis 1982b; McMahon 2009b). These palaces make it clear that the administrative or ideological importance of a settlement cannot be read as a direct function of its size.

The kingdom of Mari was destroyed by Hammurabi and, except for its use as a LBA cemetery when rich Middle Assyrian graves were dug into Zimri-Lim's palace (Akkermans and Schwartz 2003: 350), the city was abandoned for the remainder of the Bronze Age. While the expansion of southern Mesopotamian power along the Euphrates to Mari under the Babylonians meant an effective end to the kingdom of Mari, a smaller, indigenous city-state centered upstream at Terqa survived and eventually regained a significant part of Mari's former territory (Kuhrt 1995: 115–16).

Toward the end of the MBA, Hittite military raids emanating from central Anatolia destroyed many western Syrian polities (e.g., Yamkhad) and cities (e.g., Aleppo and Alalakh) and eventually destroyed Babylon in southern Mesopotamia, putting an end to the Old Babylonian Dynasty. Despite these military upheavals, however, Akkermans and Schwartz (2003: 326) correctly noted that there was no violent end to the MBA in northern Mesopotamia and that, within Syria at least, "material culture exhibits a smooth transition between Middle and Late Bronze Age strata." Thus, although the closing century of the MBA and the first century of the LBA have been called a "Dark Age" by historians who struggle with a lack of cuneiform sources for this period (e.g., Van de Mieroop 2007), this lacuna in historical knowledge does not extend to the archaeological record, which instead demonstrates considerable continuity in the urban tradition of northern Mesopotamia throughout the 2nd millennium BC.

12 Urbanism in the LBA (1600–1200 BC)

The beginning of the LBA in northern Mesopotamia was characterized by the emergence of a new dominant group, identified chiefly through their language:

Hurrian. Evidence from Tell Mozan (Steinkeller 1998: 84) suggests that the Hurrian language and Hurrian names are present in northern Mesopotamia as early as the middle EBA, but it was only in the early LBA that Hurrian elements became a significant political presence in the cuneiform texts (Kuhrt 1995: 283–300), their influence stretching from the rebuilt city of Alalakh in the west to Nuzi (modern Yorgan Tepe) near Kirkuk in the east (Starr 1938; Woolley 1955b). A discussion of the original homeland of the Hurrians is beyond the scope of this chapter, but it is important to note that the dominant political power in northern Mesopotamia in the early LBA – the kingdom of Mitanni, with its center in the upper Khabur region – appears to have evolved out of the agglutination of numerous smaller Hurrian city-states. The kingdom of Mitanni is first evident in the cuneiform record in the early 15th century BC. Its capital Washukanni has been identified by some scholars with Tell Fakhariyah, although there is still some debate on this (Roaf 1990a: 132–4; Akkermans and Schwartz 2004: 327). The Mitanni kingdom was a major international power, as demonstrated by letters from the Mitanni kings found in the archives at Tell el-Amarna in Egypt, in which diplomatic marriages between the daughters of three Mitanni kings (Artatama I, Shuttarna II, and Tushratta) and three successive Egyptian pharaohs (Thutmose IV, Amenophis III, and Akhenaten) in the 14th century BC are mentioned.

Our knowledge of Mitannian urbanism in northern Mesopotamia comes largely from Tell Brak, Tell al-Hamidiya, and Tell Mozan in the Khabur region, and Nuzi and Tell al-Rimah in Iraq. LBA cities in western Syria, including Alalakh on the Orontes, and sites within the Tabqa and Tishrin Dam salvage areas such as Munbaqa (ancient Ekalte), Ras Shamra (ancient Ugarit), Emar, and Tell Bazi are covered elsewhere (Ch. II.41; Akkermans and Schwartz 2003: 333–46). This said, the Hurrians are very difficult to identify solely on the basis of their material culture, and Mitanni influence is often identified by the presence of a luxury ceramic called Nuzi ware (Pfälzner 1995). This ware has an uneven distribution, however, and, in any case, does not extend across the entirety of the Mitanni lands (Akkermans and Schwartz 2005: 329), so its utility as an archaeological marker of Mitannian cultural or political presence is limited.

Surveys in the Jazirah have shown that there was a general decentralizing trend, with the possible appearance of Mitanni "elite manor houses (Akkadian *dimtu*) controlling agricultural production in the Mitannian hinterlands" (Akkermans and Schwartz 2003: 346; cf. Wilkinson 1998a). Still, major Mitanni cities existed at Tell Brak, Tell Mozan, and Nuzi (ancient Gasur). Tell Brak (ancient Nagar) has strong evidence of a Hurrian population dating back to the end of the EBA, when it was the seat of a Hurrian Dynasty under king Talpush-atili (Matthews and Eidem 1993). Documents sworn before two 14th century BC Mitanni kings, Artashshu-marra and Tushratta, and found at Tell Brak, clearly place the site within the heartland of the kingdom (Oates et al. 1997: 146). Excavations at Tell Brak have revealed a large palace and temple, possibly constructed as early

as the 16th century BC. Similarly, palace structures have been found at Tell al-Hamidiya (Eichler and Wäfler 1989–90) and Mitanni occupation levels have been excavated at Mohammed Diyab, Tell Chuera, Tell Bderi, and near to Tell Beydar and Arbid (Akkermans and Schwartz 2003: 347–8). At Tell Mozan (ancient Urkesh), Buccellati recovered the remains of an extensive palace Royal Building AK as well as early Hurrian inscriptions dated to the Mitanni period (Buccellati and Kelly-Buccellati 1998). Finally, excavations at Nuzi (20 kilometers southwest of modern Kirkuk) in the 1920s and 1930s under the direction of R.F.S. Starr (1938; cf. Lloyd 1978: 176–8) uncovered a richly appointed palace, temple, numerous private houses, and more than 5,000 cuneiform tablets. The settlement was founded in the EBA and in the Mitanni period was a fortified city with towers, bastions, gates, a network of canals, reservoirs, and bridges for travel, as well as the extensive palace complex and a variety of temples (Lloyd 1978: 178).

13 Assyrian Imperial Genesis in the LBA

The end of the Mitanni kingdom was brought about by both internal and external pressures. In particular, a dynastic dispute between the Mitanni king Tushratta and his brother Artatama II was at the center of a complex political situation which ultimately unraveled the Mitanni kingdom. In brief, the two brothers each claimed the throne of Mitanni. Two opposing coalitions formed. Tushratta was allied to the Egyptian pharaoh and the Babylonian king, while Artatama II was allied to the Hittite and Assyrian kings. In the short term, Artatama II ultimately prevailed over Tushratta, but the kingdom was greatly reduced and politically destabilized. With the Mitanni royal household in tatters, the Hittite and Assyrian states were left to divide the Hurrian lands among themselves. Remnants of the Mitanni kingdom continued to function within the Khabur region until the area was finally absorbed in the early 13th century BC into the expanding Middle Assyrian empire.

The Bronze Age closed with a major paradigm shift in the form and function of northern Mesopotamian urbanism. Until this time, most major cities in the area had been capitals of competing indigenous states – or even minor empires – of varying scale. Now, however, such cities largely became administrative centers for a new form of political organization – the transnational empire – which emerged as a northern Mesopotamian phenomenon for the first time in the 13th century BC under the Middle Assyrian kings Adad-nirari I (1305–1274 BC), Shalmaneser I (1273–1244 BC), and Tukulti-Ninurta I (1243–1207 BC). The political events of the Middle Assyrian empire are very well documented elsewhere (Ch. 11.46; Kuhrt 1995: 348–65) and need not be discussed further here, except to note that it was an empire based on large capitals – e.g., those along the Tigris river – that were spatially ex-centric to northern Mesopotamia as a whole. While this spatial configuration was qualitatively different from the historical trajectory

of the area until then, it prefigured the political and spatial configuration that northern Mesopotamia would have after the rise of the even more extensive Neo-Assyrian empire. This is perhaps the first of many ways in which Middle Assyrian practice broke with Bronze Age precedent and created the foundation of the new order to come in the succeeding Iron Age.

In any event, as a result of Assyrian expansionism during the 13th century the major cities of northern Mesopotamia came under the control of the Middle Assyrian kings, as did extensive areas of agricultural land north and east of Assur. Nineveh and Nimrud were renovated, while new royal cities at Kar-Tukulti-Ninurta, about 3 kilometers north of Assur on the Tigris, and Apku were founded (Reade 1982: 99–100; Kuhrt 1995: 363). The Middle Assyrian empire was divided administratively into a number of districts, many of which are known by name, but for which we have no, or poor, archaeological evidence. The administrative center of each of these provinces was a city of Assyrian imperial design. In the provinces, we know that these cities were built on top of small existing villages – e.g., at Dur-Katlimmu (modern Tell Sheikh Hamad, on the Khabur River) in the mid-13th century BC and Tushhan (Ziyaret Tepe) and Tidu (Üçtepe) on the upper Tigris – while others seem to have been built at earlier urban centers (Matney et al. 2002). Perhaps the most prominent of these new settlements was the ambitious creation of a new capital by one of the last of the LBA Assyrian kings at the site of Kar-tukulti-ninurta, 3 kilometers upstream and across the Tigris river from Assur. The area of Kar-Tukulti-Ninurta has been estimated at 250 hectares, not including the eastern and northern outskirts of the city (Dittmann 1992: 310). There was a large temple to the state god Assur, as well as two palaces and a *Langraumtempel* (lit. "long room temple") perhaps dedicated to Sharrat-niphi.

It is also worth noting that in addition to the large urban administrative centers which served as the capitals of the Middle Assyrian provinces, the Assyrians constructed small, fortified outposts (*dunnu*) of a few hectares, often owned by individuals, which served as agricultural central stations in the Assyrian hinterland. Excavated examples are known at Tell Sabi Abyad in the Balikh valley, Tell Chuera in the lower Khabur valley, and Giricano Tepe on the Tigris river in the Diyarbakır province of southeastern Turkey. Middle Assyrian occupation was widespread in the Khabur region with, e.g., a palace at Tell al-Hamidiya and an elite household excavated at Tell Fakhariyah (McEwan et al. 1957). In the LBA the Assyrians began the practice of mass deportations from conquered territories in order to break up local power structures, a practice that intensified in the Neo-Assyrian period (Oded 1979). These populations served as a labor force for royal building projects in the Assyrian heartland and cities of the provinces, and also formed an important element in the agricultural expansion of the Assyrian economy (Ch. II.46).

The traditional end of the LBA, c.1200 BC, corresponds with Assyrian territorial losses suffered by the last of these kings, Tukulti-Ninurta I, and the beginning

of more than a century of dynastic weakness until the revival of Assyrian political fortunes under the Late Assyrian kings of the Iron Age. Traditional wisdom holds that there was widespread disruption of urban centers at the end of the LBA; the cause, nature, and extent of such a collapse in a northern Mesopotamian context is beyond the scope of the present discussion. While some sites, such as Tell Brak, appear to have been abandoned at the end of the LBA, the Middle Assyrian kings claimed an unbroken line of succession and continued to thrive into the early part of the Iron Age.

14 The Nature of the Northern Mesopotamian City

Previous chapters have demonstrated the powerful influence that local contexts – geographical, environmental, economic, political, and social – had on specific urban manifestations. I have argued generally that the "cycles of civilization" documented by Ur (2010a) for the period 4400–2000 BC became less pronounced in the subsequent MBA and LBA. Instead, I suggest that it is more appropriate to describe shifting urban nodes within a fully urbanized landscape from the late 3rd or early 2nd millennium BC onwards. For example, the deurbanizing trend seen across much of the Khabur region at the transition from the EBA to the MBA was countered by a contemporary new urbanizing trend in Assyria, and a general continuity in the urban pattern along the Euphrates River.

Across a span of 1,800 years, it is somewhat presumptuous to try and characterize northern Mesopotamian urban life in a few lines. A few monographs have successfully taken on the task of detailing the nature of the Mesopotamian city and its various institutions often with reference to a specific site (e.g., Van de Mieroop 1999; Stone 1987 on urban neighborhoods; Stone and Zimansky 2004 on spatial districts within the city). Van de Mieroop (1999) undertook an extensive project to address this question broadly and the reader is referred there for a detailed treatment. Stone's characterization of the city (1999) focused on the residential neighborhood as the basic unit, thus emphasizing the importance of heterarchy within Mesopotamian cities. She noted that cities were extremely segregated spaces, broken into numerous residential and institutional zones, sometimes with manufacturing areas at their edges. Her surveys at Mashkanshapir (Stone and Zimansky 2004) documented an early MBA city with distinct functional zones, separated by canals, walls, or platforms, yet wealthy and poor households were interspersed within the same district, a pattern also seen at Nippur (Stone 1987). At Titriş Höyük, a 43 hectare mid-/late EBA city near the Euphrates in the şanliurfa province of Turkey, a similar pattern of undifferentiated domestic dwellings was evident, but there was clear segregation of economic activities – e.g., a flintknapping workshop – in the suburban areas as well as clear evidence of city planning (Matney and Algaze 1995; Matney 1996;

Hartenberger et al. 2000) The material culture of each particular city is best understood within its local social and geographical context. Most of the cities discussed in this chapter were probably fortified; most were large places with specialist craftsmen, a need for subsistence support from outside their immediate vicinity and important trade connections. They housed the major gods and administrative elites, and were concentrations of wealth.

It is tempting to look at environmental, economic, or technological factors to explain changes in urban patterns from the EBA to the MBA/LBA. Major elements of Bronze Age society, especially nomadic pastoralists (Barnard and Wendrich 2008; Ristvet 2008) whom we know to have been an important element of the economy, have been left out in this brief review. I have argued above, however, that it was the idea of the city that stimulated the deep continuity seen at many of the urban centers discussed in this chapter. Even when the fortunes of an individual city waned, its history and place were not often forgotten. Returning to the definition of a city given above, the role of the Bronze Age city as a nexus or node for the transmission of ideas – both old and new – was as critical as its location on a river, trade route, natural resource, or defendable hilltop.

GUIDE TO FURTHER READING

Several good general introductions to the historical events of the Bronze Age can be found in Roaf (1990a), Kuhrt (1995), and Van de Mieroop (2007). Akkermans and Schwartz (2003) provide an excellent overview to the archaeology of Syria during this period. Crawford (2004) is a good overview of EBA Mesopotamia, updating Lloyd (1978), although the latter covers the MBA and LBA periods as well. Various encyclopedic entries in Meyers (1997) are an excellent starting point for students on a variety of topics, with most entries including bibliographic suggestions. Stone (1987), Van de Mieroop (1999), and Stone and Zimansky (2004) are good sources for early cities.

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CHAPTER THIRTY

The Anatolian Plateau

Christoph Bachhuber

1 Introduction

This chapter concerns sites on the Anatolian plateau (hereafter AP) that represent the fullest realization of urban society on the Anatolian peninsula during the Middle Bronze Age (MBA) and Late Bronze Age (LBA). Places like MBA Kültepe-Kanesh or LBA Boğazköy-Hattusha (Figure 30.1) meet most checklist criteria for "urban" in the ancient Near East. These were large, defended settlements with monumentalizing architecture that was the materialization of competing polities during the MBA (Kültepe-Kanesh) and a territorial state (Boğazköy-Hattusha) during the LBA. Kültepe-Kanesh and Boğazköy-Hattusha were literate, multilingual, and ethnically diverse places that were inhabited by elites who maintained institutions of kingship, law, and complex cosmology. For both methodological and practical reasons, the Early Bronze Age (EBA) is not considered here. "Urban" is a debatable concept for the EBA societies across the length of the Anatolian peninsula (including the AP and western Anatolia; cf. Çevik 2007), and while there are clear precedents in the EBA for the material discussed in this chapter, emphasis on the EBA would distract from the analysis and characterization of urbanism in the MBA and LBA (Bachhuber in preparation, for a comprehensive and interpretive treatment of the EBA on the Anatolian peninsula).

Yet the circumstances of urbanism on the AP were unique, as are the kinds of data and methodological approaches that have been used to reconstruct these

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

Figure 30.1 A few key Middle Bronze Age and Late Bronze Age sites on the Anatolian plateau.

societies. This chapter is divided into three thematic sections to address the most salient features of urbanism on the AP: (1) its deeply agrarian character; (2) the relationship between commodities exchange, foreign trading enclaves, and urbanism during the MBA; and (3) the relationship between urbanism and imperial ambitions during the LBA. The circumstances of long-distance exchange during the MBA and imperialism during the LBA are understood to be so pervasive in these developments, and so precarious for the maintenance of urban institutions, that urban may be a slightly misleading characterization of societies on the AP during the MBA and LBA.

2 The Urbanizing Hinterland

The farming hinterland of the 2nd millennium BC on the AP remains archaeologically elusive and under-investigated. In the environs of Boğazköy-Hattusha a 2nd millennium BC village settlement or farmstead has yet to be conclusively identified. On the other hand, clusters of LBA sherd scatters, one of which surrounded a stone paved structure interpreted as a granary, have been located c.2–3 kilometers from the city (Czichon 2000: 271–2). The radius is comparable to the 3 kilometer radius of cultivated hinterland around EBA urbanizing settlements in northern Syria and Iraq (Wilkinson 2003a: 109–20) and to the c.2

kilometer diameter circuit wall at MBA Kültepe-Kanesh (Özgüç 1971: 164; Fukuda et al. 2004).

Whether the field scatters around Boğazköy-Hattusha represent insubstantial farmsteads (Czichon 2000: 271–2), the durable remains of compost that has been scattered as fertilizer (Wilkinson 2003a: 117–18), or some combination of the above is unknown. To this day MBA or LBA villages or farmsteads have neither been studied nor excavated on the AP. The hundreds of small (0.1–5 hectare) sites with 2nd millennium BC pottery identified in surveys across the AP and in adjacent regions (Glatz 2007: 229–43, App. 2) clearly point to the existence of village communities during the MBA and the LBA that await investigation.

3 Farming Labor and Communities

The Bronze Age farming hinterland of the AP is much better illustrated in text-based reconstructions. The agrarian character of MBA Kanesh and contemporary polities is revealed in the disruption to commerce caused by the farming calendar. Assyrian trading enterprise was brought to a standstill during the cereals harvest in the summer and the grape harvest in the fall (Veenhof 2008: 147 nn679, 238). Similarly, nearly all references to property in the Hittite laws are farm-related and rural (Hoffner 1997a, 1997b). The Hittite laws were meant to govern the farming hinterland.

The Hittites used two terms for the farming hinterland. The Sumerogram A.ŠÀ is an agricultural parcel that occurs frequently in the Hittite laws, but A.ŠÀ can also refer to more peripheral, unruled, and dangerous territory (e.g., where fugitives roam; Beckman 1999a: 164). Hittite *gimra* can have an overlapping meaning (Weedon 2011: 274–77), denoting both land used for crops and livestock as well as more distant, threatening wilderness (Beckman 1999a: 161–4). The blurred distinction between cultivated land and a wilderness where bad things often happen accentuates the distinction between the architectural boundaries of the city (Hittite *ḫappiriya* – "a place of trade"), and the people, things, and activities beyond its walls.

Agrarian lifestyles and rural landscapes are vivid elements in the mythical, cultic, and ritual worlds of the Hittites. Most myths of Central Anatolian (non-Hurrian) origin are structured around the sudden disappearance of gods related to good harvest and favorable weather, with potentially disastrous consequences for farming communities (for Old Anatolian myths, see Hoffner 1998: 9–39). The Hittite pantheon is crowded with tutelary deities of mountains, rivers, groves, and the countryside in general (McMahon 1991: 43–6), and elites were regularly drawn out of their urbanizing space and into processions to visit wilderness shrines (Haas 1994: 507–9). All major festivals were celebrated in the farming calendar (Hazenbos 2003: 167–73) and a royal mortuary ritual even

incorporates farming equipment into its panoply (for the use of the plough in the *šalliš waštaiš* ceremony, see Kassian et al. 2002).

This rural atmosphere in the Hittite cosmos is normally interpreted as archaic, retained either from the distant, pre-urban past (Hazenbos 2003: 172) and/or borrowed from the "indigenous" (pre-Hittite) inhabitants of the AP, the Hattians. The Hittite elite may have perceived themselves as living among strangers on the AP (Van de Mieroop 2000: 158–9), but this probably had more to do with self-conscious distinctions between the rulers and the ruled on the AP than with the profound disconnect often suggested between an autochthonous Hattic population and the newly arrived Hittite one. Whether the Hittite elite were ever removed from their rural past, or from the landscapes and communities on the AP, is questionable (Gilan 2008: 113).

During the MBA and LBA, the largest landholder was the king. At MBA Kanesh, the king owned estates and granted land to high-ranking palace officials who also formed a body that regulated landownership (on Old Assyrian *ubadinnum*, a royal land grant including houses, land, and possibly tenants; see Dercksen 2004b: 150–4; Veenhof 2008: 148, n. 685). Property was bought and sold by free farmers with no clear association to the palace (Dercksen 2004b: 153). Farming families, farmsteads, and villages were bought and sold in these transactions (Dercksen 2004b: 138), although how property-less people were differentiated from the slaves who were also purchased is unclear (for slavery at MBA Kanesh, cf. Dercksen 2004b: 147; Veenhof 2008: 42). Additional labor was mobilized through the service obligations of free farmers and tradesmen to the palace (Dercksen 2004b: 140–8), which could include tenant labor on *ubadinnum* estates or military service. Other kinds of taxation, including agricultural in-kind payments, are poorly understood, though individuals owing large grain debts to the palace are mentioned (Dercksen 2004b: 138).

In LBA Hittite society the farming hinterland was populated by several kinds of estates, farmsteads, and communities. As at Kanesh, the Hittite king was the largest landholder and gifted parcels of land to officials as a reward for services or to ensure loyalty (Bryce 1998: 92 n85). The king also leased land to free farmers who could accumulate assets and property like livestock, tracts for agriculture, horticulture, and slaves. There is no indication that MBA temple institutions owned land (Dercksen 2004b: 139); temples appear to have been marginal in most aspects of the productive and commercial life of Kanesh. In contrast, LBA Hittite temple institutions were a vital source of agricultural productivity for the kingdom, owning large farming estates that could accumulate the kinds of surplus stored in the Temple 1 magazines at Boğazköy-Hattusha and which were required for the cultic festivals held throughout the year (see below). Nevertheless, temples were never wholly independent institutions in Hittite society (i.e., clearly distinguished from royal/palatial institutions; see Bryce 2002: 153). The relatively diminished power of the temple is a characteristic of urbanism during both the MBA and LBA on the AP.

Farmsteads in the Hittite hinterland were clustered in administered villages or small towns and all free farmers were subject to paying tax in kind and in labor or service obligations to the king (Hoffner 1997b: 244–5). Property-less people were also bought and sold as slaves, who, like other kinds of property and commodities, are a dominant concern in the Hittite laws (Bryce 2002: 51–5).

4 Sustenance

The storage and mobilization of agricultural surplus at MBA Kültepe-Kanesh is not well understood. On one of the few tablets recovered from the citadel, a "chief of the storehouse" is listed among numerous palace officials (Özgüç 1999: 142), but granaries or silos were not identified in or near either the Early Palace (*karum* Level II) or the Late Palace (*karum* Level Ia–b). Storage can be glimpsed in the scattering of cylinder and stamp-sealed bullae in many rooms of the Late Palace (Özgüç 1999: 81, 87–9), though this need not have been agricultural or otherwise farming-related. The excavator described a detached structure west of the Late Palace as an "official store building" (Özgüç 1999: 123–8), based on the somewhat slim evidence of one stamp seal, one bulla, and several cores of unworked obsidian. Magazines with large *pithoi* (storage jars) have not been found.

Two temples are known to have housed two gods, respectively, at Kanesh: Anna the city god and Nipas, out of a pantheon that included at least seven deities (Dercksen 2004b: 139). Two nearly identical buildings near the "official store building" of the Late Palace citadel have been identified as temples (Özgüç 1999: 117–22). In each case, long, narrow corridors (c.10 × 3 meters) flank the *cella*, though nothing was recovered in either to indicate storage, and large-scale agricultural storage is not an obvious feature on the citadel of Kültepe-Kanesh. It is, nevertheless, worth noting that much of the citadel mound was not investigated in Özgüç's excavations, which focused on the lower town (Akkadian *karum*, where the Assyrian traders lived). Renewed excavations have prioritized the citadel, in addition to continuing excavations in the lower town (Kulakoğlu 2008–10). Glimpses of economic activity have been noted in a few tablets from Temple 1 recording slave sales (Özgüç 1999: 118; Veenhof 2008: 42).

The administration of agricultural stores and other commodities is more obvious in the contemporary palace complexes of Açemhöyük. Rooms in both buildings of the Acemhöyük palace (the "Sarikaya" and "Hatipler" buildings) reveal specialized storage functions. As at Kültepe-Kanesh, no obvious silos or granaries were located in or near the palace complexes (nor identified in recent geophysical surveys either: Drahor and Kaya 2000), though one room filled with large *pithoi* in the Sarikaya palace served longer-term and larger-scale storage needs (Özgüç 1966: 37; 1980). Two rooms in the Sarikaya palace served as repositories for stamp and cylinder-sealed bullae. The information impressed on the bullae was clearly being stored in a kind of archive (Özgüç 1980: 61–2).

Although cuneiform tablets were not recovered at Acemhöyük, sealings from Old Assyrian and Old Babylonian cylinder seals with cuneiform legends were (Özgüç 1980: 63–9). Bullae, often associated with jars, were located in every room of both buildings. In some storerooms the impressions on all the bullae were identical, probably reflecting a single source/destination of the stored commodity (Özgüç 1980: 62). It is, nevertheless, difficult to determine to what extent this bureaucratic debris related to the administration of commodities involved in long-distance commerce (implied by cylinder sealings of foreign inspiration; see discussion of Assyrian commerce below) or local farm produce.

How vital was large-scale palatial food surplus to these societies? Excavations in the lower-town at Kültepe-Kanesh revealed individual households with storage facilities (Özgüç 2003: 88–90) and evidence of household-based storage has also been noted at MBA Boğazköy (Schachner 1999: 116). Food stores could have been accumulated either through the household's own farming productivity or through its ability to purchase food as the Assyrian traders did (Veenhof 2008: 87–8). In short, for the moment it appears that the MBA palaces did not command an extensive food storage and redistribution system (contrast with the Hittites below). On the other hand, the palaces (as the largest households of the city) and perhaps also temples would have accumulated enough surpluses to meet their own nutritional and seed requirements.

The conspicuous absence of silos or other large-scale grain storage facilities on these citadels provides an obvious contrast with their LBA successors on the AP. Hittite strategies to store and mobilize agricultural surplus are better documented, archaeologically visible, and impressive in scale. By the late Early Hittite period most of the AP had become a kind of farming hinterland of the capital Boğazköy-Hattusha. The grain surpluses of more than 60 towns are enumerated in the Telipinu Decree, recording in part a new administration of the kingdom's agricultural productivity and surplus. Each of the storage facilities in these towns was administered by a royally appointed official or AGRIG, who was responsible for shipping the surplus to Hattusha where individual stores were kept for every AGRIG-administered town (Singer 1984: 107–8). Silo complexes recently investigated in the earlier LBA fortified towns of Kuşaklı (Hittite *Šarišša*; Mielke 2001: 237–41) and Kaman-Kalehöyük (Stratum IIIb; Fairbairn and Omura 2005) may well have been part of this redistributive system.

At Boğazköy-Hattusha a single, massive, casemate-like silo complex (c.110 × 40 square meters with depths of storage c.2.5–3.5 meters) was recently discovered near the Postern Wall (Figure 30.2). The silo was used during the 16th century BC (for C14 dates on burnt grain from the complex, see Schoop and Seeher 2006: 59–60) and was capable of holding c.4,200–5,880 tons of grain, enough to feed 23,000–32,000 people for a year (Seeher 2000: 293–4). It may well have been the ultimate destination of some of the cereals acquired under the AGRIG system. Contemporary silo complexes have also been located in the northern part of the city (Seeher 2000: 270–8; Schoop and Seeher 2006: 57).

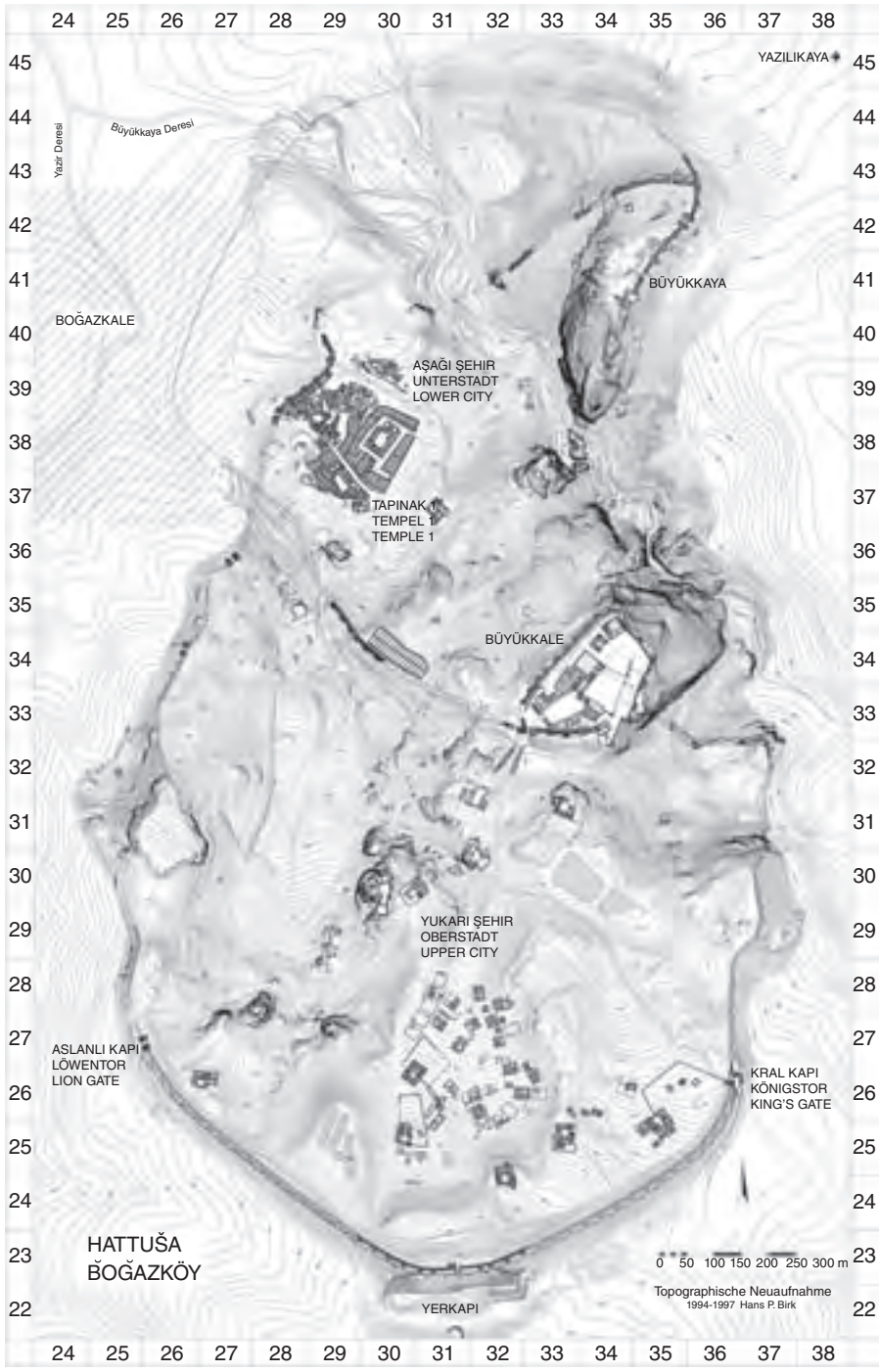

Figure 30.2 Plan of LBA Boğazköy-Hattuša (after Seeher 2005; with permission from J. Seeher).

Additional archaeological evidence of Hittite storage and administration of surplus, including recently investigated large silo complexes in 14th century BC contexts at Alaça Höyük (Çinaroğlu and Genç 2003: 280–1), postdates the office of the AGRIG, which was dissolved shortly after the end of the Old Kingdom (Singer 1984: 106). Different kinds of storage are observable in the Lower City Temple 1 complex (Figure 30.2). The temple itself is surrounded on all sides by magazines. More than 100 *pithoi* with capacities ranging from 900 to 1,750 liters were identified in several of the storerooms (Neve 1969: 12–17) and may relate to the large-scale storage of wine or other horticultural products (Gorny 1995: 167).

All this food at Boğazköy-Hattusha was not simply stored to nourish the non-food producing specialists and administrative staff of the Hittite city and their conscripted or enslaved labor. Such incredible volumes of food were reserves of wealth to be invested in all aspects of Hittite society. Food stocks were there to act as a buffer against potentially catastrophic risks like crop failure and other profound disruptions to agricultural production within the kingdom and empire. As such, storage appears to have been of much greater concern than it was during the MBA, when food was stored for the more limited needs of individual palaces and households.

Food was also invested in the ideological wellsprings of rule during both the MBA and the LBA (also a kind of risk-buffering strategy), as illustrated by the festivals that filled the farming calendar in both periods (see below), and more vividly in the Hittite case by the ritual and cultic inventory texts recording the expenditure of food at such festivals (see Hazenbos 2003).

5 Refinement and Enjoyment

The earliest evidence of horticulture in Anatolia dates to the EBA (Bachhuber in preparation; recent evidence of late 5th millennium BC wine production in neighboring Armenia [see Ch. I.10] raises the possibility of yet earlier horticulture in Anatolia; cf. Barnard et al. 2011). The sugars and oils of its produce reveal the tastes of communities on the AP as something distinctively urbanizing. Grapes were the most vital tree-crop on the AP (see Hoffner 1974: 113–20 for other fruit and nut cultivars). The farming calendars at both MBA Kanesh and LBA Hattusha were dominated by the autumn grape harvest (Hoffner 1974: 39), and tracts of land in the immediate environs of both sites would have been devoted to vineyards.

Calculations based on the price of vineyards and agricultural land in the Hittite laws reveal the value of a vineyard to have been 13–40 times greater than ordinary agricultural land (Powell 1995: 118). These and other Hittite texts mention vineyards enclosed by walls (Gorny 1995: 156). Horticultural industries were both high value and labor-intensive and were normally sited close to settlements

(Schloen 2001: 198). In addition to the densely settled lower town, the c.2 kilometer diameter circuit wall at Kültepe-Kanesh may have enclosed plots for viticulture and other kinds of horticulture.

Wine was an essential ingredient in the urbanizing ethos of the AP. During the MBA, wine was recorded in Assyrian transactions (Powell 1995: 116) and indeed wine may have been introduced to the Assyrians by their Anatolian hosts (Gorny 1995: 148). At Kültepe-Kanesh, a royal cupbearer is listed as one of 40 palace attendants on tablet fragments found in the Late Palace (Özgüç 1999: 143). Vessels in the forms of grape clusters have been recovered at a number of MBA sites on the AP, including Kültepe-Kanesh (Özgüç 2003: 172, Fig. 154; see below), Açemhöyük, Boğazköy, Karahöyük-Konya, and Alişar Höyük (Gorny 1995: 167–9). These grape clusters belong to a repertoire of whimsically shaped pouring and drinking forms, including vessels in the shape of lions, birds, shoes, boats, boars, and snails from Kültepe-Kanesh (Özgüç 2003: 195–239). These were clearly used by a community that enjoyed its drink.

The Hittites qualified their wine as "pure," "red," "new," "sour," "sweet," and "honeyed" (Gorny 1995: 150). Wine was put under the charge of royal officials (Hoffner 1974: 39) and wine-drinking pervaded Hittite myths, rituals, and festivals (Gorny 1995: 151–3). Nevertheless, in festival texts, beer is mentioned more often (see Hazenbos 2003), even if it may have been the less exclusive of the two beverages. It is easy to imagine MBA and LBA festivals as events of not insignificant intoxication.

Festivals (or more broadly feasts) were also occasions to eat meat, which probably did not feature in the day-to-day diets of most people. Festival texts record the offering of whole herds of sheep and cattle, and the meat, milk, butter, and cheese of these animals were consumed by humans and gods alike (Beckman 1988: 34; for inventories, see Hazenbos 2003). As such, festivals and feasts were an opportunity to invest surpluses from the farming hinterland in events that celebrated the munificence of the king, the gods, and the temple institutions that housed them.

6 The Accommodation of Exchange

Hittite *ḫappiriya* – "a place of trade" – is the term for city. The salience of the priced exchange of commodities for the urbanizing developments of the Bronze Age cannot be overstated. Anatolia is a tectonic, mineral-rich landscape. From the Neolithic to the present day, extractive industries have been features of settled life. The production, exchange, and consumption of metal in Bronze Age Anatolia has attracted much attention for two reasons: metallurgical assemblages discovered in burials and caches from mostly EBA contexts are spectacular (Bachhuber 2009, 2011), and MBA texts record, in minute detail, the activities of Assyrian merchants who set up shop in Anatolia to purchase metal for export to

Assur. The relationship between metals and the urbanizing trends that are explored in this chapter is clearly one of trade, although the potential for intensified trade to invigorate a local economy and to communicate new (foreign, i.e., Syro-Mesopotamian) concepts seems so obvious that few archaeologists or historians ask why or how the flows of information and materials are related to these developments on the AP.

It is well known that during the MBA, palace elites on the AP invested large volumes of locally mined metal in commerce with Assyrian and other (Hurrian) merchants. Extensive networks of exchange bound politically independent and competing city-states across the AP to one another and to interests in northern Syria, Assyria, and further afield. The Assyrians established trading enclaves in the lower towns of these places to regulate the procurement and mobilization of silver and gold to Assyria. Caravans made the six-week return trip from Assur laden mostly with tin and high-quality Babylonian and Assyrian textiles (Veenhof 2008: 82–4). Although the relative benefits of this exchange differed for the Assyrians and their hosts, it was mutually beneficial to both parties. Understanding the different goals of each can illuminate a unique urbanizing development on the AP.

Assyrian merchants lived side by side with locals at three archaeologically attested, and many more textually attested, towns on the AP. Kültepe-Kanesh was the most important center for the Assyrians, and, by virtue of the vast archives preserved in its lower town, it has also enjoyed more excavation and publication than any other MBA site in Turkey. More limited investigations have revealed similar, contemporary town plans at Alişar (Level 11T) and Boğazköy (Level 4) (Schachner 1999: 101–2, 116–18). Although associated citadels/palaces have not been identified at either Alişar or Boğazköy, they nevertheless represent (along with Kültepe-Kanesh) two of the three sites whose attestation in Old Assyrian texts can be correlated with archaeological evidence. Based on several dozen Assyrian tablets recovered from Alişar and Boğazköy, Alişar can be identified with the polity of Amkuwa (Gelb 1935: 8–10), and Boğazköy with the polity of Hattusha (Otten 1957: nos. 1–40).

As they did at Kültepe-Kanesh, Assyrian merchants lived and worked in the *karum* of Alişar-Amkuwa and Boğazköy-Hattusha. Other potential *karums* (or at least lower town) await investigation elsewhere on the AP where MBA citadels have been investigated. Trial excavations at Açemhöyük identified a lower town (Özgüç 1966: 31) and more recent geophysical surveys have amplified those investigations (Drahor and Kaya 2000). Lower towns have not yet been identified at Kaman-Kalehöyük (Omura 2004, 2005, 2006, 2007) or Konya-Karahöyük (Alp 1968).

The lower town of Kültepe-Kanesh included the *karum* where Assyrian and local merchants and their families lived and worked, together with seemingly fewer people of Hurrian origin (Veenhof 2008: 120–1). The earliest archives were discovered in Level II, but an MBA lower town (Levels IV and III) pre-

dates the inception of the *karum*. Unfortunately, very little has been published from these pre-*karum* phases (Schachner 1999: 166–73). A massive circuit wall was investigated in a few trial trenches. Although the publication of the wall is patchy (Özgüç 1971: 164; 1982: 559), it was built with ramparts that may have included towers defending the lower towns of Level II and Level Ia–b, respectively. Recent geophysical surveys have mapped the circuit wall up to 1.1 kilometers from the mound (Fukuda et al. 2004). The excavated lower town was a clutter of two-storied, rectangular buildings that shared party walls. Narrow streets wound through buildings measuring 40–60 square meters (two rooms), 70–90 square meters (3–5 rooms, and more) and 120–224 square meters (up to 14 rooms) (Özgüç 2003: 81–7).

A direct correlation exists between the size of the buildings and the identification of archives related to merchant enterprise. The houses and workspaces of both foreigners and locals involved in commerce were located in the largest buildings. Workspaces held the archives kept by Assyrian merchants with names like Adad-sululi and Lakipum, and their local counterparts with names like Peruwa and Shupi-ahshu. It is often noted that without the information provided by the texts, the Assyrian houses and their furnishings would be indistinguishable from the houses of the locals.

The lower town was also the scene of considerable metallurgical activity. Several buildings in Levels II and Ib housed workshops with hearths, stationary molds for casting large ingots, portable molds (for ingots, axes, and jewelry), pot bellows, crucibles, and slag (Özgüç 1986a: 39–43). Kültepe-Kanesh was clearly not just a place to buy and sell metal, although this is the impression given in the Old Assyrian texts.

Evidence of other industries is rare. Pottery workshops have not been identified at any MBA sites and very little evidence has been published of textile manufacture. Although bristle-brush handles from a few rooms in the Old Palace at Kültepe-Kanesh (Özgüç 1999: 113, Pl. 99.2) may suggest wool carding, the extensive textual evidence of local wool and textile production during the MBA is generally not reflected in the archaeological evidence. At Kanesh, a "chief of the shepherds" (Dercksen 2004b: 138) probably administered herds of wool-bearing sheep and other aspects of wool production. Locally procured wool was traded for copper by the Assyrians, who then traded the copper for silver to be exported to Assyria (Veenhof 1972: 130–9). The Assyrians purchased local textiles in transactions that were barred by Assur (Veenhof 2008: 89) and the palace of Kanesh imposed levies on Assyrian merchants for the trade in this local product (Gunbatti 2004: 252).

How did the commerce in metal, wool, and textiles work? From the Assyrian (and Assyriological) perspective, it was private initiative, with family firms driving the Assyrian end of the enterprise more so than any palatial interests. Assyrian palace authorities at Kanesh (occupying the office of *bēt kārim* in the *karum*) sometimes engaged in their own commerce (Dercksen 2004a: 100–18), but their

presence on the AP was largely confined to representing Assyrian merchants in conflicts with their hosts. On the other hand, the local palace at Kanesh was the Assyrians' principal trading partner and most commerce was negotiated with palace officials or households directly associated with the palace (Veenhof 1982: 148–9).

In commerce, the Assyrians were only interested in silver and gold bullion or easily convertible commodities. The locals were interested in imported tin and Assyrian and Babylonian textiles. The distinction here is that the Assyrians desired a convertible commodity and appear to have been indifferent to local crafts, as expressed in the callous acquisition of Anatolian-made objects at Assur, which were being "turned back into silver (and gold) for purchases in the city" (Veenhof 1995: 863).

On the other hand, the locals were interested in Assyrian and Babylonian goods, specifically their textiles. Thus, for the local elites, the fundamental incentive to trade was the desire to own or consume exotic objects or resources (Sherratt and Sherratt 1991). The production and exchange of local metal granted elites access to imported Assyrian or Babylonian textiles and exotic materials like lapis lazuli (see Veenhof 2008: 84). The value of these materials was clearly related to display. Their ownership linked the local elite of the AP with distant, exotic, and sophisticated realms.

But it was not just exotic commodities that the local elites were interested in acquiring. Their very identities were being created by regular, intimate interactions with foreigners (Assyrians and Hurrians). Both foreigners and locals were at least bilingual in Assyrian and Nesite (the local language and equivalent to Hittite; see Veenhof 1982: 148–9 on bilingualism). Regular and open social interaction can also be inferred from the material culture shared by locals and foreigners, which was indistinguishable. This included the range of whimsical drinking vessels noted above, which are unique to the AP during the MBA (grape-cluster goblets, for example, are not found in LBA assemblages; see Gorny 1995: 169).

Host elites in particular would have invested considerable resources in creating an atmosphere of hospitality and conviviality for their foreign guests. The feasts and festivals that crowded the calendar of Kanesh (for festivals as due dates for debt payments, see Veenhof 2008) would have been occasions not only to negotiate commodities, but to form more intimate relations with foreigners. Foreign merchants regularly married local women (Veenhof 1982: 150–1) and in this open, multilingual context, local elites would have learned from their Assyrian (and Hurrian) guests a great deal about distant societies and cultures. Locals appear to have been entertained by the literary traditions of their Assyrian guests (for the local reception of the heroic Sargon narratives, see Van de Mieroop 2000; Gilan 2008). Foreigners were accommodated at Kanesh and other lower towns on the AP for more than material gain. They were also accommodated (and wined and dined) by their hosts for reasons similar to their desire for exotic textiles or

lapis lazuli. It is worth considering whether local elites cultivated a new, cosmopolitan identity that was achieved in part through their intimate association with foreigners. Such self-conscious choices may be best contextualized in two arenas: an ethos of superiority over the vast majority of the population of the AP without access to the commodities and company of foreigners; and an ethos of one-upmanship with an eye toward rival elites in other centers on the AP. Multilingualism and the bodily display of exotic commodities (e.g., textiles and lapis lazuli) perhaps best illustrate this aspect of the MBA urbanizing elite on the AP.

7 Materializing Power

By most measures, the AP was an unstable place to do business during the MBA. Political unrest and the safety of their caravans were regular concerns amongst the Assyrian traders (Veenhof 2008: 99–101). At Kültepe-Kanesh, the first Old Palace and the lower town of Level II were destroyed by fire. Within a couple of generations the Late Palace retained very little architecturally of its predecessor. The foundations of the Late Palace's ramparts also destroyed much of the Old Palace (Özgüç 1999: 136), revealing a disregard or even callousness toward the earlier complex. The violent destruction of the Late Palace (terminating both the MBA and the enterprise of the Assyrian merchants) was mirrored at every known MBA citadel on the AP. The most graphic illustration of this AP-wide catastrophe was recorded at Kaman-Kalehöyük, where the destruction of Stratum IIIc preserved a casualty who was pierced by a spear, as well as a group of 11 individuals (including many small children) who perished beneath a burning building (Omura 2005: 33).

A different kind of instability may be noted in the architectural plans of MBA palaces and their citadels, which varied across time and space. For example, the citadel of Açemhöyük was dominated by two large, multi-roomed rectangular buildings; the Old Palace citadel at Kültepe-Kanesh was dominated by one complex comprising three (agglutinative) buildings; and the Late Palace citadel was dominated by one large, rectangular building and a separate quarter with elite residences (the Terrace Palace), temples, and related buildings (Temples 1 and 2, and the "official storage building").

Citadel construction did not follow a local, time-honored architectural tradition on the AP, drawing upon earlier (EBA) traditions (for the EBA citadel at Kültepe, see Özgüç 1986b), nor was it widely shared by MBA elites. Similarly, it is doubtful whether MBA palatial architecture reflected a revered and universalizing institution of kingship. Citadel construction projects appear to have been guided by the pragmatic concerns and self-aggrandizing ambitions of individual rulers rather than a universalizing ideology (cf. the Hittites below).

Monumental construction projects were not confined to the ramparts and buildings of citadels. The c.2 kilometer diameter circuit wall at Kültepe-Kanesh

was a major investment involving the mobilization of considerable labor and resources. It would have been financed in large part by wealth generated through commerce with foreigners, and built by either corvée or enslaved labor mobilized by the palace. The circuit wall at Kültepe-Kanesh was an overbearing feature on the landscape and a monument of both power and fear.

The materialization and display of other kinds of power are more difficult to assess. Representational programs (in statuary, relief sculpture, wall painting, etc.) that decorated contemporary citadels in Syria or later LBA places on the AP are conspicuously absent. In place of pictorial or sculptural representations, the interior spaces of monumental buildings on the AP may have been decorated with the two commodities that mattered most to local elites and which are also most elusive in the archaeological record: textiles and metal. Exotic or elaborated textiles may have decorated the walls and floors of MBA palaces just as frescoes did in the contemporary palaces of Syria (for carpet manufacture in the ancient Near East, see Dalley 1991). Along with several ivories, including a box with carved scenes and studs of iron, lapis lazuli, and gold, a textile fragment ornamented with small faience beads sewn with gold thread was preserved in the destruction layer of a room in the Sarıkaya palace at Açemhöyük (Özgüç 1966: 42–8).

Portable metal objects (particularly vessels) were probably displayed on furniture, floors, and walls. Most metal objects were removed in antiquity from the MBA citadels and lower towns on the AP, although the decoration of interior spaces with metal objects is recorded in a text from Kültepe-Kanesh, in which the house of an Assyrian merchant with more than 100 metal objects, most of them vessels, is described (Dercksen 1996: 76–8). There is every reason to expect that the palaces of local elites were similarly furnished. The interior spaces of MBA palaces not devoted to the storage of textiles and metal were probably used to display them, much as the bodies of MBA elites would have been lavishly adorned with exotic textiles, stones, metal jewelry, and weaponry. For local elites, these commodities and related associations with Assyrians were overwhelming, if precarious, sources of legitimacy. The production, exchange, and consumption of metals and textiles and related associations with foreigners not only generated the wealth that sustained their ambitions, but expressed explicit social distinctions.

In this regard, the causes and effects of the flight of the Assyrians from the AP should be reconsidered. The catastrophes across the AP and the second, permanent flight of the Assyrians were related to both internecine warfare and the sudden and swift loss of vital sources of wealth and legitimacy. Similarly, it is worth considering whether much of the havoc that terminated the MBA was caused by populations that descended from the hinterland and were excluded from the privileges of foreign association and commerce.

In the following century, very little material culture can be accounted for on settlement mounds, and certainly nothing monumental was constructed. In the wake of the destructions of the MBA citadels the AP became a totally rural and agrarian place.

8 Urbanism as an Imperial Ambition

Was LBA Boğazköy-Hattusha a *ḫappiriya*, a place of trade? The extent to which commerce (including the extraction and priced exchange of local minerals) supported the ambitions of AP elites during the LBA is debatable. The Hittite laws reveal the local exchange of commodities with prices fixed by the palace (Hoffner 1997a, 1997b) but evidence of LBA long-distance trade is not overwhelming at Boğazköy-Hattusha or on the AP more generally. This lack of evidence reflects the preservation of archives that are well known for being elusive on economic and administrative matters. Imported objects are also relatively rare at LBA Boğazköy-Hattusha (Genz 2006) but this may reflect poor archaeological preservation at heavily eroded sites on the AP.

The Hittites were not incommunicative, but the nature of communication in the LBA was quite different from what it was in the MBA. If MBA urbanism on the AP is a study of commercial ambitions, then LBA urbanism is a study of imperial ones, manifested in varying levels of communication and control. Contemporary developments on the AP need to be discussed in the context of direct imperial control, or "territorial integration" (Glatz 2009: 137–9; see below). In regions to the south and southeast of the AP engagement can be characterized as distantly administered "intensive hegemony" over societies and polities with close social and cultural (i.e., Hurrian) links to the AP (Glatz 2009: 137–9). A third tier of imperial engagement involved the more alien societies of the northern Levantine littoral and Cyprus. Hittite administration there can be characterized as a hands-off approach (Glatz 2009: 138) to societies of little more than commercial interest to the Hittites.

In this context, more materials and objects circulated on the AP through tribute and plunder than through the priced exchanges that had moved things around in the MBA. Similarly, more materials and things were circulated during the LBA through politicized gift-giving (Klengel 1979a; Beckman and Hoffner 1996), although prices and values continued to be negotiated under the guise of gift exchange (Bachhuber 2006: 348–50). For this reason, Hittite merchants together with or under the guise of "messengers" were highly valued by Hittite royalty for their usefulness in acquiring exotic commodities and maintaining arteries of communication between a potentially isolated AP and the palatial elites of western Asia and the eastern Mediterranean.

9 Rethinking Old and New Kinds of Urbanism on the AP

The imperial ambitions of elites on the AP both surged out of and created a single city: Boğazköy-Hattusha. Detailed descriptions of LBA Boğazköy-Hattusha exist elsewhere (e.g., Mielke 2011a, 2011b; contributions in Özgüç et al. 2002

and Mielke et al. 2006). Aspects of the city that best illustrate a unique trend of urbanism on the AP, mostly by way of comparison with the MBA, are explored below. Two interrelated features of LBA Boğazköy-Hattusha have attracted much interest by virtue of their seeming innovativeness: its landscape context and its ceremonial aspect.

Archaeologists (e.g., Schirmer 2002: 205–6; Schachner 2006) have long emphasized the Hittites' decision to erect the monumental buildings of their capital on a mountain (see above Figure 30.2) rather than on the summit of an ancient settlement mound, but to what extent this represents a decisive innovation must be carefully considered (cf. Mielke 2011a). Like MBA citadels, the northern half of LBA Boğazköy-Hattusha was dominated by a palace (modern Büyükkale). Further continuity can be observed between the Late Palace at Kültepe-Kanesh and Büyükkale, in that both were constructed with ramparts and furnished with large courtyard areas, though at Büyükkale ceremonial space appears to have been of greater concern. The columned "audience hall" in Building D (Bittel 1983: 108–9) was an arena for ceremonial performance, and it is worth considering whether the pool in one of the smaller courtyards may be considered ritual furniture.

The palaces of Kültepe-Kanesh and Büyükkale were monumental repositories for things and resources, as well as knowledge and information. Magazines and storerooms fill much architectural space in the buildings of both periods. A large, royal archive was identified in Building A of Büyükkale (Bittel 1983: 23, 110–11) and small scatters of tablets were recovered in both the Old Palace and the Late Palace at Kültepe-Kanesh (Özgüç 1999: 95, 142–3). Similarities can also be noted between the use of extra-palatial space on the MBA Late Palace citadel of Kültepe-Kanesh and in the Lower City at LBA Boğazköy-Hattusha (see above Figure 30.2). The Terrace Palace complex on the citadel of Kültepe-Kanesh was an elite, extra-palatial residential quarter that was joined to the nearby Temples 1 and 2 by a stone-paved road. The kinds of personnel who lived in the Terrace Palace can be inferred from a list recovered in the Late Palace that mentions overseers of carpenters, smiths, cupbearers, leatherworkers, metallurgists, and merchants (Özgüç 1999: 142–3). Temple 1 was surrounded by elite workshops and residences, including the South Complex where a tablet was recovered that records personnel belonging to "the house of the craftsmen," including priests, priestesses, (Hurrian) singers, and scribes – i.e., the personnel associated with Temple 1 (Singer 1998: 34).

At Boğazköy-Hattusha the inhabitants of the Lower City and Büyükkale were subject to the royal regulations outlined in the Hittite Instructions texts (see Goetze 1969). The instructions reflect the urbanizing lifestyles of Hittite elites, regulating the daily bustle of shoemakers, carpenters, bakers, vintners, merchants, priests and other temple staff, cooks, cupbearers, and guards. They instructed on how to celebrate during festivals, and how to carefully return to the temple after a night of eating, drinking, and casual sex. They regulated movement in and out

of the lofty and luminous spaces of the temple and the palace. They noted precautions against food impurities caused by scavenging pigs and dogs (hygiene is generally a pervasive theme). Extreme forms of death penalty were imposed in the event of one of the greatest threats to urban space: accidental fire (Goetze 1969: 209). Urban lifestyles were overseen by the Hittite instructions just as rural lifestyles were overseen by the Hittite laws.

The northern half of LBA Boğazköy-Hattusha has long been characterized as the "Old City," in contrast to the southern "Upper City" (see above Figure 30.2; for overview, see Seeher 2006: 198–202). Until recently, the Upper City was interpreted as a later development, the product of a dramatic if frenetic construction campaign undertaken by Tudhaliya IV during the empire's decline. But recent excavations have shown that several features of the Upper City, including the Southern Ponds and buildings interpreted as possible military barracks, were in use no later than 1400 BC (Seeher 2006: 200–2).

Old and new may not be meaningful chronological distinctions in comparing the northern and southern halves of Boğazköy-Hattusha, but the northern half of the city (including the Lower City and Büyükkale) retained the citadel-based spatial and organizational concepts, administrative roles, and lifestyles of the MBA. In this sense, the northern half of the city represents an old (or traditional) concept. Some aspects of the southern Upper City, on the other hand, were innovative.

The urban landscape of the Upper City was dominated by 30 temple buildings and their associated residences and workshops, as well as large "sacred pools" and ponds (see above Figure 30.2). Temple quarters and associated residences were not new, although the scale of the Upper City was unprecedented, as was the function of some of these temples. Temples housed not only local deities (and their cult statues), but foreign ones, such as Hadad of Aleppo and Ishtar of Nineveh, including those of conquered cities (Singer 1998: 36).

The newness of the Upper City is given more dramatic expression in the use of pictorial or otherwise sculptural programs of representation, as well as monumental inscriptions (cf. Harmanşah 2011), all of which were absent at MBA citadels on the AP. Every gate into the Upper City was fashioned with statuary or relief carvings. The outward facing lions and sphinxes of the Lion and Sphinx Gates, respectively, and the inward facing "Warrior-God" at the King's Gate presided over the most liminal spaces of the Upper City (see above Figure 30.2). The Lion and Sphinx Gates belonged to a vast, south-facing monumental presentation that included the ramparts, the upper glacis, and the Yerkapi Postern. The most meaningful entrances and exits through the gates would have been performed in royal processions or other kinds of state ceremony, including the festivals described above (Neve 1992: 17). Equally meaningful entrances would have included the reception of ambassadors from distant places (mostly from the south). From this perspective, the south-facing representation of lions and sphinxes was a manifestation of belonging to the high-culture of royal elites across

western Asia and the eastern Mediterranean who had collectively embraced the imagery of lions and sphinxes as metaphors of martial prowess (Feldman 2006: 76–8). On the other hand, lions and sphinxes were a repellent and apotropaic presence against potential (and more local) enemies (Strawn 2005: 217–28). But this statuary conveyed more than political messages. The lions and sphinxes at the gates of Boğazköy-Hattusha were also powerful emblems or materializations of an elite identity that is known collectively as "Hittite."

Relief sculpture was not confined to the gates of the Upper City. Additional sphinxes guarded the entrance to the Nişantepe complex (see above Figure 30.2), which included rows of monumental Luwian hieroglyphic inscriptions carved on a rock face, commemorating the ancestry and achievements of King Suppiluliuma II. Additional monumental inscriptions across the way from the Nişantepe complex identify a subterranean chamber (the "Hieroglyphic Chamber," or Chamber 2) as a cult space and passage to the underworld (Hawkins 1995: 45). The passage runs beneath a large "sacred pool" (Neve 1995). Here also the space is presided over by the image of a warrior-god labeled "Suppiluliuma, Great King" in Luwian hieroglyphs (Hawkins 1995: 19–20). Monumental inscriptions were not nearly as prominent in the "old," northern half of the city (for a single cartouche of Tudhiliya IV carved in stone between the upper and lower courts of Büyükkale, see Bittel 1983: 131). In this respect, the Upper City was an innovative arena in which to negotiate new kinds of social power using new kinds of media.

The decision to combine relief carvings with a hieroglyphic/pictorial script of local (Anatolian) origin (Hawkins 1986; Yakubovich 2008b), as opposed to the non-pictorial, borrowed cuneiform script used in both Hittite and MBA archives, highlights an unprecedented, display-orientated context for literacy. Similarly, it represents new media for the creation and expression of a local and literate high culture focused on the king (cf. Baines 2007 for similar use of hieroglyphic display script and images in Egypt). This new high culture was maintained in part by state ceremonies and other kinds of ritual performance in the Upper City that incorporated images and inscriptions.

10 Materializing Imperial Ambitions Across the AP

Similar displays were also created far beyond the walls of the Upper City where the landscape context becomes more relevant to the problem of Hittite urbanism. The Upper City at LBA Boğazköy-Hattusha is one manifestation of an unprecedented engagement with and transformation of the landscape (Schachner 2006: 156). Prominent mountain features like Yazilikaya near Boğazköy-Hattusha (Bittel 1983: 133–61), or the temple and associated "sacred pool" near Kuşakli-Sharishsha (Müller-Karpe 1999: 79–91) were turned into sanctuaries. Mountain features also became fields for royal relief sculpture, often combined

with hieroglyphic Luwian inscriptions (Emre 2002: 226–31; Glatz 2009: 136–7). These places, monumentalized in "living rock" (Harmanşah 2011), were visited in state ceremony and similar kinds of ritual performance (e.g., processions to wilderness shrines, as above). They could also achieve what the images and texts in the Upper City at Boğazköy-Hattusha could not. Such relief sculptures were omnipresent features in the landscape and pictorial displays of hegemonic control over populations that existed at the margins of high culture (e.g., the rural communities of the AP). They were also the materialization of more local initiatives, as regional elites negotiated their own power and place within the empire through the construction and observation of monuments (Glatz 2009: 136–7).

The construction and maintenance of fortified towns across the AP should be seen in the same light. These towns were an unprecedented materialization of ideology (Mielke 2011a) and repositories of high culture from which to project imperial power. Thus, for example, although no inscriptions or tablets have been recovered at Alaça Höyük, most archaeologists and historians consider the monumental sphinxes and associated relief orthostats that preside over the city gate to be unambiguous evidence of a Hittite cult town and bastion of high culture (Mielke 2011b). Archives from several fortified towns across the AP illustrate similarly intimate relationships with the capital and with Hittite high culture. According to an archive found at Ortaköy (ancient Shapinuwa), the site was both a cult center and a royal residence where the king and queen resided for periods of time (Süel 2002: 163–4). Tablets from Maşat Höyük (ancient Tapikka) identify this town as a border garrison with a palace for a regional governor (Alp 1991: 1–6). Similarly, tablets found at Kuşaklı (ancient Sharrishsha) identify it as a provincial capital, cult center, and hub of Hittite high culture (Wilhelm 1997a: 8–15). Each of these places was heavily fortified, their ramparts enclosing citadels covering c.6–20 hectares (cf. 180 hectares at Boğazköy-Hattusha). They were dominated by at least one monumental building, either a temple or palace, or some combination of both (Mielke 2011a).

LBA towns on the AP did not always develop organically at obvious places for a fortified citadel. For example, several LBA citadels were built at new sites (i.e., not on pre-existing, EBA–MBA settlement mounds; Glatz 2009: 132). These new foundations seem to relate to imperial ambitions emanating from Boğazköy-Hattusha, rather than the economic and social needs of the local population. From such a perspective, they appear to have been shallowly rooted, monumental shells of towns conceived to project imperial ambitions across the landscape and to dominate its rural inhabitants.

11 Discussion

The conventional understanding of a city is based mostly on reconstructions of the largest settlements in southern Iraq from the middle of the 4th millennium

BC onwards. Urbanism in adjacent regions is often seen in relation to the pristine and enduring urban character of southern Iraq, for which there was no precedent in the region or indeed the world (Van de Mieroop 1997: 248–52). At first glance, comparisons between the most urbanizing places in Bronze Age Anatolia and their counterparts in southern Iraq seem justified. Yet urbanism on the AP was unique.

Urbanism in southern Iraq has been viewed as an almost inevitable consequence of the landscapes where cities first emerged, tending toward functionalist and neo-evolutionary interpretive frameworks that have analyzed it as a process of social change and as both a motor and a consequence of state formation. Compelling, "northern" alternatives to these Babylonian models of urbanization have been recently outlined in a study of Tell Brak (Oates et al. 2007). Circumstances in Anatolia were different again.

Urbanization was not an inevitability on the AP. The potential for agricultural self-sufficiency among these communities was the rule against which conventional studies of (Sumerian and/or Babylonian) urbanization should be contrasted. The populations of the AP were fundamentally rural and agrarian, and it was only through episodes of creativity, receptivity, and force of will, and always in communication with non-local elites, that some members of this population endeavored to construct and maintain cities – or, more appropriately, monumental shells of cities that did not endure for more than a few centuries.

Two dominant circumstances account for urbanizing developments on the AP: intensified commerce including the accommodation of foreign merchants during the MBA; and imperial ambitions during the LBA. In both circumstances, interactions with the more sophisticated (or more urban) societies of northern Syria and Iraq were fundamental sources of legitimacy for elites on the AP. During the MBA, this was most succinctly expressed in the acquisition and display of foreign commodities (e.g., textiles, semi-precious stones, and tin) and the bilingualism and intermarriages that accrued to those accommodating foreign merchants. These benefits were mostly acquired via investment in the production and exchange of metals, wool, and textiles.

On the other hand, the Hittites invested heavily in conquest and the maintenance of territory (for the precarious northern territory, see Glatz et al. 2009), and also in the legitimizing strategies needed to uphold an empire. During the LBA, Hittite participation in the cosmopolitan club of royal elites across the eastern Mediterranean and western Asia was one vital source of legitimacy. But a more telling strategy is indicated by the incorporation of local cults into the Hittite pantheon. The "thousand gods of Hatti" included numerous deities captured in Hittite campaigns and given new homes in the temples of Boğazköy-Hattusha. As a result, they were made up of numerous non-local (mostly Hurrian) deities who had begun to be incorporated in the 15th century BC during a "Hurrian cultural invasion" (Gurney 1977: 13). Similarly, the Hittites were a people without history (Gilan 2008), who drew upon foreign literary traditions

like the heroic Sargon stories to substantiate the past. Thus, much of the ideological core of Hittite urbanism was indeed foreign and ad hoc, as well as parasitic. Like those of the elites of the MBA, the urbanizing and imperial ambitions of the Hittites had become over-reliant on their acquisitions from foreign people and foreign lands. And as in the MBA, the urbanism of Hittite society was too shallowly rooted to survive the socioeconomic quakes that ended the Bronze Age in western Asia and the eastern Mediterranean.

GUIDE TO FURTHER READING

For historical and text-based studies of urbanizing societies on the AP during the MBA, see Dercksen (2004b) and Wäfler (2008). For the LBA, see, e.g., Bryce (1998, 2002), and Beckman (1999a). Material-based studies of LBA urbanizing societies on the Anatolian Plateau include Glatz (2009), and Mielke (2011a, 2011b). Archaeological presentations and analyses of LBA Boğazköy-Hattusha include Neve (2002), Özgüç et al. (2002), and Mielke et al. (2006). For overviews of the archaeology of MBA Kültepe-Kanesh, see Özgüç (1999, 2003).

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CHAPTER THIRTY-ONE

Iran

Christopher P. Thornton

1 Introduction: The Rise(s) and Fall(s) of Bronze Age Iran

The collapse of the Proto-Elamite phenomenon (Ch. I.26) around 29/2800 BC ended a 2,000 year-long pattern of increasing social stratification and settlement expansion on the Iranian plateau (Lamberg-Karlovsky 1978; Alden 1982; Helwing 2004). The entire Zagros region, from Godin Tepe near Kangavar to Tal-e Malyan in Fars, as well as the lowlands of southwestern Iran (especially Susa), experienced a fairly dramatic decline in the number of concentrated, proto-urban societies. The Proto-Elamite sites of north-central Iran (e.g., Tepe Sialk, Tepe Özbaki, and Tepe Ghabristan) disappeared entirely at the end of the Sialk IV period, not to be resettled until nearly 1,000 years later. Many sites further east that had not been directly colonized by the Proto-Elamites, such as Tepe Hissar in northeastern Iran, also witnessed a constriction of settlement. The reasons for this dramatic "collapse" across most of the Iranian plateau are not well understood, but the Early Trans-Caucasian (ETC or "Kura-Araxes"; Ch. II.35) presence at a number of sites in western and north-central Iran (both during and just after the Proto-Elamite phenomenon), suggests a significant culture and power vacuum in these regions that was apparently filled by migratory tribes from the northwest (Batiuk and Rothman 2007).

When large centers did reappear on the Iranian plateau in the mid-3rd millennium BC, they mostly arose in areas that had previously been of negligible importance, such as northeastern and southeastern Iran. The long-distance trade

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routes that had once criss-crossed the plateau from east to west were gradually reoriented in this period toward the seafaring south, from which the finished and semi-processed goods of Iranian craftspeople could more easily reach hungry consumer markets in Mesopotamia and in the Gulf. As the sea trade became more and more dominant toward the end of the 3rd millennium BC (thereby making overland trade more and more obsolete), these eastern Iranian centers of craft production and trade could no longer compete with mass-produced goods from the Indus Valley (e.g., carnelian and possibly lapis) and the Oman peninsula (copper and chlorite) (T.F. Potts 1993; Ratnagar 2004). Just as quickly as they arose, the major centers of eastern Iran collapsed around 2000 BC, once again creating a culture and power vacuum that was possibly filled by migratory peoples from the Bactria-Margiana region of Central Asia (Hiebert and Lamberg-Karlovsky 1992).

As these east Iranian centers disappeared, the old Elamite centers of southwestern Iran, such as Susa and Tal-e Malyan (ancient Anshan), again rose to prominence (Carter and Stolper 1984; Potts 1999). The renewed importance of these sites was also coincident with the collapse of the Akkadian empire. As southern Mesopotamia devolved into competing city-states, southwestern Iran seems to have taken control of the remainder of the overland trade from the plateau, possibly even gaining control of some of the sea trade coming from the east. Combined with sociopolitical competition from the Mesopotamian city-states, this led to greater social complexity and increased population density in Elam.

2 Forms of Urbanism: Primate Centers, Tiered Settlement Hierarchies, and Symbiotic Centers

Primate centers

The observant reader will notice that in the preceding sketch of 3rd and early 2nd millennium BC settlement patterns in Iran, I have carefully avoided using the words "city" and "urbanism." Both terms have a long and complicated history in archaeology and, indeed, in the social sciences more generally (see Marcus and Sabloff 2008). If the intention of this chapter had been to discuss all the settlements in Bronze Age Iran that could be defined as "cities" in a traditional sense (Childe 1950), it would be significantly shorter than it is. Instead, I have attempted to describe three types of "urbanism" (in a non-traditional, more inclusive sense) in Bronze Age Iran that show similarities to urban societies in Mesopotamia as well as differences. These three types are: (1) primate centers; (2) areas with tiered settlement hierarchies; and (3) symbiotic centers. While a complete review of all Bronze Age settlements in Iran that fit into these categories is well beyond the scope of this chapter, it is hoped that a preliminary look at a few major sites will provide examples of these different types of urbanism.

Tal-e Malyan in the Kur River Basin (KRB) of Fars is the quintessential example of a "primate center" (if not a city) in Bronze Age Iran. As shown by the survey data of Sumner (1972, 1986a) and Alden (1979, in press), the rural hinterland of the KRB was abandoned (i.e., most small settlements disappeared) during the Early Banesh period (c.3400–3250 BC). At the same time, Tal-e Malyan experienced enormous growth, especially during the Middle Banesh period (c.3250–2950 BC), growing to about 50 hectares. The few rural sites that continued to be occupied were all smaller than 3 hectares. This trend continued in the Late Banesh period (c.2950–27/2600 BC), and although Tal-e Malyan shrank to c.28 hectares at this time, a massive city wall enclosing some 200 hectares was built around it (Sumner 1985).

It is possible that these changes in regional settlement patterns and in the size and organization of Tal-e Malyan were due to the adoption of an economic system based upon transhumant pastoralism between highland Fars and lowland Khuzestan by the end of the 4th and the early 3rd millennium BC (Alden, in press). It has recently been argued that the Late Banesh phase, although traditionally associated with the Proto-Elamite horizon (and therefore presumed to end around 29/2800 BC), continued after the collapse of the Proto-Elamite phenomenon, lasting to c.2500/2400 BC as a large conglomeration of different nomadic tribes (Miller and Sumner 2004; Alden et al. 2005). Alternatively, the end of the Late Banesh (c.2900/2800 BC) may be viewed as distinct from the Banesh-Kaftari transition (c.2900/2800–2500/2400 BC) (Alden, pers. comm.). In either case, the presence of nomadic pastoralists would accord well with the presence of a mid-3rd millennium BC cemetery at Jalyan, located south of the KRB, which has no corresponding settlement (Miroschedji 1974).

Although occupation continued at Tal-e Malyan after the Banesh phase, it was not until the late 3rd millennium BC that the site once again became an important center (Sumner 1989; Petrie et al. 2005). During the Kaftari period (c.2200–1600 BC), Tal-e Malyan grew to 130 hectares and regained control of the highlands of southwestern Iran under the Shimashki Dynasty (c.2200–1900 BC; Susa VA), before serving as "co-capital" (with Susa) of the *sukkalmah* Dynasty (c.1900–1600 BC; Susa VB) (Carter and Stolper 1984: 151–3; Potts 1999). This system of dual, highland–lowland capitals between Khuzestan and Fars continued throughout Elamite history and was adopted by the Achaemenids in the 6th century BC.

In contrast to the "primate center" of Banesh-period Tal-e Malyan, the "primate center" of Kaftari-period Anshan was simply the largest center in a settlement hierarchy involving towns (10–16 hectares), large villages (4–8 hectares), and small villages (less than 4 hectares) (Sumner 1988: 317). This demographic "explosion" (or, perhaps, resettlement of formerly mobile populations) occurred relatively quickly in the Early Kaftari phase (c.2200–2000 BC) (Sumner 1989: 139) and was replicated in Khuzestan a century or two later at the start of the *sukkalmah* Dynasty (c.1900–1800 BC) (Carter and Stolper 1984: 150; see below). While no one doubts the primacy of Kaftari Tal-e Malyan in the KRB at this

time, it is notable that the site was the center of a settlement hierarchy in a way that differed from the situation during the Banesh-period.

The causes of this "re-urbanization" of the KRB at the end of the 3rd millennium BC are unclear. The collapse of the Akkadian empire and the resultant turmoil in southern Mesopotamia may have encouraged a political resurgence in both highland and lowland Elam. Alternatively, the revival of Tal-e Malyan may have been due to affairs further east. Indeed, as the major sites of southeastern Iran (e.g., Shahr-i Sokhta, see below) constricted in size and importance as a result of the burgeoning Gulf trade, Fars may have become a conduit between the resource-rich Iranian plateau and the Persian Gulf. More work is needed at the site to understand the transition between the Late Banesh and Early Kaftari phases before anything conclusive can be posited.

Shahr-i Sokhta (Persian for "burned city") in the Sistan basin of eastern Iran provides another example of a "primate center" in the 3rd millennium BC. Founded in the late 4th millennium BC as a small (10–15 hectares) town with connections to Pakistani Baluchistan (shown by the presence of "Quetta Ware"), Central Asia (shown by the presence of Namazga III-style ceramics and figurines), and the Proto-Elamite phenomenon (shown by a single tablet and several cylinder seals), the site grew to c.100 hectares by the mid-3rd millennium BC (Lamberg-Karlovsky and Tosi 1973: 24–8; Biscione et al. 1977; Salvatori and Vidale 1997; Salvatori and Tosi 2005). At that time (Shahr-i Sokhta III, c.2500–2200 BC), the Sistan basin was filled with 3rd millennium BC sites displaying material remains identical to those at Shahr-i Sokhta, yet with the possible exception of the Gardan Reg site(s?) found by W. Fairservis (1961) during his survey of Afghan Sistan, estimated to cover c.50 hectares, none of the Sistan sites was larger than c.2 hectares (Tosi 1984: 30). In contrast to the tiered settlement hierarchies of other areas (see below), the east Iranian region seems to have been dominated by Shahr-i Sokhta, one of the largest sites on the entire Iranian plateau in any prehistoric period.

Traditionally, the rise of Shahr-i Sokhta was seen as a result of its monopoly of the lapis lazuli trade from Afghanistan to Mesopotamia (Tosi 1974, 1984). The discovery of a large workshop with lapis wasters and lapidary tools left little doubt that lapis processing was a major vocation of the 3rd millennium BC inhabitants of this site (Tosi and Piperno 1973; Casanova 1992) and, judging by the Period II graves in the large (20–25 hectares) extramural cemetery at Shahr-i Sokhta, lapis consumption peaked before the settlement reached its maximum size (M. Vidale, pers. comm.). It was argued that the wealth created by the lapis trade resulted in significant social stratification, as seen in the hundreds of burials that have been excavated in the extramural cemetery since the 1970s (Sajjadi 2003; Piperno and Salvatori 2007). These dramatic social changes resulted in the construction of a large (400+ square meter) building with ceramic piping (for rainwater/sewage?) in the Central Quarters of the site, presumably used for administrative and/or ritual purposes. At the end of Period III (c.2300/2200 BC), Shahr-i Sokhta appears to have constricted considerably, possibly due to a

cessation of the lapis trade as the sea route (and the Harappan civilization) gained prominence. The enigmatic "Burned Building" of Period IV, a large (500+ square meter) structure with numerous parallels at Namazga V sites in Central Asia (Tosi 1983: 94) is all that remains of the once-great settlement. This structure was destroyed by fire c.2000 BC.

This model for the rise and fall of Shahr-i Sokhta may be questioned for a number of reasons. First, the idea that lapis was worked at the site mostly for export while other semi-precious stones (e.g., turquoise, carnelian, alabaster) were consumed locally (Bulgarelli 1981) has been challenged by continued work in the cemetery (Vidale and Foglini, pers. comm.). Indeed, the frequency of semi-precious stones in the mortuary finds made at the site suggests that only a small amount of worked lapis left Shahr-i Sokhta as semi-processed lumps, certainly not enough to supply the (chronologically later) Royal Graves at Ur, let alone any other Mesopotamian sites. Secondly, the "administrative" building in the Central Quarters, while indeed larger and more impressive than other buildings of the period, is only twice the size of the houses of the Eastern Residential Area. Since we do not know whether these houses were for elites, merchants, or working-class families, it is hard to gauge the true significance of the administrative building. Indeed, Shahr-i Sokhta is remarkable for its *lack* of monumental structures, city walls, or public buildings, so indicative of other "urban" centers in Mesopotamia and the Indus Valley (Biscione et al. 1977: 104).

Shahr-i Sokhta is also remarkable for having an extremely diverse assemblage of grave goods, including ceramics and small finds typical of almost every culture in the highly balkanized Indo-Iranian borderland region (Shaffer 1986, 1992; Piperno and Salvatori 2007). These include objects from Pakistani Baluchistan, the Helmand valley of Afghanistan, southern Central Asia, northeastern Iran, the Kerman-Dasht-e Lut region, the Jiroft basin, and Iranian Baluchistan. No other site in Iran has such a diverse cultural assemblage. In addition, Shahr-i Sokhta is the only site in the Indo-Iranian borderlands with both Emir Gray Ware (from Iranian Baluchistan) and Faiz Mohammad Gray Ware (from Pakistani Baluchistan and the Makran) (R.P. Wright 1989). Given this evidence, it seems likely that Shahr-i Sokhta was less a true "city" than an enlarged trading entrepôt – a sort of prehistoric caravanserai – in which merchants and tradesmen from across the Indo-Iranian borderlands congregated to do business, or at which they simply stopped along their way. If this proves to be the case, it would explain the lack of monumental and defensive structures at Shahr-i Sokhta, despite strong evidence of social stratification and vocational specialization.

Tiered settlement hierarchies

Susa was the lowland capital of the Elamites and the most important site in the southwestern Iranian province of Khuzestan for millennia. One of the major

centers of the Proto-Elamite phenomenon, Susa had (like Tal-e Malyan) flourished in the late 4th and early 3rd millennia BC (despite the fact that some scholars believe this was a period of low population, a phenomenon that may have been linked with the dominance of Banesh-period Tal-e Malyan; Alden 1987: 157), only to go through a period of demographic and presumably political decline after the Susa III period. This led to a period of political obscurity in the mid-3rd millennium BC (Susa IV, c.2600–2200 BC) related to the rising power of southern Mesopotamia and southeastern Iran (Carter and Stolper 1984: 132–3; Potts 1999: 94–5). This is not to say that Susa itself declined – in fact, there is good evidence to suggest that the settlement expanded from c.10 hectares in the Proto-Elamite period (Susa III) to c.45 hectares in the Susa IV period, with numerous small satellite villages (Carter and Stolper 1984: 135). Furthermore, important Susa IV finds such as the *Vase à la Cachette*, with its hoard of metal objects and six cylinder seals from across the Elamite world (Pittman 2002), suggest that Susa was a significant node in the system of long-distance trade linking the Iranian plateau with southern Mesopotamia. What is unclear is whether Susa exercised any real political power or even cultural influence over other settlements in greater Susiana during this period (Schacht 1987: 175).

With the rise of the Old Elamite polity (Susa V; c.2200–1600 BC), Susa once again exerted political and cultural dominance over Khuzestan. Other lowland regions of southwestern Iran, such as the Ram Hormuz and Izeh valleys, were almost entirely depopulated at this time (Wright and Carter 2003), creating a population boom in Susiana and, perhaps, in the KRB to the east. However, unlike Tal-e Malyan, Susa was not a "primate center" at this time. Rather, Susa served as the focal point of a complex settlement hierarchy, the political and social dynamics of which are not fully understood (Potts 1999: 156). In the Shimashki phase, Susa was surrounded by at least 12 towns (4–10 hectares) and 8 villages (0–4 hectares), while in the *sukkalmah* phase (when Susa reached 85 hectares in size), Khuzestan was littered with another 20 villages and 3 even bigger towns (larger than 10 hectares) (Carter and Stolper 1984: 150). Some of these large towns, such as Chogha Mish, appear to have had their own administrative (or otherwise "elite") structures (Alizadeh 2008: 30), suggesting some level of autonomy.

Given the lack of well-excavated Period IV–V contexts at Susa, we are limited in how much we can say about its role in the tiered settlement hierarchy of Susiana at this time. In terms of the iconography and statuary at the site, there is no question that Susa played an important role in the religious and cultural life of Khuzestan. Perhaps by this time Susa had become merely a symbolic or ritual "capital" for the lowlands – a center of religious administration and other ceremonial purposes – while other neighboring sites carried out more administrative and/or political functions. Our data from these sites are, sadly, too few, and we must await further excavations to truly understand the internal dynamics of the Old Elamite polity.

Symbiotic centers

An important dynamic in ancient Iranian political and cultural life was the relationship between highland and lowland societies within the same general region. As discussed above for Tal-e Malyan and Susa, such highland–lowland relationships were often based upon transhumant or seasonal migration of related (if not the same) populations moving between pastures (i.e., highland "capital" in the summer; lowland "capital" in the winter). However, not all highland–lowland relations in ancient Iran were based on transhumance. In many cases, symbiotic relations consisted of highland sites providing raw materials (e.g., timber, stone) and craft goods (e.g., metal, beads) to their lowland neighbors in return for "invisible exports" (Crawford 1973) from the lowlands (e.g., grain, livestock). This is not to say that highland sites did not also produce food, or that lowland sites did not carry out craft activities. It is merely a reflection of the increased specialization of labor and increased "urban" dependence on others so typical of Bronze Age societies of the Middle East. Tepe Hissar and Tureng Tepe in northeastern Iran are perhaps the most obvious examples of these so-called symbiotic centers in Bronze Age Iran.

Located on the important east-west trade route from Central Asia to north-central Iran, Tepe Hissar was for 2,000 years the most important settlement in the Damghan plain (Schmidt 1937; Dyson and Howard 1989). A major exporter of base and precious metals as well as semi-precious stones such as lapis lazuli and alabaster, Hissar never seems to have exceeded 10–12 hectares (Tosi 1984, 1989). While a handful of other Bronze Age sites have been found nearby, all are small hamlets and villages of little political importance (Trinkaus 1989). Tureng Tepe, on the other hand, is one of more than 300 small mounds in the southern part of the Gorgan plain (Arne 1935: 31), distinguished from the others only by the presence of a monumental mudbrick platform (the "*haute terrasse*," or high terrace) dating to the late 3rd millennium BC (Deshayes 1975, 1977). While much of Tureng Tepe lies under the water table, it is unlikely that the settlement was ever larger than 10–15 hectares. Thus, to call either Hissar or Tureng Tepe a "city," even relative to other Bronze Age Iranian settlements, is misleading. However, both were the major centers of their micro-regions, likely exerting considerable influence over nearby sites and each was connected to the other in what appears to have been a co-dependent relationship.

Evidence of this symbiosis is admittedly slim for the 3rd millennium BC, as both Hissar III and Tureng III levels remain mostly unpublished and unanalyzed. It is clear that contact between these two regions began at least by the mid-4th millennium BC, when occasional Hissar IC/IIA sherds are found eroding from later mudbricks or emerging from waterlogged levels at sites on the Gorgan Plain (Arne 1945: 171). Similarly, Caspian Black-on-Red wares of the Tureng IIA/Shah III period were first imported to Hissar in the E–D Transitional Phase

(c.3400 BC) of the revised Hissar sequence (Thornton et al. in press) when the inhabitants of both the Damghan and Gorgan plains began to share many obvious cultural traits (e.g., burnished gray wares, double spiral-headed metal pins).

The shared production and use of burnished gray wares in both regions is the most obvious sign of close cultural interaction (especially relative to the painted ware tradition of the Namazga III–IV sites to the east and the buff ware tradition of the Sialk IV sites to the west). However, it is important to emphasize that the earliest gray ware assemblages at Tureng Tepe and Hissar are quite different in form and in their use of certain decorations (Cleuziou 1986: 231; Dyson 1992: 270). For example, in the late 4th and early 3rd millennia BC (Tureng IIA–IIB), Caspian Gray Ware exhibits extensive use of incising, embossing, and ribbing/grooving, while Hissar Gray Ware was more commonly pattern-burnished (Deshayes 1968: 37). In addition, Tureng II/Shah III sites have a unique form of unpainted pottery called Caspian Red Ware, almost identical to Caspian Gray Ware (besides the oxidizing firing conditions) but with some unique forms. This suggests that while the two centers were closely linked, they maintained their own identity.

The nature of this symbiotic relationship seems to have been a classic producer–consumer one. Tepe Hissar is known to have been a major center of craft production in the late 4th and early 3rd millennia BC, notably for copper, lead, and precious metals as well as for semi-precious stones such as steatite/chlorite, lapis, and alabaster (Tosi 1989; Pigott 1989a). In contrast, Tureng Tepe was a remarkable (although not extravagant) consumer of these same goods (particularly in Period IIIA), but had no evidence of craft production at this time (Deshayes 1969: 14). The only evidence of craft production on the Gorgan Plain is the metallurgical mold and melting crucible fragments from period III levels at Shah Tepe (Arne 1945: 258). Interestingly, the only molds from the contemporaneous metallurgical workshops on the South Hill at Tepe Hissar were for metal ingots (presumably for export) (see Thornton 2009). While this does not prove a symbiotic relationship, particularly in the poorly studied late 3rd millennium BC contexts, it is certainly a strong indicator.

A fourth type?

Most major settlements of Bronze Age Iran fall into the three types of centers discussed above. Some, like Tal-e Malyan and Susa, could easily be assigned to all three categories, depending upon the time period and how one looks at the data. In general, however, it must be remembered that few of these settlements can be defined as "urban" in the traditional Childean sense, and none comes anywhere near the size and complexity of contemporary lowland cities in Egypt, Mesopotamia, or the Indus Valley.

There is, perhaps, one exception to this statement that deserves comment, despite the preliminary state of our knowledge about this settlement. The discovery and subsequent excavation of Konar Sandal in the Halil Rud valley, just south of modern-day Jiroft, has already changed our understanding of the Bronze Age of southeastern Iran (Majidzadeh 2003, 2008a; Lawler 2004). Long thought to have been a politically insignificant area, despite the important production of copper and chlorite items for export at sites like Shahdad and Tepe Yahya, the presence of an enormous site (perhaps 400+ hectares) with monumental architecture, mortuary evidence of complex social stratification, highly developed local art and iconography, local forms of writing (or proto-writing), and evidence of long-distance contact with Mesopotamia, Central Asia, the Indus Valley, and the Gulf, all suggest that this area was in fact a major player in the Bronze Age world (Majidzadeh in press; Pittman in press).

While the exact limits of Konar Sandal are not yet known due to overlying alluvium, two areas are delineated by their monumental structures: Konar Sandal South (KSS) and Konar Sandal North (KSN). The construction of the massive mudbrick "Citadel" and surrounding wall at KSS has been dated to c.2400–2300 BC, while the earliest levels reached at this site so far date to the early 3rd millennium BC. In the period leading up to the building of the Citadel and during the use of the Citadel itself, KSS was a major center of craft production (particularly of lapidary work), judging by the presence of multiple workshop areas and the innumerable semi-precious stone flakes that carpet the site. Unlike other craft-producing sites on the Iranian plateau, Konar Sandal does not seem to have been a major exporter of goods, but actively consumed these items and other imported goods in lavish burial rituals (Majidzadeh 2003; Hessari 2005).

At the same time, Konar Sandal seems to have played an important political and economic role as a center for foreign merchants to do business. Unlike Shahr-i Sokhta, which (as argued above) played a similar role as a "caravanserai" for the Indo-Iranian borderlands, Konar Sandal attracted merchants from across the Middle East. Seals and sealings indicate the presence of Mesopotamians, Harappans, and Central Asians (Pittman in press), while ceramic links suggest the presence of denizens from across eastern Iran, Baluchistan, and the Persian Gulf/Oman peninsula (Piran in press). This settlement, then, was a major cosmopolitan center for trade and commercial activity, and perhaps also a center for ritual activity and pilgrimage. Indeed, the vivid and complex iconography of the "Jiroft-style" chlorite bowls, as well as their counterparts in seals and sealings, display a local mythology and a pantheon of gods, goddesses, and heroes whose images have appeared as far away as the Royal Graves at Ur and the Gonur Necropolis in Turkmenistan (Pittman in press).

For how long the Citadel at KSS was in use is not yet clear, although the latest surface material around the mound corresponds with the earliest material so far identified from KSN which can be dated stylistically to the later Shahdad cemetery period (c.2000–1800 BC) (Gholami in press). In the early levels at KSN, the

complex iconography of the Jiroft-style chlorite bowls had disappeared, to be replaced by simple "Gulf-style" (dot-and-circle motif) soft-stone vessels. Gone (or not yet found) is the evidence of large-scale craft production as seen at KSS, although seals and sealings from KSN continue to show contacts with distant regions (Pittman, in Majidzadeh 2008; in press). A massive, stepped mudbrick platform (300 × 300 meters) was built on top of this Middle Bronze Age layer at some uncertain date. The ceramics associated with this platform suggest a 2nd millennium BC occupation (Gholami in press), although comparanda for these ceramics are few. It is interesting to note, however, that the mudbricks used to construct this massive monument are identical in size and fabric to those used in the last phase of the KSS Citadel. As such, it is possible that both monuments were in use at the same time (i.e., in the early 2nd millennium BC).

A full description of the Bronze Age settlement at Konar Sandal must await further research. While the interregional importance of this site is now widely accepted, intensive archaeological surveys of the Halil Rud are also needed to place Konar Sandal into its regional context. Many questions about this site remain, but it is clear that in the Jiroft region an important center of commerce and administration existed that, more than any other site in Bronze Age Iran, fits the traditional model for urban settlements in the ancient Near East.

3 Conclusion

The Bronze Age "cities" of Iran were something of a mixed bag, varying in size, sociopolitical complexity, and function. Settlements like Susa and Malyan were the political and cultural centers of large macro-regions, while other sites such as Shahr-i Sokhta or Konar Sandal seem to have been centers of commerce and craft production for local and foreign markets. Even relatively small settlements such as Hissar and Tureng played important roles as elite centers for their particular micro-regions. The fact that these distinct regions were not culturally or politically unified until the Achaemenid empire speaks to the strong local identities that continue even today under the Islamic Republic of Iran (e.g., Lurs, Azeris, Turkmen, Baluchis, etc).

Although culturally and politically distinct from each other, the various centers of Bronze Age Iran were linked by overland trade routes, particularly in the 3rd millennium BC. The types of goods that were passed along these trade routes and, indeed, the actual scale and mechanisms of this trade can only be surmised. However, it is clear that at various times, certain sites specialized in the production of particular goods (e.g., Tepe Yahya, chlorite; Shahdad, copper; Rud-i Biyaban, pottery) that were consumed locally, regionally, and supra-regionally. Whether these goods were exported over long distances *en masse* to the elite centers of the surrounding lowland civilizations, as originally assumed by Marxist scholars in the 1970s and 1980s, remains to be proven. However, it is clear that

the Bronze Age centers of Iran existed primarily as centers of craft production, commerce, and ideopolitical administration.

GUIDE TO FURTHER READING

For a more in-depth treatment of the Bronze Age material cultures of Iran, Voigt and Dyson (1992) is fairly comprehensive. Further discussion (and more extensive bibliographies) on particular sites can be found in various articles in the *Encyclopedia Iranica*. For a general discussion of the Bronze Age of southwestern Iran, the reader is encouraged to look at Hole (1987a) and Potts (1999). A comparable text is still lacking for southeastern Iran, but Lamberg-Karlovsky and Tosi (1973) is a seminal treatise.

CHAPTER THIRTY-TWO

The Northern Levant

Hermann Genz

1 Geographical Extent and Physical Environment

The Northern Levant encompasses the area of modern Lebanon in its entirety, western and southern Syria, and, with the Amuq plain, even a part of modern Turkey. The natural borders of this region are the Mediterranean Sea to the west, the Amanus and Taurus mountains to the north, and the Syrian desert to the southeast (although this latter border shifted considerably due to climatic variations). Less clear are the borders to the south and northeast. The division between the northern and southern Levant along the modern border between Lebanon and Israel is artificial, based more on the current political situation than on geographical or cultural factors. As for the northeastern limit of the Levant, the Euphrates river is usually considered the boundary and the Jazirah plain, on the east bank of the river, is considered part of northern Mesopotamia. While the Euphrates certainly forms a clearly visible boundary, it was by no means an impassable barrier and throughout history settlements on both the western and the eastern banks shared the same material culture.

Because the area covered by the northern Levant is so large, the physical environment is quite diverse. From west to east the Levant can be subdivided into five different zones. Directly bordering the Mediterranean is the coastal plain, varying considerably from just a few meters to several kilometers in width. East of the coastal plain a mountain chain stretching in a north–south direction rises sharply. Whereas in Lebanon the peaks of Mount Lebanon exceed 3,000 meters,

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the chain of Jebel Ansariyeh in Syria is considerably lower, not exceeding 1,575 meters in height. East of this mountain chain is a valley, again stretching from north to south, which is part of the great Rift valley extending from the Taurus mountains in southern Turkey to east Africa. The Lebanese part of this valley is known as the Beqaa. Near Baalbek two important rivers emerge: the Litani flows southward, joining the Mediterranean north of Tyre, while the Orontes (Nahr el-Asi) flows northward through Syria and turns westward in the Amuq plain to join the Mediterranean south of Antakya. East of this valley is another mountain chain: the Anti-Lebanon and Jebel Zawiyah in Syria. Further east the land gradually descends to the plains of Aleppo and Jabbul in the north and the Syrian desert in the south (Marfoe 1998: 21–37; Akkermans and Schwartz 2003: 2–7).

These diverse natural conditions provided a variety of possibilities for the subsistence of its inhabitants. Large parts of the northern Levant receive enough precipitation for rain-fed agriculture. In areas receiving less than 250 millimeters of precipitation per year agriculture is not possible (without irrigation), but pastoralism provides an alternative. While pastoralists are notoriously difficult to identify in the archaeological record, careful studies of settlement patterns in marginal areas (Marfoe 1998: 83) and textual sources like the Mari archives (Anbar 1991) confirm the presence of pastoral communities throughout the Bronze Age.

The northern Levant provided a number of raw materials used in the daily lives of its ancient inhabitants, but metals and precious or semi-precious stones were absent and had to be imported. One commodity for which the Levant was famous throughout antiquity was timber from the mountain ranges. From the 3rd millennium BC onwards the famous cedars of Lebanon, as well as other coniferous trees, attracted the attention of Egypt and various Mesopotamian states. The real importance of the Levant lay in its position as a corridor between the civilizations of Egypt and Mesopotamia. Anatolia was first drawn into this emerging trade network as a provider of raw materials, especially metals, but only in the Late Bronze Age (LBA) did it emerge as a political actor as well.

The geomorphological situation basically dictated a north–south orientation for the main communication routes. The main route connecting Egypt and Mesopotamia was called the "Way of the Sea" (Aharoni 1979: 45–54). In the southern Levant it followed the Mediterranean coast, but at Megiddo it turned inland and continued along the upper Jordan, the Beqaa, and the Orontes valleys, and from there either turned east toward, the Euphrates and upper Mesopotamia or continued further north across the Taurus mountains into Anatolia. There were several east–west routes as well. The most important ones in the northern Levant are the so-called Homs Gap, between Mount Lebanon and Jebel Ansariyah, along the current northern border of Lebanon; and the Amuq plain, where the Orontes river turns west to join the Mediterranean. The coast of the northern Levant offers a number of excellent natural harbors which, from at least the 2nd millennium BC onwards, facilitated seaborne trade with Cyprus and the Aegean.

2 Historical Sources

Although Old Kingdom Egyptian sources provide no information on the political history of the northern Levant, they do shed important light on trade. In the reign of the 4th Dynasty Pharaoh Sneferu (2613–2589 BC), the import of timber, most likely from Lebanon, was mentioned on the Palermo Stone (Wright 1988: 146). Egypt's special relationship with Byblos is illustrated by the large number of inscribed objects recovered at the site, dating from the 2nd to the 6th Dynasties (Wright 1988). During the First Intermediate Period, however, these connections seem to have been disrupted, as evidenced in the so-called admonitions of Ipuwer, where the fact that no one sailed any longer to Byblos was deplored (Helck 1971: 38). Information on the Levant became available again at the beginning of the Middle Kingdom. The much-discussed story of Sinuhe is a literary text that probably does not reflect actual conditions in the Levant, but rather Egyptian ideas about the region (Helck 1971: 40–1). More important are the late 12th Dynasty (1983–1778 BC) execration texts, which the Egyptians used to curse real or potential enemies. Several of the sites mentioned in them, such as Tyre, Byblos, Irqata, and Ullaza, are located in Lebanon (Helck 1971: 44–67). Two important historical texts shedding light on trade relations and military expeditions to the Lebanese coast are the Mit Rahina inscription from the time of Amenemhet II (Marcus 2007) and the Khnumhotep inscription at Dhashur from the reign of Senwosret III (Allen 2008).

The c.17,000 cuneiform texts discovered in Palace G at Tell Mardikh (ancient Ebla) are of prime importance for reconstructing the early history of the northern Levant. Covering a period of about 50 years in the 24th century BC, the majority of the tablets are administrative, though important historical information can be gained from them. Three successive Eblaite kings are mentioned and it becomes clear that Ebla controlled large parts of northern Syria, from the Orontes valley in the west to the Euphrates in the east. Conflicts between Ebla and Mari over the control of the Euphrates valley are also mentioned (Klengel 1992: 26–31).

From the Akkadian period (c.2350–2200 BC) onwards, Mesopotamian sources are relevant as well, particularly the records of Sargon and his grandson Naram-Sin, both of whom campaigned in northern Syria and claimed to have destroyed Ebla (Klengel 1992: 33–5). While Sargon is often considered responsible for the destruction of Palace G at Ebla (Akkermans and Schwartz 2003: 244), there is no definite proof of this and alternative suggestions have been made (Archi and Biga 2003: 29–35). In an Ur III (2100–2000 BC) text from Drehem in Mesopotamia an **ensí** (governor) of Byblos is mentioned, and the discovery of an Ur III tablet at Byblos confirms the existence of literate administrative personnel at Byblos in this period (Saghieh 1983: 131).

Covering the period from the late 3rd millennium BC to the destruction of the site by Hammurabi of Babylon in the 18th century BC (according to the

Middle Chronology), the Mari archives are of prime importance for reconstructing the history of Syria in the early 2nd millennium BC. The texts demonstrate the emergence of the kingdom of Yamkhad/Aleppo. One of the leading political powers in northern Syria, it controlled the area from the Amuq in the west to the Euphrates in the east (and perhaps beyond) during the 2nd millennium BC. Other important political entities were Qatna in southern Syria, Karkamish and Mari along the Euphrates, and Urshum, not yet located, but probably somewhere in northern Syria (Klengel 1992: 49–80). Ugarit is mentioned in connection with trade relations with Crete (Klengel 1992: 77). Most rulers in the 2nd millennium BC northern Levant bore Amorite names, indicating the rise of new political elites at the beginning of the Middle Bronze Age (MBA) (Klengel 1992: 37–8; Akkermans and Schwartz 2003: 288–91).

The end of the MBA is generally linked to the military expeditions of the Hittite kings, Hattushili I and Murshili I, into northern Syria, resulting in the conquest and destruction of Aleppo (Klengel 1992: 80–3). This in turn enabled the rise of Mitanni (Ch. I.29), which led to a new political order in the northern Levant during the Late Bronze Age (LBA).

3 Archaeological Sources: State of Research, Terminology and Chronology

Due to the size of the region covered here, it comes as no surprise that our knowledge of the EBA and MBA is quite uneven. Lack of space does not allow for a detailed history of research, but in order to place the results obtained so far in a more general framework, at least some of the more important research projects (Figure 32.1), as well as some general trends in archaeological research, need to be mentioned.

Serious research on the EBA and MBA in Lebanon began in 1921 with the excavations at Byblos. While these produced a number of spectacular finds (Montet 1928; Dunand 1939, 1954/1958), inadequate excavation and recording strategies led to severe problems that continue to hamper our understanding of the site (Saghieh 1983; Thalmann 2008). After World War II several more important excavations were conducted in Lebanon. M. Chehab's excavations at Tell Hizzin in the Beqaa in 1949 and 1950 remained unpublished until more recently (Genz and Sader 2008), while those at Kamid el-Loz from 1963 onwards focused mainly on the LBA, producing little data for the earlier periods (Miron 1982; Marfoe 1995: 99–121). One important contribution of the Kamid el-Loz project, however, was a detailed survey of the entire Beqaa Valley (Marfoe 1995, 1998).

The Lebanese civil war (1975–90) disrupted archaeological work in the region. Thus, new results for the EBA and MBA only became available once peace had been established. Important projects have been conducted at Tell Arqa (Thalmann 2006, 2010), Tell Fadous-Kfarabida (Genz 2010), Sidon (Doumet-Serhal 2006, 2010) and Tell el-Burak (Sader and Kamlah 2010), all of which are located on the coastal plain of Lebanon. With the exception of the Akkar plain in north-

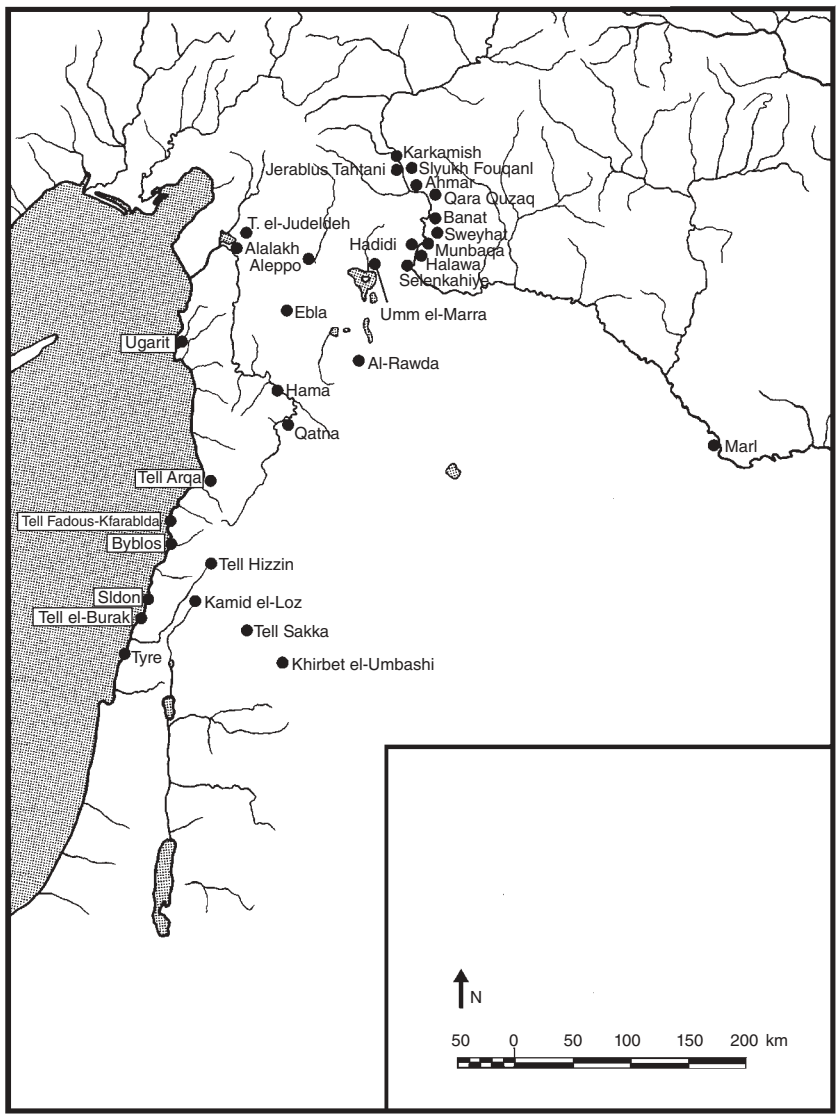

Figure 32.1 Map showing the location of Early and Middle Bronze Age sites in the Northern Levant mentioned in the text.

ern Lebanon (Bartl 2002; Thalmann 2006: 209–28), regional surveys are, unfortunately, almost entirely lacking.

In Syria, research on the EBA and MBA began in the 1930s. Of particular importance was the University of Chicago's Syro-Hittite Expedition to the Amuq plain (1933–8). This was the first systematic survey of the region and resulted in the recording of 178 sites and subsequent excavations at five of these. The stratigraphic sequence established by R.J. Braidwood, who subdivided settlement from

the beginning to the end of the 3rd millennium BC into 10 phases (Amuq A–J), has been extremely influential in the study of prehistoric western Syria (Braidwood and Braidwood 1960; Schwartz and Weiss 1992; Yener 2005). Around the same time, C.L. Woolley excavated Alalakh in the same region, with important results for the MBA and LBA (Woolley 1955b); a Danish expedition excavated Hama on the Orontes between (1931–8) (Fugmann 1958); and a French Mission worked at Tell Ahmar (Til Barsip) on the Euphrates (Thureau-Dangin and Dunand 1936). The French excavations at Tell Ras Shamra (Ugarit), initiated in 1929, mainly focused on the LBA and only explored the earlier levels in limited soundings (Schaeffer 1939; Contenson 1992). Of prime importance are the Italian excavations at Tell Mardikh, initiated in 1964 and ongoing ever since. The discoveries in Palace G (discussed above) have revolutionized our understanding of Bronze Age Syria (Matthiae 1981). The archaeological exploration of Syria was boosted by the construction of the Tabqa (1968–73) and Tishrin dams (1991–9) on the Euphrates. Although these dams resulted in the inundation of innumerable sites, they also led to an unprecedented number of rescue excavations, making Syria's Euphrates valley one of the best-explored regions in the entire Near East (Freedman 1979; Margueron 1980; del Olmo Lete and Montero-Fenollós 1999; Peltenburg 2007).

Other parts of Syria are, unfortunately, less well explored. In southern Syria, research on the Bronze Age started seriously only during the 1980s (Braemer et al. 2004). After a few preliminary soundings in the 1920s, a large-scale excavation was initiated at Tell Mishrife (ancient Qatna) in 1994 (Morandi Bonacossi 2007c). This led to renewed interest in this important part of Syria and a number of survey and excavation projects are now active in the Orontes Valley (Morandi Bonacossi 2007a: 233–68). Although the exploration of marginal regions such as the steppe southeast of Aleppo has only recently started, it has already led to the discovery of surprisingly dense and complex settlement systems, especially in the 3rd millennium BC (Castel 2007).

Given the vast area covered by the northern Levant and the uneven state of knowledge of its different sub-regions, it is not surprising that no unified terminology exists. While a subdivision of the EBA into four sub-periods (Early Bronze I–IV) is used for Lebanon and larger parts of western Syria (Mazzoni 2002), it has to be said that the earlier periods in this sequence are generally ill-defined. In western Syria the Amuq sequence defined by Braidwood is still widely used (Yener 2005: 193–201). In the Euphrates valley, on the other hand, a six-stage sequence has been developed (Cooper 2006b: 6–26; Porter 2007). The situation is only slightly better for the MBA, where a subdivision into an earlier and a later stage is generally accepted, but correlations between different sites are still being debated (Bourke 1993; Nigro 2000, 2002; Thalmann 2006: 14–16). Problems also concern absolute chronology. Historical dates are few and notoriously difficult to correlate with archaeological contexts. The growing number of radiocarbon dates in combination with significant improvements in sampling

strategies and calibration will undoubtedly become the most powerful tool for the creation of an absolute chronology for the region (Schwartz and Weiss 1992; Thalmann 2006: 230–1; Genz et al. 2009: 81–2).

4 The Beginning of the Early Bronze Age

The beginning of the EBA in Lebanon and western Syria is subject to a number of problems. In Lebanon some of these are terminological. There is a growing suspicion that periods variously labeled "Eneolithic" or "Chalcolithic" should, at least in part, be attributed to the EB I (Genz in press). Excavations in the Eneolithic levels at Byblos and at Sidon Dakerman have revealed oval houses, one of the hallmarks of the EB I in the southern Levant (Braun 1989). Pottery and lithics also attest to close relations between the later 4th millennium BC cultures of Lebanon and the southern Levant (Genz in press). While the Byblos data are fraught with problems and the Sidon Dakerman excavations are only published in a very preliminary form (Saidah 1979), they still enable some general observations to be made. Settlements do not show any evidence of planning and public buildings are largely absent, the only exception being a building with a possibly religious function near the well at Byblos (Genz in press). Sidon Dakerman was enclosed on its southern side by a wall (c.2 meters wide and 3 meters high, exposed over a length of 60 meters) made of compact, clayey soil with façades consisting of undressed stones, the sloping nature of which make it unlikely that it served as a fortification. It probably represents a simple enclosure wall. Domestic dwellings are generally mono-cellular, often oval buildings. Burials, often in large *pithoi* (storage jars), were generally located under the floors of buildings or in the open spaces between them (Artin 2010).

The late 4th millennium BC in western Syria is even less well known. This period is represented by the Amuq F assemblage (Braidwood and Braidwood 1960: 226–58; Yener 2005: 195–6) and the earlier assemblages of Hama K (Fugmann 1958: 24–33; Mazzoni 2002: 71–2). Pottery showing Late Uruk influences is attested as far west as the Amuq plain (Yener 2005: 195).

Along the Euphrates Valley the later 4th millennium BC is characterized by a massive presence of southern Mesopotamian, Uruk cultural elements (Akkermans and Schwartz 2003: 181–210). However, here we encounter a terminological problem, as the so-called Uruk colonies in the Euphrates region are generally attributed to the Late Chalcolithic period, whereas the term EBA is only used for the period after the collapse of the Uruk colonies in the late 4th millennium BC.

5 The First Half of the 3rd Millennium BC

We are on somewhat firmer ground from the beginning of the 3rd millennium BC onwards. There is a general consensus that the Uruk colonies disappeared

without leaving any obvious traces in the cultural development of the northern Levant. However, the previously prevailing view that the early 3rd millennium BC represented a phase of cultural decline characterized by a marked "ruralization" (Akkermans and Schwartz 2003: 211) has been questioned in light of recent discoveries (Cooper 2006b: 279).

Urban settlements emerged in almost all parts of the northern Levant from the beginning of the 3rd millennium BC onwards. However, the term "urban settlement" is not without its problems, and the truly urban nature of many 3rd millennium BC settlements has been recently questioned (Chesson and Philip 2003). Yet, if we do not look for comparisons among the undoubtedly more complex settlements of southern Mesopotamia, but rather analyze developments on a regional scale, the term "urbanization" seems appropriate.

Early 3rd millennium BC settlements in the northern Levant rarely exceeded 5 hectares (Cooper 2006b: 56), but were characterized by a densely built-up interior. As attested by the fortification walls at Halawa B and Tell Habuba Kabira in the Middle Euphrates region (Cooper 2006b: 71) as well as Byblos and possibly Tell Fadous-Kfarabida in Lebanon (Genz 2010: 109), fortifications seem to have become a regular feature of larger settlements from the early 3rd millennium BC onwards. Public buildings, mainly of a religious nature, include the temples at Halawa B and Qara Quzaq on the Euphrates (Cooper 2006b: 143–50). Although their exact stratigraphic position is often difficult to establish, some of the temples at Byblos originated in the early 3rd millennium BC (Saghieh 1983; Lauffray 2008). These were generally one-room structures, often built on a podium and surrounded by a *temenos* (Greek term for a "holy precinct") wall (Cooper 2006b: 143–50). The Qara Quzaq temple seems to be associated with an elite tomb (Cooper 2006b: 149). Domestic dwellings from the early 3rd millennium BC have been uncovered at a number of sites, but these include few complete building plans or larger exposures. In Lebanon, Tell Arqa (Thalmann 2010: 88–9), Tell Fadous-Kfarabida (Genz 2010: 104–8), and Byblos (Lauffray 2008) have densely built-up domestic quarters. In the Orontes Valley levels K8–6 at Hama present a similar picture (Fugmann 1958: 29–33). In the Euphrates region domestic architecture is known at Halawa B, Tell Habuba Kabira, and Shiyukh Fouqani (Cooper 2006b: 89–98). Single-room houses are attested in the earliest levels at Halawa B and Shiyukh Fouqani, but thereafter buildings seem to have developed into more complex, multi-room structures with courtyards, separated by narrow streets. The inventories retrieved suggest a wide variety of domestic activities, mostly connected to food storage, preparation, and consumption, but craft activities such as textile production and metallurgy are also attested, e.g. at Halawa B (Cooper 2006b: 91). A pit-house, tentatively connected to semi-sedentary or transhumant elements of the society, was excavated at Tell es-Sweyhat (Cooper 2006b: 98–9).

Unfortunately, virtually nothing is known about early 3rd millennium BC burial customs in Lebanon and coastal Syria. Child burials in ceramic vessels

under houses are known in Hama K (Fugmann 1958: 26–7) and a large number of tombs have been discovered in the Euphrates region. A variety of different burial types are attested, ranging from simple pits to stone cists and *pithos* burials. Tombs were generally located outside settlements. Funerary offerings consisted of pottery vessels, but metal objects, especially dress pins and weapons, are attested as well. There seems to be little evidence of marked social differentiation, however (Cooper 2006b: 207–12). The only evidence of a truly monumental, early 3rd millennium BC burial structure is tomb L-12 at Qara Quzaq, where a young adult female and a child were buried in a free-standing mortuary structure together with a rich assemblage of funerary goods including pottery, metal implements, and beads (Cooper 2006b: 224–225).

Subsistence economy was based on a mixed strategy relying on grain, tree crops (such as grapes and olives), and animal husbandry, with sheep and goat generally dominant (Cooper 2006b: 32–8; Genz et al. 2009: 84–94, 110–16). Pastoralism was practiced in the more marginal regions (Cooper 2006b: 38–41). Fishing and other marine resources must have been more important than hitherto acknowledged in Lebanon (Genz et al. 2009: 85–90).

Craft specialization is attested by mass-produced pottery, generally manufactured on a fast wheel (Mazzoni 2002: 73; Akkermans and Schwartz 2003: 229). One notable exception, however, is the so-called Red-Black Burnished Ware, which appeared in western Syria in the early 3rd millennium BC, a handmade ware characterized by its red and black burnished surface. A restricted number of types, mainly jugs, cups, and bowls, is known, but stands, lids, and portable hearths are also attested. A close resemblance to the Caucasian and east Anatolian Karaz ware has long been noted, and traditionally the spread of this pottery to the Levant has been explained as a result of migration from the northeast. While these simple diffusionist or migrationist theories have come under attack in recent years (Philip 1999; Akkermans and Schwartz 2003: 230), few convincing alternatives have been offered.

The practice of applying cylinder seal impressions to storage and transport vessels (Figure 32.2) began in the early 3rd millennium BC. While the precise meaning of these impressions is unclear, they are generally interpreted as signs of growing administrative complexity, with goods being marked for special purposes or for trade (Genz in press). The issue of complex transactions involving marking, quantification, and even weighing is highlighted by the recent discovery of a small scale-beam (Figure 32.3) made out of bone at Tell Fadous-Kfarabida in Lebanon (Genz 2011).

The growing use of metal is another indication of craft specialization. Tombs in the Euphrates region were often richly equipped with metal weaponry and jewelry (Akkermans and Schwartz 2003: 228; Cooper 2006b: 166–75; Philip 2007). The metal figurines from Tell el-Judeideh, dated to Amuq G or early H, demonstrate the exceptional skills of some metalworkers (Braidwood and Braidwood 1960: 300–13; Seeden 1980: 7–10).

Figure 32.2 Early Bronze Age cylinder seal impression on a storage jar from Tell Fadous-Kfarabida.

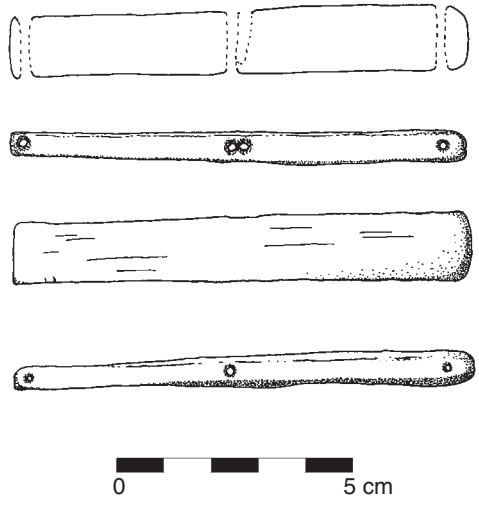

Figure 32.3 Scale-beam made of bone from Tell Fadous-Kfarabida.

6 The Late 3rd Millennium BC

This period witnessed a marked acceleration of the process of urbanization in the northern Levant, observable in both the foundation of many new settlements and the growth of established ones. Hence, this period has been termed the "second Urban Revolution" (Akkermans and Schwartz 2003: 233); but, as we have already seen, its origins can certainly be traced back to the early 3rd millennium BC. Site sizes are not always clear, especially when later occupation obscure 3rd millennium BC levels, but in many cases the extent of these settlements can be established with reasonable accuracy. Exceptional sites include Ebla with 60 hectares (Akkermans and Schwartz 2003: 235), Qatna with 30 hectares (al-Maqdissi 2007: 22), Umm el-Marra with 25 hectares (Schwartz 2007b: 40), and, along the Euphrates, Tell Hadidi with 56 hectares, Tell es-Sweyhat with 40 hectares, and Tell Banat with 30 hectares (Cooper 2006b: 57). Most sites, however, covered less than 5 hectares (Cooper 2006b: 56; Thalmann 2006: 210–18, 2007: 220–3). Detailed surveys allow the reconstruction of a three-tier settlement hierarchy – e.g., in the Akkar plain (Thalmann 2007: 220–3) – and demonstrate the close proximity of settlements to each other, indicating that all available arable land must have been intensively cultivated. The likelihood of marked population growth is also suggested by the fact that marginal, previously uninhabited regions such as the Syrian steppe, where cities such as al-Rawda were established (Castel 2007), became densely settled.

Late 3rd millennium BC urban sites show clear evidence of planning. This is especially obvious in the case of the perfectly circular settlements of Qatna and al-Rawda (Castel 2007: Fig. 2), but also in the standardized house plans of Halawa A and Tell Hadidi (Cooper 2006b: 106). At Tell Arqa even multistory buildings are attested (Thalmann 2010: 95–8). Fortifications were typical of all urban settlements (Cooper 2006b: 69–88). Large sites, such as Tell es-Sweyhat, Umm el-Marra, and Ebla, had elevated citadels, where larger religious and secular buildings were located, with separate fortifications (Cooper 2006b: 74–8). Non-residential buildings became more prominent. Traditionally, these have been identified as temples and palaces, but "large-scale secular building" (Cooper 2006b: 126) seems more appropriate than "palace," as these buildings clearly did not serve exclusively as residences for the ruling elite.

The most common type of religious building was the temple *in antis*, consisting of a rectangular or square main room and an open foreroom. Examples are attested at Halawa A, Tell Kabir, and Qara Quzaq in the Euphrates Valley (Cooper 2006b: 150–60), as well as at Ebla (Matthiae 2010: 3–4), al-Rawda (Castel 2007: 286–7), and Byblos (Lauffray 2008: 219–20, 248–51, 331–4, 415–16).

The most impressive secular building is certainly Palace G in Ebla. This building, unfortunately only partly excavated, is situated on the western slope of the acropolis. It consists of a large courtyard with a tower containing a stairwell in

its northeastern corner, as well as storage rooms and administrative quarters. A monumental stairway leads up to the acropolis, where the residential quarters of the royal family are assumed to have been. The building contained a wealth of precious materials, including a number of composite statues made of wood, semi-precious stones, and gold foil as well as lumps of unworked lapis lazuli (Matthiae 1981: 65–105; 2010: 8–14; Akkermans and Schwartz 2003: 235–44). In area P south, a public building, possibly connected to the royal palace, was discovered which mainly served for food processing but also contained a goldsmith's workshop (Marchetti and Nigro 1995–6). As mentioned above, approximately 17,000 cuneiform tablets were discovered in Palace G. These are of prime importance not only for reconstructing the political history of northern Syria in the 24th century BC, but also for the light they shed on social and economic conditions. The economic texts illustrate the role of the royal palace in the circulation of various goods in society, ranging from basic agricultural products to textiles and luxury objects.

While no other site in the northern Levant has so far produced a building comparable in size to Palace G in Ebla, a complex of buildings on the acropolis of Tell es-Sweyhat includes areas for storage, metal-working and large-scale food-processing. With wall paintings as well, this is certainly the most likely candidate for a palatial building in the Euphrates region (Cooper 2006b: 134–41). A different type of public building is represented by the so-called Southern Mansion at Selenkahiye on the Euphrates. Although much smaller than the palatial buildings discussed above, its unusual layout and the fact that it contained a large number of clay sealings suggests an administrative or economic function (Cooper 2006b: 130–4). Buildings 6 and 7 at Tell Banat also stand out due to their layout and size. Their close proximity to several exceptional tombs has led to the belief that these structures may have been connected with mortuary rituals (Cooper 2006b: 128–30).

One particular feature of the late 3rd millennium BC in northern Syria is the presence of monumental tombs. In the Euphrates valley such tombs are attested at Jerablus-Tahtani (Figure 32.4), Tell Ahmar, Tell Hadidi, and Tell Banat (Cooper 2006b: 225–39). Further to the west are the elite burial complex on the acropolis of Umm el-Marra (Schwartz 2007b) and the unfortunately empty burial complex beneath Palace G at Ebla (Matthiae 1997a). These tombs are characterized by their monumental size, their prominent position inside the settlements, and their rich funerary goods – including large quantities of pottery vessels, metal weapons, gold and silver objects and items made of exotic materials such as lapis lazuli (Akkermans and Schwartz 2003: 244–50; Cooper 2006b: 225–39; Schwartz 2007b). All contained multiple interments and clearly represent the burial places of elite members of society. The emphasis on the visibility of these structures and the fact that offering ceremonies are attested at these tombs – sometimes long after the last interment – suggest that ancestor cults were very important (Peltenburg 1999b; Cooper 2006b: 236; Schwartz 2007b).

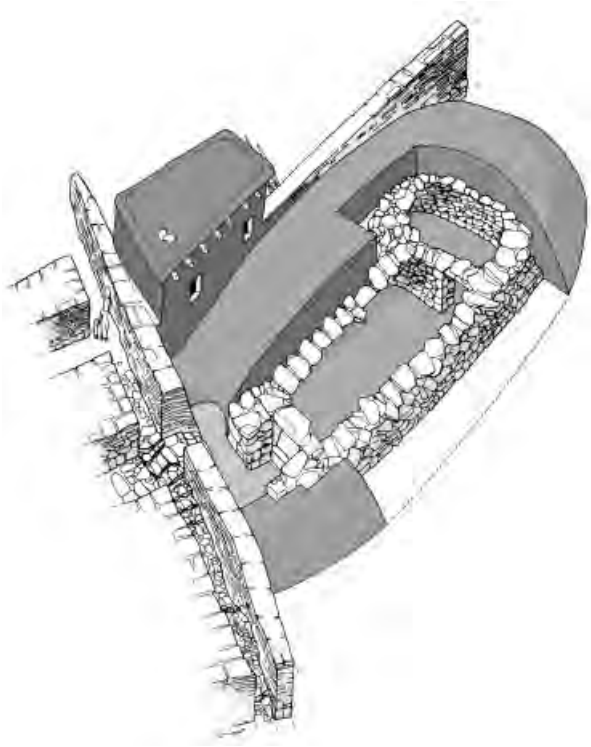

Figure 32.4 Reconstruction of the monumental tomb 302 at Jerablus-Tahtani (courtesy E.J. Peltenburg, Jerablus Tahtani Project).

With a diameter of c.100 meters and a height of 20 meters, the so-called White Monument at Tell Banat is even more monumental than the abovementioned elite tombs. While the excavation of this artificially heaped-up structure provided no evidence for actual burial chambers, the presence of several deposits of human bones together with pottery vessels and animal bones suggests that it served a funerary purpose. It has been proposed that the burial rites indicate a corporate society and that the people buried there had a tribal and/or pastoral background (Cooper 2006b: 250–254).

Ordinary tombs are amply attested in the Euphrates region by pit burials, cist graves, stone chambers, *pithos* burials, and shaft graves, mostly in large, extramural cemeteries, but occasionally under house floors within settlements (Akkermans and Schwartz 2003: 251–3; Cooper 2006b: 206–23). Even among these ordinary tombs, differences in social status can be discerned, as some burials contained a wealth of objects including metal items, while others contained only pottery.

The increasing importance of metal objects is notable (Akkermans and Schwartz 2003: 271; Philip 2007: 192–3) and finds at coastal sites like Byblos and Tell Arqa demonstrate the strong influence of north Syrian and north Mesopotamian

metalwork (Gernez 2006, 2008). The presence of attached specialists under the control of elites is suggested by metal workshops in large public buildings at Ebla (Marchetti and Nigro 1995–6) and Tell es-Sweyhat (Cooper 2006b: 172–3). Mazzoni (2003: 180–1) claimed that the manufacture, storage, and consumption of prestige objects was tightly controlled by the elites. However, a jewelry mold found in an ordinary domestic dwelling at Tell Arqa (Gernez 2008: 223–4), comparable to the objects in the elite tombs at Umm el-Marra, challenges this view.

Administrative control of various products by institutions under elite control is not only implied by the Ebla archives, but by the continued use of cylinder seals, especially for marking certain types of vessels. The largest collections of such seal impressions in the late 3rd millennium BC northern Levant are from Ebla (Mazzoni 1992; 2003: 183) and Hama (Matthews 1997c). While the old practice of sealing transport jars is still attested (e.g., by a jar from a tomb at Giza in Egypt that probably originated on the Lebanese coast; Kantor 1992: 20), most seal impressions were now found on coarse-ware jars and pots used for short-distance transport. A detailed study of the seal impressions from Ebla has enabled Mazzoni (2003: 183) to distinguish two different seal styles. Impressions on the rims of coarse-ware pots generally show geometric motifs or herding scenes, continuing earlier iconographic traditions. It is believed that the seals used to make these impressions were those of village potters marking tribute or other goods sent from the countryside to urban centers (Mazzoni 1992: 65–6; 2003: 183; Matthews 1997c: 141–2). The seals used in Palace G at Ebla, on the other hand, mostly feature contest or banqueting scenes based on southern Mesopotamian motifs (Mazzoni 2003: 183) and clearly belonged to elites.

The growing importance of long-distance trade is highlighted by the large number of Egyptian objects at Byblos (Saghieh 1983: 99; M. Wright 1988) and Ebla (Scandone Matthiae 1997: 115–17), as well as by Levantine pottery in Old Kingdom Egyptian tombs (Kantor 1992: 20–1). Connections to Mesopotamia are not only attested in the Ebla archives, but also in iconography, especially of elite cylinder seals (Mazzoni 2003: 183). The late 3rd millennium BC witnessed the appearance of true tin bronzes (Palmieri and Hauptmann 2000: 1262), confirmed also by textual evidence from Ebla, where alloying practices are described in detail (Palmieri and Hauptmann 2000: 1260). Tin, together with lapis lazuli, probably originated in Central Asia and reached the northern Levant via Mesopotamia. The discovery of c.37 kilograms of unworked lapis lazuli in Palace G at Ebla (Pinnock 2006) highlights the importance of elites in these long-distance trade networks. The growing importance of trade in precious commodities such as metals or precious and semi-precious stones is further underscored by the emergence of standardized metrological systems, demonstrated by the growing number of weights from the northern Levant, Mesopotamia, and as far away as the Aegean (Rahmstorf 2006; Genz 2011).

Unfortunately, few botanical and zoological analyses are available, a fact which severely hampers our understanding of the subsistence economy. Whereas emmer

wheat seems to have been the preferred crop on the coastal plain (Thalmann 2007: 223), barley was dominant at Qatna and Umm el-Marra (Schwartz et al. 2000: 439; Peña-Chocarro and Rottoli 2007: 125–6), probably because of its greater tolerance of drought. The cultivation of olives is well attested at Tell Arqa (Thalmann 2007: 224) and its importance is highlighted by the large quantities of olive oil mentioned in the Ebla texts. Grapes and figs were common throughout the northern Levant (Peña-Chocarro and Rottoli 2007: 128–9; Thalmann 2007: 224). Among the domesticated animals, sheep and goat were dominant, followed by cattle (Schwartz et al. 2000: 433). Equids, both wild and domestic, play an important role at Umm el-Marra (Schwartz et al. 2000: 434).

Toward the end of the 3rd millennium BC some parts of the northern Levant experienced a marked decline, though not as severe and widespread as in the southern Levant at this time. On the Lebanese coast, occupation at Sidon was interrupted during the last centuries of the 3rd millennium BC (Genz in press), while at Byblos and Tell Arqa settlement was continuous (Saghieh 1983: 93–8, 122–5; Thalmann 2006: 215; 2008). Nor do the western parts of Syria seem to have been affected by this decline. After the destruction of Palace G in the 24th century BC, Ebla recovered quickly, remaining an important urban settlement until the beginning of the MBA (Dolce 2002; Mazzoni 2003: 178). In the Euphrates region, on the other hand, a decline is noticeable. Some sites, such as Jerablus-Tahtani and Tell Banat, were completely abandoned, while many others declined markedly in size (Cooper 2006b: 264–7).

Explanations for this decline vary considerably. Climatic changes have been suggested, but man-induced environmental degradation – e.g., an overuse of resources around the urban settlements – cannot be excluded (Akkermans and Schwartz 2003: 282–7).

7 The Middle Bronze Age

There seems to be a general consensus that the MBA in the northern Levant began c.2000 BC (Matthiae 1997b: 379; Nigro 2000: 1189; 2002: 101; Akkermans and Schwartz 2003: 291). M. Bietak (2002: 42) proposed a considerably later date – c.1900 BC – but this is at odds with the – unfortunately still too rare – radiocarbon dates from the northern Levant (Thalmann 2006: 230–1) and Egypt (Bronk Ramsey et al. 2010). The end of this period is generally attributed to the military campaigns of the first Hittite kings Hattushili I and Murshili I in northern Syria (Klengel 1992: 48–9; Matthiae 1997b: 379; Akkermans and Schwartz 2003: 326). Most scholars agree on a subdivision into an earlier MB I (c.2000–1800 BC) and a later MB II (c.1800–1600 BC) (Akkermans and Schwartz 2003: 291; Thalmann 2006: 14–16).

In comparison to the southern Levant, there are definitely stronger indications of cultural continuity between the EBA and MBA in the northern Levant. Most

MBA sites in the northern Levant were established on previously occupied locales (Akkermans and Schwartz 2003: 321). However, in contrast to the southern Levant, where the MBA marked the culmination of urbanism, a contraction of settlement in the earlier MBA is noticeable in the northern Levant (Akkermans and Schwartz 2003: 294). This can be clearly observed at Sidon, Tell Fadous-Kfarabida, and Tell Arqa on the Lebanese coast where, in areas densely built-up during the EBA, only tombs and pits appeared in the MBA (Thalmann 2006: 33–50; 2010: 98–9; Doumet-Serhal 2010: 117–21; Genz 2010: 109). The same pattern is also evident in the Euphrates valley, where a noticeable contraction of MBA settlement is obvious at Tell Hadidi (Dornemann 1977: 113) and Tell es-Sweyhat (Zettler 1997: 4). Only a few sites, such as Byblos with 5 hectares (Burke 2008: 192–7) and Ebla with 56 hectares (Matthiae 1997b; Matthiae 2002; Burke 2008: 198–204), retained their former size. The exception is Qatna, which grew from 30 hectares in the late EBA to more than 100 hectares in the MBA (al-Maqdissi 2007: 22). Unfortunately, virtually nothing is known about sites like Aleppo or Karkamish, which, according to textual evidence, played a prominent role in the MBA of the northern Levant. Despite the general decline in settlement size and numbers, there is no question that we are dealing with urban societies in the northern Levant during the MBA.

One characteristic element of the larger MBA sites is their massive fortifications, consisting of a rampart, a *glacis* (slope running down from a fortification wall), and often a moat (Burke 2008). At Ebla, the ramparts were at least 20 meters high and 40–50 meters wide at the base, with small fortresses at regular intervals on top (Matthiae 1997b: 382; 2002). Gates were mainly of the six-pier type, but other sorts are occasionally attested (Burke 2008: 68–71).

It is assumed that the interiors of these cities were densely built-up. So far there is no conclusive evidence for the so-called "hollow cities" that seem to characterize northern Mesopotamia (Akkermans and Schwartz 2003: 321). The best evidence for the interior layout of a northern Levantine city comes from Ebla (Matthiae 1981: 112–34; 1997b; Akkermans and Schwartz 2003: 298–302). The acropolis seems to have been occupied exclusively by public buildings (Palace E and Temple D). A ring of further public buildings surrounded it and the barely investigated domestic quarters must have been located in the space between these and the fortifications.

Three MB II palaces have been uncovered so far at Ebla: Palaces E on the Acropolis, Q to the west and P to the north of it. The earlier Archaic and Intermediate Palaces were located northwest of the Acropolis in area P (Akkermans and Schwartz 2003: 295). MBA palaces are also known at Alalakh in level VII (Woolley 1955b: 91–106; Akkermans and Schwartz 2003: 304) and Tell Sakka near Damascus (Akkermans and Schwartz 2003: 318). A palatial building has recently been partly uncovered in the eastern part of the acropolis at Qatna (Morandi Bonacossi et al. 2009: 61–73). The construction date of the Royal Palace in area G at Qatna is still controversial. While Pfälzner and Novák favor

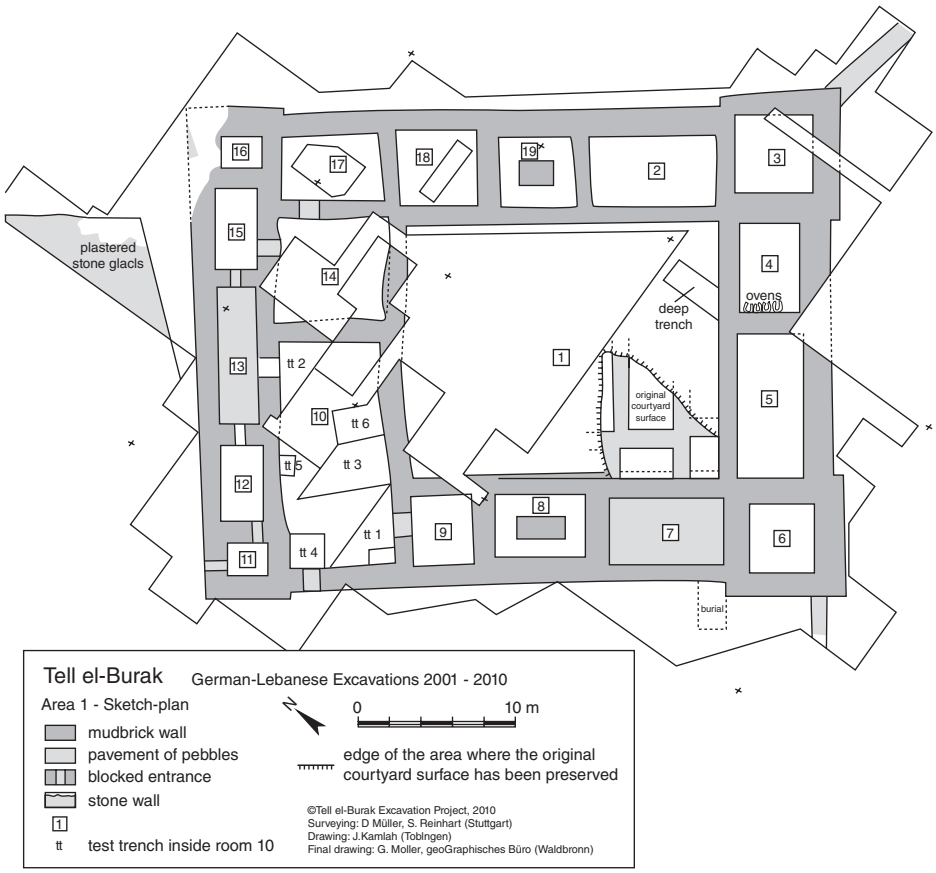

Figure 32.5 Plan of the Middle Bronze Age building at Tell el-Burak (courtesy J. Kamlah and H. Sader, Tell el-Burak Project).

a date at the beginning of the MBA (Novák 2004), Morandi Bonacossi (2007a) prefers to place its beginning at the transition from the MBA to the LBA. A fortified palace was recently excavated at Tell el-Burak, south of Sidon, on the Lebanese coast. It is an isolated building with 4 corner towers and 18 rooms grouped around a rectangular courtyard (Figure 32.5). The building was erected on an artificial hill. The designation of this building as a palace stems from the fact that, in addition to its fortified nature, the largest room was adorned with Egyptianizing wall paintings (see below). It is likely that this isolated building was connected to Sidon, 9 kilometers to the north (Sader and Kamlah 2010).

All the palatial buildings excavated thus far in the northern Levant are characterized by many rooms grouped around one or more courtyards. Stairwells suggest the presence of at least one upper story. These buildings had several functions. Besides serving as residences for kings and members of the royal family,

they also had economic, administrative, and probably ceremonial functions. This is attested by different functional units such as large reception halls, kitchen areas for large-scale food preparation, and storage units. So far, the only archive known comes from Alalakh. In the palaces at Alalakh, Tell el-Burak, and Tell Sakka, special rooms were adorned with wall paintings. While Aegean influences have been seen in the Alalakh paintings, those at Tell el-Burak and Tell Sakka were clearly inspired by Egyptian examples (Akkermans and Schwartz 2003: 304, 318; Sader and Kamlah 2010: 136–8). Together, they shed light on international connections in an elite context during the MBA.

Several temples are attested at Ebla (Matthiae 1981: 114–32; 1997b: 387–94; 2010: 5–6). Stelae discovered nearby led Matthiae (1997b: 388) to associate Temples D and P2 with the worship of Ishtar, Temple B1 with Resheph, and Temple N possibly with the sun god Shamash. Further temples have been excavated at Alalakh in Level VII, Tell Qara Quzaq, and possibly Tell Munbaqa (respectively, Akkermans and Schwartz 2003: 305, 306, 308). Lastly, several temples have been discovered at Byblos, the most prominent of which are the so-called temple of Balaat Gebal and the Temple of the Obelisks (Montet 1928: 45–59; Dunand 1939: 79–81; 1954/1958: 644–652).

The temples of Ebla, Alalakh and Qara Quzaq seem to represent the most common type, the temple *in antis* with an open forehall, continuing a type already attested during the later 3rd millennium BC (see above). Due to insufficient documentation and publication, a definitive reconstruction of the stratigraphy and architectural development of the Byblos temples is extremely difficult. However, it seems clear that they do not represent the typical temple *in antis*. A unique feature at Byblos is the large number of jars buried in and around the temples containing weapons, metal figurines, and jewelry (Montet 1928: 61–139; Dunand 1939: 81–4; 1954/1958: 271–2; Negbi and Moskowitz 1966; Seeden 1980: 36–102). Rather than being regarded as foundation deposits, they are now thought to represent offerings buried over a long period of time from the late 3rd millennium BC well into the MBA. Several other buildings at Ebla also seem to have had a religious function. Because of its proximity to Temple P2, monument P3 in the Lower Town, a large stone platform with a small inner court, has been associated with the worship of Ishtar (Matthiae 1997b: 391–4), and Building B2 has been interpreted as a sanctuary for an ancestor cult (Matthiae 1997b: 389–91).

MBA domestic architecture in the northern Levant is poorly known. Large-scale exposures of domestic quarters are only attested at Hama in Level H (Fugmann 1958: 86–116) and Tell Halawa A (Akkermans and Schwartz 2003: 307–8). Further domestic buildings have been excavated at Tell Arqa (Thalmann 2006: 54–5; 2010: 99–100), Ebla (Matthiae 1997b: 394–6), and Ugarit (Castel 2000).

MBA tombs are well represented in the northern Levant. The variety of both tomb types and grave goods, ranging from extremely wealthy "royal tombs" to

very poor tombs without any objects, clearly indicates a hierarchical social structure (Akkermans and Schwartz 2003: 322). Both intra- and extramural burials are attested, as well as individual and multiple interments. Royal tombs so far are only attested beneath Palace Q at Ebla (Matthiae 1997b: 396–8) and at Byblos (Montet 1928: 143–214). These tombs stand out because of their prominent locations in the settlement as well as their contents, which include prestige weapons, vessels, and jewelry made of gold, silver, and precious stones, Egyptian imports, and lastly – in the case of Byblos – monumental stone sarcophagi. Ordinary tombs are represented by a wide variety of types: rock-cut chambers, stone-lined cists, and simple pits, while children were most frequently interred in jars. Grave goods varied considerably according to social status. Pottery vessels are most commonly attested, complemented in richer graves by jewelry and other objects. A special category mainly attested in the early MBA are the so-called "warrior burials," in which the deceased were buried with bronze daggers, axes, and spearheads (Philip 1995; Thalmann 2006: 34–6; Doumet-Serhal 2010: 118). The richness of their funerary goods suggests that these were the tombs of high-ranking warriors rather than common soldiers.

There is ample evidence of craft specialization. This is especially clear in the MBA pottery from the northern Levant. While the pottery was less well fired than in the 3rd millennium BC, MBA vessels were generally wheel-made and standardized over a wide geographical area (Nigro 2002; Dornemann 2007). Production workshops have been found at Tell Arqa (Thalmann 2006: 47–50; 2010: 99) and Qatna (Morandi Bonacossi 2007b: 73). Along with the common wares were a number of special products which were widely traded, either because of their attractiveness or their special contents. These include so-called Tell el-Yahudiyeh juglets (Nigro 2003: 354–5; Aston 2008), painted wares such as the Syro-Cilician, and the Levantine Painted Ware (Bagh 2003) and various "metallic" wares (Nigro 2003: 349–60). In addition to these local ceramics, imported foreign pottery demonstrates the growing importance of international trade. Cypriote imports are amply attested on coastal sites in the northern Levant (Eriksson et al. 2000: 209; Charaf-Mullins 2006: 174–6; Doumet-Serhal 2010: 123), and occasionally inland – e.g., at Tell Nebi Mend on the upper Orontes (Eriksson et al. 2000). Minoan pottery has been found at Ugarit, Qatna, Byblos, Beirut, and Sidon (Merrillees 2003; Doumet-Serhal 2010: 122–3). Egyptian pottery has only recently been recognized in the northern Levant. Most of the evidence comes from Sidon (Forstner-Müller and Kopetzky 2009) but further attestations are expected to be confirmed as pottery from other coastal sites is analyzed.

The growing importance of metal artifacts in the MBA has already been noted in connection with the warrior burials. According to the few analyses available of MBA metal artifacts from the northern Levant, bronze was common (Palmieri and Hauptmann 2000: 1262–4; Leroux et al. 2003). This is consistent with evidence from the Kültepe and Mari archives, where trade in tin is frequently

mentioned (Muhly 1995: 1507–11). In addition to tools, weapons, and jewelry (Philip 1989; Gernez 2008), large quantities of metal figurines are attested, especially at Byblos (Seeden 1980: 36–102). The production of many of these items in the northern Levant is confirmed by the discovery of molds at Byblos (Seeden 1980: Pl. 131:8–10), Tell Arqa (Gernez 2008: 222–5), and Ebla (Festuccia 2000). Along with functional weapons, prestige objects made out of or inlaid with gold have been discovered in the Royal Tombs and in the deposits in the Obelisk Temple at Byblos (Montet 1928: 173–8; Dunand 1954/1958: 693–7). The tomb of a metalworker probably attached to the elite was discovered at Ebla (Nigro 2003: 345–9).

Impressions on clay tablets and bullae as well as actual cylinder seals show that seals were widely used in administration (Collon 1975; Matthiae 1997b: 409–10; Akkermans and Schwartz 2003: 305). Alongside cylinder seals, Egyptian scarabs first appeared in the Levant during the MBA. The oldest scarabs (12th Dynasty, 1983–1778 BC) are attested at Byblos in the so-called Montet Jar (Ben-Tor 2003: 240). During the later 12th Dynasty, scarabs became more popular, both in Egypt and the Levant, and from the 13th Dynasty (1777–1625 BC) onward, local Levantine production is attested (Ben-Tor 2003: 240–6). The frequent occurrence of scarabs in tombs suggests that they were mostly used as amulets.

Monumental stone sculpture consisting of life-sized statues, stelae, and decorated basins is attested at Ebla (Matthiae 1997b: 399–405). Besides these local artworks, Middle Kingdom Egyptian statues also appear – e.g., at Ugarit (Schaeffer 1939: 20–2), Qatna (Helck 1971: 68), and Tell Hizzin (Genz and Sader 2008: 184–5). Detailed studies of the inscriptions on these statues suggest that they were made and originally used in Egypt, and only later arrived in the Levant, probably during the Second Intermediate Period (Helck 1971: 68–71; Genz and Sader 2008: 198). Nevertheless, strong Egyptian influence on the northern Levant during the Middle Kingdom is attested by a variety of Egyptian imports (Helck 1971: 68–71; Scandone Matthiae 1997: 417–25; Ben-Tor 2003).

Data for the subsistence economy are sparse. At both Qatna (Peña-Chocarro and Rottoli 2007: 126) and Umm el-Marra (Schwartz et al. 2000: 439–47) barley was dominant, followed by wheat and various pulses. Domesticated animals are mainly represented by sheep and goat (De Grossi Mazzorin and Minniti 2000), and at Umm el-Marra and Qatna the percentage of cattle declined in comparison to the EBA (Schwartz et al. 2000: 433–4; Vila and Gourichon 2007: 163). The age-at-death of sheep suggests their use in wool production (De Grossi Mazzorin and Minniti 2000: 313). At Umm el-Marra a high percentage of onager and gazelle bones is noticeable during the MBA, suggesting the specialized hunting of steppe animals (Schwartz et al. 2000: 435–7). The first evidence of domestic horse appeared in the northern Levant during the MBA (De Grossi Mazzorin and Minniti 2000: 315; Schwartz et al. 2000: 434).

8 Conclusions

The evidence presented above of developments in the northern Levant from roughly the mid-4th to the mid-2nd millennium BC remains necessarily incomplete. This reflects the uneven pattern of research and the fact that many areas remain inadequately explored. Furthermore, earlier excavations often lacked the chronological precision and documentation needed to track social and economic developments in detail. Further work in this region will undoubtedly refine and alter many of the conclusions drawn here.

Nevertheless, the picture that emerges is one of increasing social complexity linked to the beginning of urbanization. Interestingly, the Uruk colonies established during the mid-/late 4th millennium BC along the Euphrates seem to have had no noticeable effect on the urbanization process in the 3rd millennium BC. Rather, this seems to have been a local development in the northern Levant. In contrast to the southern Levant, there seems to have been no major decline of urban settlement at the end of the 3rd millennium BC, and in many northern Levantine sites a smooth transition from the EBA to the MBA is noticeable. These urban settlements were characterized by the presence of fortifications, public buildings, and some evidence of planning. Social stratification is obvious from the burial record. Elite tombs, characterized by their monumental structure, precious grave goods, and prominent location within settlements, first appeared in the Euphrates region in the 3rd millennium BC, before spreading to other parts of the northern Levant. The presence of valuable objects in these tombs has been interpreted as a sign of a wealth finance-based economy (Akkermans and Schwartz 2003: 232). Craft specialization is amply attested in the archaeological record during the EBA and MBA, mainly in metal and pottery production, but the Ebla archives suggest that textile production was also organized on a grand scale. Evidence of administrative complexity is first and foremost provided by the textual evidence from the EBA archives of Ebla and the MBA archives of Mari and Alalakh. The archaeological record only offers some tantalizingly small glimpses of administration in the form of seal impressions.

Most difficult is the reconstruction of political systems. Traditional approaches suggest the existence of city-states ruled by elites with a strict settlement hierarchy in which the importance of a site is reflected in its size (Marfoe 1998: 115–28; Thalmann 2006: 209–18). While this finds some support in the Ebla and Mari archives, other suggestions have been proposed as well. Cooper (2006b: 58–63) prefers the term "heterarchy" to hierarchy, as some small sites contain monumental buildings and tombs as well. Political structures may have contained heterarchical elements, with corporate or tribal roots (Cooper 2006b: 282).

As stated above, much of the northern Levant remains inadequately studied. Radiocarbon dates as well as faunal and botanical data are still scarce.

Archaeological investigations of pastoralist communities in sub-optimal (Philip and Bradbury 2010; Braemer et al. 2004) and marginal areas (Cooper 2006b: 38–41) have only just begun. Much remains to be done.

GUIDE TO FURTHER READING

For Syria, the best overview available is Akkermans and Schwartz (2003). More detailed regional studies are available for the Euphrates valley (Cooper 2006b), the Orontes valley (Morandi Bonacossi 2007a) and southern Syria (Braemer et al. 2004). Unfortunately, no up-to-date synthesis is yet available for Lebanon, although important contributions have been published on Tell Arqa and the Akkar Plain (Thalmann 2006) and the Beqaa plain (Marfoe 1998). A useful summary of recent excavations and studies of various Lebanese sites is available in the journal *Near Eastern Archaeology* 73/2–3 (2010).

CHAPTER THIRTY-THREE

The Southern Levant

Timothy P. Harrison

1 Introduction

The Bronze Age southern Levant witnessed the rise of the first truly complex social, economic, and political institutions in the ancient Near East, one of the epochal sociocultural transformations in human history. However, in contrast to the experience of other regions of the Near East, which tended toward vertical, hierarchical institutional structures, southern Levantine communities consistently favored distributed, heterarchical relationships, anchored in patrilineal kinship, resulting in a uniquely Levantine expression of sociocultural complexity. As elsewhere in the Near East, the forms of social organization and production established during this era, in particular during the Early Bronze Age (EBA), came to define land use and settlement patterns not only for the Bronze Age, but for succeeding periods as well, creating a landscape that has fundamentally shaped the economic and political life of communities over the ensuing millennia, and that has changed only incrementally prior to the onset of the modern era.

As a consequence, the Bronze Age has been defined as the age of cities, of urbanization, or "urban revolution," as first coined by V. Gordon Childe. In the southern Levant, the Bronze Age (c.3700–1200 BC) witnessed the transformation of a culture comprised of small village communities in the Late Chalcolithic and EB I (c.3700–3100 BC) to walled, "urban" settlements in EB II–III (c.3100–2300 BC), followed by sociocultural devolution and collapse in EB IV (2300–2000 BC). The Middle (2000–1550 BC) and Late (1550–1200 BC) Bronze Ages

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(MBA and LBA) witnessed a process of urban renewal and regeneration, before completing a second cycle of cultural florescence and demise. While this basic reconstruction of the sociocultural transformations of the Bronze Age southern Levant is well known and widely assumed by the scholarly community, until relatively recently, little effort has been devoted to systematically documenting this process of change, or transformation, and to developing explanatory theories as to how and why it might have transpired.

Southern Levantine archaeology has a rich tradition of descriptive analysis, but more explanatory approaches and analytical methods only began to gain attention in the late 1980s and early 1990s. Consequently, the more theoretical emphasis of anthropological studies of urbanization, with their greater explanatory potential, is still relatively new to the field, and the results are only just beginning to appear. As noted, most striking has been the mounting evidence that Bronze Age Levantine communities were not organized in rigidly hierarchical configurations, that they in fact were decidedly non-urban, in a structural or systemic sense, in contrast to their regional neighbors in Egypt and southern Mesopotamia. In what follows, I will summarize the competing theories about the emergence of Bronze Age Levantine society, and then review the shifting history of settlement in the region over the course of this era, before concluding with some summary observations.

2 The Rise of Complex Society in the Southern Levant

Attempts to explain the rise of Bronze Age culture in the southern Levant, such as they exist, have run the range of migration (or invasion), diffusion, and cultural evolutionary theories. Migration theories, generally among the earliest to have been proposed, have largely fallen from favor as the archaeological record of the period has become better known. Today, most scholars adopt an eclectic perspective that incorporates elements of diffusion and indigenous development, with the possibility of episodic, small-scale population movements occurring from time to time.

Migration theories

One of the most explicit arguments for migration was made by the Dominican scholar, R. de Vaux, in his chapter on the EBA in the *Cambridge Ancient History*. It is worth quoting at length:

> It can be explained only by the influx of a new population, the first elements of which settled in the central regions of the country. . . . These immigrants did not come from the south . . . they came from the north, perhaps by way of the Jordan

> valley as far as Jericho, whence they penetrated into the interior of the country. Some groups intermingled with the makers of red and grey burnished ware in the large villages of the north. Their settlement was effected by peaceful infiltration and not by way of conquest. Nevertheless, these newcomers were destined to transform the country, for they brought with them new crafts, especially an established tradition of architecture and urban life. (1971: 233–4)

Others have concurred with de Vaux, at least implicitly, arriving at similar conclusions (cf. Lapp 1970: 111; Wright 1971: 284–6; Callaway 1972: 70; Kenyon 1979: 66ff). While his reconstruction may seem at least possible, it was based on little more than conjecture, relying on unspecified external origins and processes to explain the development of urban life.

A more idiosyncratic case of migration was proposed by S.W. Helms, based on his excavations at the EBA site of Jawa, in the basalt region of northeast Jordan. Described as "transmigrant urbanism," he maintained that an intrusive group arrived in the region and, with the help of local nomadic inhabitants, built a walled settlement equipped with an impressive hydrologic system. These nomads were then allowed to settle in the lower city in exchange for their help, only to have them rebel several generations later and destroy this "urban experiment" (Helms 1981, 1982). This reconstruction is based almost entirely on unverifiable speculation.

Diffusionary theories

Like migration, diffusionary theories seek to explain change through the introduction of exogenous forces. However, the two should not be confused. While migration suggests the influx of new peoples, diffusion proposes the foreign introduction of new ideas as the fundamental impetus for change. Childe (1950) was the leading proponent of this view as a way to explain the emergence of urban society in the ancient Near East. He emphasized the central role that technological innovation and specialization played in the development of urban society.

A. Kempinski was the first to adopt Childe's approach and apply it to the EBA southern Levant. He stated: "Undoubtedly, urbanization is an imported phenomenon in the Syro–Palestinian area finding expression as this area came into the orbit of a foreign cultural and political sphere. Basic concepts, such as knowledge of planning, organization and techniques were brought in from the great centers of urbanization" (1978: 6). Kempinski then proceeded to stress the impact that innovations in metal production would have had in creating an urban society. In his reconstruction, technological innovation led to an improvement in the means of production, encouraging the concentration of people into larger settlements, and enabling the accumulation of surplus and wealth, which in turn

eventually led to an increase in militarism, and finally the appearance of walled towns in the EB II.

A few years later, Kempinski's diffusionary model was criticized by L. Marfoe in a detailed review. Marfoe (1980) questioned the emphasis placed on metallurgical innovation as the primary force in the development of an urban society in the EBA southern Levant. Rather, Marfoe believed that indigenous "sociocultural transformation" was at the heart of the urban revolution (see below). Following Marfoe's review, Kempinski responded with a further elaboration of the diffusionary role innovations in metal production might have played, highlighting the thriving copper trade that developed between walled Late EB I/EB II settlements in the Negev, such as Arad, and Late Predynastic/Early Dynastic Egypt (Kempinski 1983, 1989). Field research has since documented the remarkable growth of the copper industry during this period (Levy et al. 2002; Levy and Najjar 2007), and the powerful economic stimulus it provided to EBA southern Levantine society. Kempinski also introduced another important variable, climate change, suggesting that a shift to more arid climatic conditions might have accelerated the process of urbanization (Kempinski 1983: 237–8).

While it clearly played an important role, diffusion nevertheless does not adequately account for many of the indigenous social processes that must also have had a part in the transformation of Bronze Age society.

Evolutionary theories

Cultural evolutionary theories, with their emphasis on indigenous development, account for a third group of explanatory theories that have been proposed by scholars. According to this perspective, the origins of urban culture are seen as the product of a long successive progression of indigenous developments, each building on the previous one. One of the earliest cases for indigenous development was made by P. de Miroschedji. In 1971 he proposed a phase-by-phase local development that spanned several centuries, ultimately culminating in the establishment of an urban culture (Miroschedji 1971). These in turn were built on a succession of earlier indigenous developments dating back as early as the Wadi Rabah phase in the Late Neolithic Period (c.5500–4500 BC). In several subsequent syntheses, Miroschedji has continued to emphasize the progressive, evolutionary development of EBA society (de Miroschedji 1989b, 2002, 2009).

Others have argued that a combination of internal development and external influences, including population influx, or migration, were involved. B. Hennessy, for example, proposed that a number of groups, distinguishable by their pottery traditions – specifically K. Kenyon's Proto-Urban (PU) A and C groups – entered the southern Levant from elsewhere and mingled with the indigenous PUB group, eventually resulting in the formation of an urban society in EB II (Hennessy 1967: 45–7).

R. Amiran, the excavator of Arad, presented a particularly effective case based on the results of her excavations at this important EBA site. She posited a gradual process of local development spurred on by population growth and outside influence, coming primarily from the "higher civilization" of southern Mesopotamia. She assumed the Arad community must have experienced prosperity and population growth, since no one would have logically chosen to settle in the marginal zone in which Arad is situated (Amiran 1970b: 83, 95; cf. Amiran and Gophna 1989). Amiran emphasized the gradual evolutionary development of southern Levantine urbanism, pointing to the growing density of settlements, the appearance of walled sites, and technological progress as the impetus for the "urban crystallization" that had taken hold by the EB II period. Technological progress included new developments in agro-technology, an increase in the use of copper, and the gradual intensification of trade with Egypt and other neighboring cultures.

Still others have adopted the cultural evolutionary perspective (for a comprehensive treatment, see Joffe 1991, 1993; cf. Greenberg 2002, for a regional perspective). Building on Hennessy's and Miroschedji's assumption that Kenyon's PUB ceramic group was a distinctly indigenous tradition, T. Schaub proposed that the PUB group, his "B Tradition," played a formative role in the development of the EB II walled town culture in Transjordan. He concluded: "Although the possibility of limited cultural import from outside Palestine should not be excluded, the origin of the walled towns in EB II Palestine can best be understood at present in terms of the social and cultural dynamics of the local inhabitants" (1982: 74).

In a synthesis that summarized the prevailing scholarly view by the late 1980s, S. Richard stated:

> In summary, the data suggest that in Early Bronze I, urbanization processes – anticipated in the Late Chalcolithic period – gained momentum and steadily evolved into the urban city-state institutions at the transition from Early Bronze I to II. When a society reaches a certain level of growth in trade, technology, population, and complexity, the development of an infrastructure (the state) to support its administration tends to occur. . . . Therefore, one need not, as in the past, explain the development of urbanization processes or the construction of urban fortifications by the arrival of new peoples. (1987: 27)

3 Secondary State Formation

While many early reconstructions assumed some level of external influence, none satisfactorily accounted for this element in their formulations. They have tended to invoke outside influence as a convenient explanation for change, without actually detailing the role it might have played. Part of the problem has stemmed from the historical tendency to see the southern Levant as a backwater or "pale reflection" of the broader Near Eastern movement toward sociocultural

complexity, led by the innovative, "pristine" civilizations of Egypt and Mesopotamia. However, when viewed as a classic example of secondary state formation, the role of external influence comes more clearly into focus.

There are in general two models of secondary state formation. The first involves direct historical succession from a pre-existing state, itself either pristine or secondary. In the second, an existing state expands into an area occupied by a population that has not yet developed complex social and political institutions. This second category can be further classified along a continuum. The external influence can take the form of direct pressure through political incorporation or systematic economic takeover and control; in other words, through outright conquest and colonization. At the other end of the spectrum, indirect influence can take more subtle forms of pressure on the social, economic, and political institutions of the indigenous culture, ultimately resulting in cultural change. In the EBA southern Levant, the prevailing evidence appears to indicate a case of indirect secondary state formation. The nature of the interaction has elsewhere been described as "asymmetrical culture contact," or, more specifically, "what happens when a more powerful and organized state society (e.g., Egypt) comes in contact with a less powerful, less integrated, ranked society (e.g., Palestine)" (Esse 1989: 91).

How did this asymmetrical contact manifest itself? Excavations in the Negev and southern coastal plain of Israel have brought to light a wealth of domestic pottery and other objects of distinctively Egyptian origin. Together with textual and iconographic evidence, they point to increasingly active contact between Egypt and the southern Levant in the Late Predynastic Period, which corresponds to the EB I in the southern Levant (c.3700–3100 BC). According to this view, Egyptian interest in Palestinian goods, spurred on by economic demand and its own rising socioeconomic complexity, translated into trading networks, which in turn stimulated production, and eventually crop specialization, bureaucratic administration, and the other characteristics of a stratified urban society. Once the asymmetrical contact had been established, the development of an urban culture eventually ensued. The primary causal factor in the secondary state formation of the EBA southern Levant, in other words, was the external stimulus of Egyptian contact, which fundamentally transformed the socioeconomic structures of the indigenous culture (Esse 1989; Harrison 1993; cf. van den Brink and Levy 2002). The secondary state formation model, more then any of the preceding reconstructions, incorporates both the internal and external factors involved in the rise of complex society in the EBA southern Levant.

4 Socioeconomic Transformation

In a groundbreaking study published in 1979, L. Marfoe drew attention to the dynamic, or fluid, character of social institutions in traditional Levantine society, and the tendency for this dynamism to trigger broader socioeconomic transfor-

mations from time to time (Marfoe 1979). Marfoe's thesis was influenced by the recognition of a similar sociocultural fluidity in traditional Mesopotamian society. While earlier scholarship had described change in terms of differing stages of static equilibrium, in 1974 R.McC. Adams proposed a dynamic "frontier" model for southern Mesopotamia. He realized that the basic socioeconomic instability and demographic fluidity typical of Mesopotamian communities resulted from the constant disequilibrium of the social landscape. This situation was created in large part by the unpredictable and uncontrollable risks of irrigation agriculture in a semiarid environment.

Adams (1974) proposed an urban–pastoral continuum, with the urban elite, and their control of the economic, ideological, and political power, positioned on one end, and rural hinterland communities on the other. The frontier lay between the two. During periods of strong central control there was a corresponding increase in sedentarization and urbanization, while in times of weak control subsistence strategies and land use shifted across the frontier in favor of more mobile practices, such as pastoral nomadism. Change thus occurred in the form of shifts in balance within dynamic social systems, and less so as breaks or discontinuities in culture.

Since Adams' social frontier model was constructed with the irrigation economy of southern Mesopotamia in mind, there was some doubt whether it could be applied appropriately to the dry-farming regions of the Near East. Marfoe's study, which focused on the Beqaa valley in southern Lebanon, not only demonstrated a similar fluidity in Levantine society, it led him to suggest that the frontier model was a better fit for the Levant than Mesopotamia. The communities of the Beqaa Valley have traditionally been fragmented, due in large part to the tremendous topographical contrasts and environmental diversity that characterize the highland region of the Lebanon mountain range. As a result, the periodic attempts to unify the region under a single ruling authority have never enjoyed enduring success.

During times when urban elites have attempted to assert central control, settlement patterns reveal corresponding shifts toward urbanized configurations, until the demands of the central government became too restrictive and the settlement networks collapsed. Farmers were not willing to continue taking on the economic risks necessary to sustain agricultural production, and consequently opted for less risky options. Those who were able to usually moved to the coastal cities, or in more recent times to North America and Europe. The less fortunate resorted to the competing alternatives of animal husbandry and cash-crop farming. As a low-risk capital investment, pastoralism offered "banking" surpluses in the form of large animal herds, and insurance against crop losses, as well as a convenient form of tax evasion (Marfoe 1979: 5–7). Thus, in southern Lebanon, the consequences of regional fragmentation and the fundamental instability of local polities resulted in a dynamic system of "free-floating" alignments that shifted along the sociopolitical continuum (Marfoe 1979: 17).

Marfoe's model of sociocultural transformation is certainly useful for understanding change during historical periods, when written records can help confirm the dynamics at work. But it is also applicable to prehistoric periods, where the archaeological record is the only source of information available. Since Marfoe examined historical sources together with the archaeology of the Beqaa, he was able to recognize certain patterns in the archaeological record. Consequently, his observations also help provide further insight into the cyclical nature of Bronze Age society throughout the region, including the southern Levant.

The strength of Marfoe's model of sociocultural transformation is its ability to account for the complex interrelationships between such variables as production, social differentiation, technology, demography, economic supply and demand, and ideology. At the same time, it did not pinpoint the impetus that triggered the process of transformation. This brings us back to the role of external influence in the emergence of EBA society in the southern Levant which, as we have seen, is perhaps best articulated as a process of secondary state formation.

Actually, Marfoe also recognized this, arguing that long-distance trade was the critical element in the development of local state institutions in the Levant (Marfoe 1987). Adopting a core–periphery approach, he posited that the emergence of elites in the core regions of southern Mesopotamia and Egypt created the initial stimulus that ultimately led to political centralization and urban development in the peripheral regions of the Near East. Spurred on by the desire for certain goods, or commodities, these self-aggrandizing groups established long-distance trade networks that sought access to valuable resources in the less-developed, but more resource-rich, peripheral regions of the Near East, such as the Levant (Marfoe 1987: 32).

As we might expect, the pressure of foreign demand for local resources had a strong impact on the economic life of communities, encouraging their reorganization to meet the external demand. According to Marfoe, this economic stimulation, in turn, led to profound changes in the social and political institutions of these communities. He maintained that it would have required the cultivation of a local elite to supervise the extraction of resources and the storing of surplus, while introducing a comprehensive set of new cultural values, and he cited EBA Arad as a southern Levantine example of this socioeconomic transformation (Marfoe 1987: 32–3). Indeed, excavations have shown that a complex of public buildings and an assortment of imported Egyptian cultural artifacts appeared at the site around this time, ideally situated as it was along the copper trade route to Egypt. Marfoe thus joined the others who have recognized the important role played by the trade link with Late Predynastic Egypt.

But how far north and east did Egyptian influence extend? Excavations at Byblos indicate that Egypt played a direct role in the development of that urban center, implying that Egyptian influence was felt at least as far north as the Syrian coast. Did it penetrate east into Transjordan, or was indirect contact from south-

ern Mesopotamia via inland Syria the more likely stimulus for this region? Certainly, the resource-deprived communities of southern Mesopotamia, which at this time were experiencing rapid growth into large urban centers, the world's first true cities, were actively engaged in procuring foreign goods. The Uruk expansion into the neighboring regions of Mesopotamia, including Syria and southeastern Anatolia, is now well documented, and represents a classic example of asymmetrical core–periphery interaction (see in particular the seminal studies of Algaze 1989, 1993, 2008). But it is also well known that inland Syria did not develop large urban settlements until considerably later, in the middle of the 3rd millennium BC (Weiss 1983, 1986; Weiss and Schwartz 1987; Akkermans and Schwartz 2003). In other words, the intrusive presence of Uruk traders in the late 4th millennium BC apparently failed to stimulate the socioeconomic transformation of the indigenous communities in the region.

Nevertheless, the impact of Mesopotamian culture on inland Syria, and perhaps also northern Palestine and Transjordan, should not be minimized. Indeed, for the southern Levant as a whole, the widespread appearance of glyptic in the form of cylinder seals and seal impressions points to a significant level of Mesopotamian iconographic, if not broader, cultural influence (Ben-Tor 1978; Greenberg 2001; Joffe 2001). While no distinctively Mesopotamian seals have yet been found, the range of motifs show close affinities with Syrian glyptic, which in turn was heavily influenced by Mesopotamian traditions. Interestingly, most of the interregional similarities occur in EB I. By EB II, however, they were gone, replaced by transparently localized styles.

While there remains considerable work to be done exploring the full range and nature of the external influence that occurred, it nevertheless is clear that this interaction helped to stimulate a profound socioeconomic transformation. The emergence of long-distant trade networks introduced powerful external stimuli, particularly in the form of new ideologies and technologies, which spurred the development of local institutions, and eventually the small-scale complex societies that emerged along the eastern Mediterranean littoral.

However, an interesting question remains. Why did the southern Levant develop a complex "urban" culture, while inland Syria and southeastern Anatolia reverted to a pre-urban existence after the Uruk expansion collapsed? The answer to this question undoubtedly is linked to how the two different regions and their respective settlement networks operated. While the contact between Egypt and the southern Levant appears to have impacted a wide range of local institutions, both economic and social, the Uruk expansion appears to have engaged a more restricted segment of the indigenous culture, limiting its broader sociocultural impact. Thus, when the Uruk presence was withdrawn, the pre-existing local institutions remained largely intact. This is in keeping with Renfrew's (1984) principle of the multiplier effect, which predicts that a culture will only move to a different level of social complexity when two or more of its institutions have been transformed.

5 The Shifting Pattern of Bronze Age Settlement

Having explored the range of explanatory theories about the rise and development of complex society during the Bronze Age in the southern Levant, let us now review the settlement history for the region. Settlement patterns, when analyzed with discretion, have the distinct potential to reflect the organizational structure of dynamic settlement networks. When placed within their environmental context, they can also reveal much about the land use strategies adopted by a community, and the shifting priorities that might have guided this activity over time. The review will proceed chronologically through each of the principal cultural sub-periods that comprise the Bronze Age.

Early Bronze I (3700–3100 BC)

As the first phase in the Bronze Age cultural sequence, the EB I marks the transition from the preceding Chalcolithic period. As a result, descriptions of the EB I often suffer from a lack of clear definition, incorporating elements that exhibit cultural continuity and discontinuity with the preceding Chalcolithic, and thus rendering it difficult to distinguish – at least in its earliest phases – what is distinctively EBA and what represents a continuation of Chalcolithic traditions. Nevertheless, by the end of the period, a clear shift in settlement pattern is evident.

In the Transjordanian highlands, Late Chalcolithic/EB I sites were consistently small, and tended to cluster along *wadi* systems or adjacent to springs (Harrison 1997: 11–13), a trend observed elsewhere in the region (Esse 1991: 143–5). In the southern coastal plain and northern Negev, the transition appears to have been more abrupt, with most Late Chalcolithic settlements abandoned and replaced by a network of new settlements corresponding to the Early EB I. In contrast to the preceding period, the central highlands of Cisjordan also experienced expanded settlement, reflecting a broader sedentarization trend (Miroschedji 2009: 103).

Dolmen fields and standing menhirs, enigmatic features of the Levantine settlement landscape, are frequently found near the larger Late Chalcolithic/EB I sites in the uplands, particularly along the escarpment edge. Although considerable ambiguity about the date of these megalithic structures persists (Zohar 1992), their consistent association with Late Chalcolithic or EB I sites argues in favor of a date in the mid-to-late 4th millennium BC. The discovery of a partially intact dolmen containing Late EB I pottery on the southeastern slope of Tall al-'Umayri in highland Central Jordan (Dabrowski et al. 1994) further substantiates this early date.

The pattern of settlement during the Late Chalcolithic/EB I period outlined by the survey evidence reveals a primary concern for dependable access to water.

The consistent clustering of sites along *wadi* systems is a dominant settlement feature. Settlement density is more difficult to assess, however, since many EB I sites lie buried beneath alluvium or the build-up of later settlement activity. Nevertheless, even if a significant number of sites remain obscured, settlement during the EB I remained relatively sparse, consisting primarily of isolated clusters of communities engaged in basic subsistence pursuits. The evidence points to a two-tiered settlement hierarchy, comprising small agrarian village sites and a few larger villages, a settlement pattern reminiscent of the Late Chalcolithic period. However, toward the end of the EB I, the emergence of a more vertical, three-tiered settlement hierarchy is evident with the appearance of the first walled communities, particularly in the north and in the southern coastal plain (Miroschedji 2009: 105).

Early Bronze II–III (3100–2300 BC)

The transition from the EB I to the EB II–III period marked a fundamental shift in settlement across the southern Levant. What had previously been a dispersed village culture began to coalesce into larger walled settlements, most notably at Beth Yerah (in the north Jordan Valley, adjacent to the Sea of Galilee), Megiddo (in the Jezreel Valley), Yarmut (in the southern coastal plain), and Zeraqon (in the northern highlands of Transjordan). This increased settlement density has been documented extensively, and it is clear that the transition from EB I to EB II marked a pivotal period in the development of EBA southern Levantine society.

In general, settlement pattern analyses reveal a decrease in the number of sites from EB I to EB II, matched by a concomitant increase in average site size (Kempinski 1978: 15–16; Esse 1991: 173; Joffe 1993: 73). In northern Palestine, for example, where the total number of EB II–III sites decreased significantly from the preceding EB I, average site size increased from 3.3 to 4.8 hectares, with the median rising from 1.0 to 3.2 hectares, probably a more accurate reflection since many of the larger EB I sites were also occupied in EB II–III (Esse 1991: 151). However, in some regions, such as the central hill country, the increase in average site size does not appear to compensate fully for the drop in the number of sites and aggregate settlement (Finkelstein and Gophna 1993: 6–8). Some scholars have even preferred to see a decrease in settlement from EB I to EB II for the region as a whole, with a decisive collapse in settlement at the end of EB I (EB IB), followed by widespread abandonment, and then diminished resettlement in EB II (Portugali and Gophna 1993; Gophna 1995: 273–5; for criticism, see Finkelstein 1995).

A crucial issue in determining the nature of the transition to the so-called "urban" culture of the EB II–III period revolves around the question of continuity. Here the evidence is relatively unambiguous. Settlement continuity is evident

throughout the southern Levant, as gross site counts reveal. Although 405 of the known 631 EB I sites, or 64 percent, do not continue into the EB II–III, fully 72 percent of the surviving EB II sites trace their origin to the EB I period (Joffe 1993: 73). Similarly, in the highlands the available survey data consistently reveal a strong correlation between the two periods, averaging 45–55 percent, depending on the specific survey (Harrison 1997: 13). This continuity argues in favor of an intensification process with roots in the late EB I period, a process that witnessed a dispersed settlement landscape gradually agglomerate into a more hierarchical settlement configuration.

The EB II–III also witnessed the widespread cultivation of such horticultural crops as grape and olive. This agricultural innovation had far-reaching implications for the social and economic lives of EBA communities. In particular, it encouraged more sedentary subsistence strategies and the development of long-distance trade networks, especially with Egypt, which began to import large quantities of southern Levantine wine (Stager 1985; Liphschitz et al. 1991; Sowada 2009).

Early Bronze IV (2300–2000 BC)

The settlement density reached in the EB II–III period was reversed during the ensuing EB IV. Virtually all medium and large settlements inhabited during the EB II–III were abandoned or greatly reduced in size, while the number of occupied sites also diminished substantially. In Cisjordan the break was complete, with not a single EB III settlement surviving the collapse (Miroschedji 2009: 109). In the central highlands of Transjordan, average site size declined from 5.3 hectares in EB II–III to 2.7 hectares in EB IV, with median site size shrinking from 4.4 to 2.3 hectares (Harrison 1997: 17). The decline in settlement density evident in the survey data is also reflected in the excavated results from the settlement at Tall al-'Umayri, where the EB IV occupation (Phases 3 and 2) was a mere shadow of the former settlement (Harrison 1995: 125–8). The Tall al-'Umayri excavations also suggest that the few other large settlement sites with traces of EB IV occupation probably experienced diminished settlement during this period, rendering average site size during the EB IV even smaller. The EB IV presence at such sites typically was slight and well-attested only at very small sites or in cemeteries (see below). The survey data thus indicate a dramatic drop in sedentary activity following the end of the EB II–III, reversing trends observed at the outset of the period.

However, settlement abandonment was not complete. Some sedentary activity did continue into the EB IV period, particularly in the Negev and Transjordanian highland regions, although usually in the form of new settlements. In the central highlands of Transjordan, for example, 5 EB II–III sites, or 28 percent, remained occupied into the EB IV. As in the EB I, settlement was confined

to the principal *wadi* systems, or adjacent to perennial springs, leaving most of the plateau uninhabited by sedentary communities (Harrison 1997: 17). This dismantling of sedentary communities on the plateau would have created a vacuum, disrupting whatever equilibrium might have existed between the sedentary and nomadic segments of the population.

Khirbet Iskander, located in the Wadi Wala to the south of the Madaba plain, provides the clearest example of a sedentary community that continued to exist during the EB IV. Excavations conducted by the Drew University Expedition have uncovered the remains of a small agricultural village (2.25 hectares) that was fortified midway through the period (Richard 1990: 55–6). Continuity in material culture with the preceding EB II–III suggests close cultural ties between the two periods. Moreover, in sharp contrast to developments at Tall al-'Umayri, which experienced a dramatic reduction in settlement at the end of EB III, Khirbet Iskander appears to have thrived and even expanded during the EB IV.

The proliferation of burial grounds was an important feature of the EB IV settlement landscape. The re-emergence of formal burial grounds adjacent to Tall al-'Umayri, and in the vicinity, provides perhaps the best evidence of the nomadic component of the EB IV population, and reinforces the picture of a widespread return to nomadism (Harrison 1997: 17–18). An extensive cemetery also surrounded Khirbet Iskander (Richard 1990: 53–4). The presence of cisterns and other domestic installations in these cemeteries suggest that they may have served an additional purpose as places of seasonal encampment for the groups that used them, with the subterranean chambers providing shelter and storage. These formal burial grounds also might have functioned as ritual centers (Zohar 1992), succeeding nearby abandoned EB III settlements as places of gathering for the economic, social, and political activities previously associated with the older sedentary settlements, thereby establishing a territorial (and possibly ancestral) claim to the surrounding region.

6 The Collapse of Early Bronze Age Society

Much has been written about the collapse of the "urban" culture of the EB II–III, and the ensuing nomadization of the EB IV (Richard 1980; Dever 1980, 1989, 1995; Palumbo 1991). The view that has emerged is of catastrophic collapse followed by the fragmentation of the settlement landscape into culturally distinct regional enclaves ("families"), with pastoral nomadism becoming the dominant mode of subsistence. Settlement data has been particularly effective in demonstrating these developments. In northern Palestine, for example, the process of increasing settlement density observed during the EB II–III was sharply reversed in the EB IV. While the number of sites generally increased, average site size dropped significantly from a peak of 4.8 hectares during EB II–III to 3.5 hectares

in EB IV, with median site size shrinking from 3.2 hectares to a paltry 0.84 hectares (Esse 1991: 151–2). Overall, EB IV settlement patterns were remarkably similar to those of the EB I period. In northern Transjordan, gross site counts actually indicate a drop in the number of sites from 27 in EB III to 24 in EB IV (Mittmann 1970), a trend also documented for the Kerak Plateau in central Transjordan, where 55 EB II–III sites have been recorded, but only 28 for the EB IV (Miller 1991: 307–8; Steele 1990: 23).

As the excavations at Khirbet Iskander have revealed, however, sedentary life did not cease entirely, and in fact remained an important part of EB IV society. The combined evidence points to the emergence of a rural settlement landscape following the disintegration of the dense settlement configuration of the EB III period, with local populations returning to basic subsistence levels (Palumbo 1991). The settlement data from the Madaba plain region mirror this view, documenting the widespread abandonment of EB II–III settlement on the plateau, and retrenchment to the better-watered *wadi* systems along the escarpment, where small-scale agricultural village sites could and did continue to thrive. On the plateau, meanwhile, where mobility could offset the problem of water supply, pastoral nomadism seems to have gained ascendance, expanding (rather than contracting) into the vacuum left by the former sedentary communities (Harrison 1997: 17).

Although attempts to explain the end of the EB II–III have run the usual range of migration/invasion hypotheses, with responsibility attributed to the destructive migrations of West Semitic Amorites (Kenyon 1979: 119–47), or Egyptian military campaigns (Callaway 1978: 55), in recent years environmental and systemic causes have received more prominent consideration. Environmental degradation, though long considered a causal factor, has gained increasing credibility in the face of mounting physical evidence of climatic change toward the end of the 3rd millennium BC (Rosen 1989). Efforts to explain the EB III–IV transition from a systemic perspective predictably have invoked the notion of collapse, or systems failure (Dever 1989; Esse 1989). Triggered by any or all of a number of factors, including mounting population pressure, depleted natural resources and a degraded environment, climatic shift, and a cessation of economic contact with Egypt, according to this view, the system in place at the end of the EB III was unable to cope and simply collapsed. Development had reached a level of "hyper-integration," seriously eroding the flexibility and resilience of the system, rendering it susceptible to exogenous forces such as a climatic shift and cessation of trade with Egypt (Esse 1989: 92–3).

Appealing though they are, these systemic models fail to address an important characteristic of human communities, particularly those that live in variable and unstable environments like the southern Levant. Ethnographic studies show that communities facing such conditions typically develop buffering mechanisms designed to cope with the external stress (Halstead and O'Shea 1989). A culture that succumbs in the face of external pressures probably was experiencing internal

structural problems as well. Communities adapting to a crisis may respond by easing social restrictions that inhibit change and the development of new technology, or they may choose a more conservative response, emphasizing conformity and rigid adherence to longstanding practices (Kirch 1980: 116).

In an insightful study of the social response to economic and environmental stresses at the end of the EB III period, A.M. Rosen postulated a series of converging factors: an emphasis on agricultural market commodities that led to over-specialization in agricultural production and increased vulnerability to crop failure, elite control of surplus, removal of labor from the agricultural sector, a slow response to the perception of catastrophe, elite reluctance to institute changes that undermined the benefit they gained from short-term environmental stress, and a pursuit of ideological explanations rather than technological innovation (1995: 40–1). Rather than responding to the mounting crisis by reorganizing and developing alternative strategies, EBA communities appear to have adopted conservative strategies, opting to maintain the status quo and working ever harder to sustain established strategies, only to fail in the process.

By focusing attention on the social factors that ultimately determine cultural change, Rosen has shed new light on the dynamics of the EB III–IV transition. However, while the changes that occurred at the end of the EB III were real, and were indeed catastrophic for many communities, they did not result in the total collapse of EBA society. On the contrary, many cultural and social institutions survived into the EB IV, and the evidence of continuity between the two periods is extensive, as we have seen (Richard 1980; Palumbo 1991; Dever 1995). Thus, a view that sees the widespread abandonment of settlement at the end of the EB III as an adaptive response to socioeconomic and environmental changes (cf. Cameron and Tomka 1993), rather than system failure, accounts best for developments during the EB IV. This perspective recognizes the EB IV as an integral component, not a disjunctive part, of the prolonged process of production intensification and decline that transpired over the course of the Early Bronze Age.

7 Middle and Late Bronze Ages (2000–1200 BC)

The 2nd millennium BC witnessed a second cycle of Bronze Age sedentarization and decline. The process of re-urbanization began in the Middle Bronze I (MB I) (also called MB IIA; c.2000–1750 BC) with the construction of heavily fortified settlements along the coast, most notably at Ashkelon, and then gradually extended eastward into the inland valleys, and eventually the uplands. The construction of heavily fortified settlements, in particular at Dan, Hazor, Megiddo, and Shechem, accelerated in the MB IIB (c.1750–1650 BC), and continued through MB IIC (c.1650–1550 BC). These developments follow and appear to mirror similar settlement activity to the north in inland Syria (Ch. I.32), and

there is strong evidence that the MBA re-urbanization process in the southern Levant was influenced, if not directly caused, by Amorite elements from the north.

A resurgent Egypt in the form of the Middle Kingdom also played an important role, not unlike that witnessed in the EBA, generating an economic demand for Levantine products, in particular wine and olive oil, that clearly stimulated the local economy. Indeed, the MBA marked the high point in Bronze Age Levantine culture, economic prosperity, and political power. Interaction with Egypt also appears to have included the movement and settlement of Levantine communities in the Nile Delta. Over time, these communities grew in strength and political influence, eventually gaining control of Lower Egypt during the so-called "Hyksos Period," also known as the Second Intermediate Period in Egypt, and corresponding approximately with the MB II B–C periods in the southern Levant. The Hyksos capital, Avaris, has been positively identified with the impressive site of Tell el-Dab'a in the eastern Nile Delta, where excavations have uncovered archaeological remains that reveal strong Levantine cultural influence and connections.

In the mid-16th century BC, the Hyksos were expelled from Lower Egypt, marking the end of the Second Intermediate Period and ushering in the New Kingdom in Egypt. In the southern Levant, the Hyksos expulsion has been used to mark the transition from the MBA to the LBA, with destruction levels at key MBA settlements identified by scholars as the by-product of the retribution extracted by the Egyptians during the expulsion, and therefore a convenient marker of the cultural transition. However, the broader political and cultural impact of the Hyksos expulsion on the southern Levant has been challenged, and it is now generally recognized that there was no clear cultural break between the Middle Bronze and Late Bronze Age periods. Indeed, the evidence points to strong cultural continuity, a trend also reflected in regional settlement patterns.

Thus, the LBA, divided on historical grounds into three sub–periods (LB I [1550–1400 BC], LB IIA [1400–1300 BC], and LB IIB [1300–1200/1150 BC]), witnessed a continuation of the cultural and political institutions established during the preceding MBA. However, settlement patterns do reveal a progressive decline in settlement over time, with fewer and fewer large sites, and an expanding hinterland of small agrarian settlements. This "ruralization" trend was paralleled by the steady accumulation of imported goods and wealth in the principal fortified settlements in the region, such as Hazor and Megiddo. By the LB II period, the Egyptian presence had also become more pronounced, corresponding with the rise of Egyptian imperial interests in (and control of) the region. The LBA was characterized by a cosmopolitanism brought on by the wealth generated from the long-distance trade networks created by the imperial powers of the age, most notably Egypt and the Hittites of Anatolia.

However, it would not last. In a few short years, perhaps two or three decades at most, the imperial powers were gone, and with them their extensive regional

economic networks. The collapse that ensued brought Bronze Age society to a decisive end. Though there is mounting evidence of cultural (and even political) continuity, the Iron Age cultural institutions and society that would emerge from the intervening "Dark Age" (c.1200–900 BC) bore little resemblance to their Bronze Age forebears.

8 Summary Observations

As we have seen, the fundamentally urban character of southern Levantine Bronze Age society is a central tenet that runs consistently through the literature on the period, whether it is seen to have been introduced through processes that involved migration, diffusion, or indigenous development. Yet this prevailing view has largely failed to grasp the full implications of urbanization, in particular that urban centers, or cities, do not exist in isolation, but rather function as part of a larger interdependent network comprising both urban and rural communities. A community becomes "urban" when its population density reaches a point where its immediate hinterland is no longer sufficiently able to provide the food resources required by its inhabitants, and it must therefore rely on a network of rural agricultural settlements to supply its subsistence needs. When conceived in this way, integration, rather than scale, serves as a more reliable index of the level of urbanization and social complexity achieved in a region.

In a series of studies, S. Falconer has proposed that the urban threshold for a settlement is 35 hectares (see summary in Falconer 1994). In a review of the ethnographic literature, he found that when sedentary communities reach this size, they tend to become dependent on small agricultural hinterland settlements for their subsistence, and therefore can be defined as urban. To test this hypothesis, settlement pattern data from several different regions of the Near East were analyzed using a number of spatial analytical techniques including rank-size analysis (Falconer and Savage 1995; cf. Savage et al. 2007). The analysis revealed that while communities in southern Mesopotamia (from the late 4th millennium BC onward) might be defined as urban, Bronze Age communities in the southern Levant, quite decidedly, were not. Indeed, the rank-size analysis indicated a persistent pattern of low-level integration throughout each phase of the Bronze Age. Communities appear to have remained self-sustaining and autonomous, resisting the pressure to integrate into larger, more centralized social and political units, despite the stimulus from Egypt and other regional neighbors to increase economic production. The result was a loosely integrated society made up of regional communities *heterarchically* organized to accommodate the environmental diversity and political instability that historically has characterized the southern Levant. This model of small-scale social complexity produced a remarkably resilient and enduring culture that flourished for more than two millennia, and continues to influence life in the region even today.

GUIDE TO FURTHER READING

Good archaeological surveys of the Bronze Age southern Levant can be found in Mazar (1992) for Cisjordan, and MacDonald et al. (2001) for Transjordan. The edited volume by Levy (1998) contains valuable chapters on the geography, paleoenvironment, and demography of the region, as well as synthetical chapters on each of the primary cultural periods. Of the numerous histories of the region, Ahlström's (1993) is the most comprehensive. The *New Encyclopedia of Archaeological Excavations in the Holy Land*, edited by Stern (1994), is the best source for reports on the excavated sites in the region. Falconer and Savage (1995) and Savage et al. (2007) present the empirical case for the uniquely southern Levantine expression of sociopolitical complexity and urbanization, while Rosen (1995) furnishes an important perspective on the role of social responses to environmental change during the Bronze Age.

PART VI

The Archaeology of Empire

CHAPTER THIRTY-FOUR

The Akkadian Period: Empire, Environment, and Imagination

Augusta McMahon

1 Introduction

The Akkadian period saw a new, unified political structure in southern Mesopotamia, military expansion in all directions, and a dynasty of kings who have proved fascinating to both ancient Mesopotamians and modern scholars. Akkadian artworks are elegant and complicated, with strong ideological statements, and these too cast a spell in past and present. But the dynasty was short-lived and the archaeological record is sparse. However, the Akkadian period provides some of the most vital research questions in Mesopotamian archaeology: What should be considered an empire in this region? How should we use contemporary texts and later literary traditions? When archaeological evidence and texts disagree, which should have primacy? Does political collapse mean social collapse? Can climate change destroy a civilization?

2 Akkadian Political Activities

After the overlapping kings of the late Early Dynastic period (c.2900–2334 BC), the relative clarity of the Akkadian Dynasty and events of their rule provide a distinct contrast. The list of kings and relationships is straightforward (Table 34.1), although the positions of Rimush and Manishtushu are reversed in some texts (Steinkeller 2003) and recorded reign lengths vary. The accumulation of

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

Table 34.1 Akkadian kings according to the Middle Chronology

Sargon	2334–2279 BC
Rimush	2278–2270 BC
Manishtushu	2269–2255 BC
Naram-Sin	2254–2218 BC
Shar-kali-sharri	2217–2193 BC
Igigi	
Nanium	4 kings, 2192–2190 BC
Imi	
Elul-dan	
Dudu	2189–2169 BC
Shu-turul	2168–2154 BC

power and territory from Sargon through Naram-Sin was a gradual process and, although their political control decayed rapidly thereafter, the later Akkadian kings remained among the stronger rulers in the region.

Sargon is traditionally hailed as an innovator, rising from an obscure background to control Kish, then northern Babylonia, the Middle Euphrates, western Iran, and finally the known world from the Upper (Mediterranean) to the Lower (Persian Gulf) Sea. However, his overlap with, and possible "borrowing" from, Lugalzagesi of Uruk, a contemporary ruler of similar strength and scope, is an ongoing issue. If we define Akkadian rulers by their ambition to unify and control the southern plains, then Lugalzagesi (c.2340–2316 BC) might be called the first Akkadian king. Alternatively, Sargon, whose actual hegemony was of limited extent, might be considered the last Early Dynastic ruler.

One of the most noted innovations of the Akkadian kings was the change of official written language from Sumerian to Akkadian. During the late Early Dynastic period, bilingualism and mixed populations were the norm (Cooper 1973) but private and official texts were written in Sumerian. An official language shift was a clever ideological manoeuver that should have interpenetrated society, since even the illiterate would have been affected through records of their labor, taxation, and legal activities. There is even a typical Akkadian tablet shape, with deep line markings and elegant, easily read script that echoes stone reliefs (see below) in the spaces between the signs. However, the persistence of Sumerian in official and private archives (Foster 1982b; Westenholz 1999: 50) reflects significant resistance or indifference to this change. Taxation reached a new level and centralized focus under the Akkadian kings. And standardization of weights and measures, year date formulae based on royal events, and new accounting systems reinforced national ideology through repeated communal practice. However, most of these innovations were not introduced or did not become widespread until the reign of Naram-Sin.

A more dramatic change was the construction of a new capital at Agade. Although not precisely located, it was probably on or near the Tigris in northern Babylonia (Wall-Romana 1990), in contrast to the most powerful, earlier city-states that were associated with the Euphrates river. A new capital city would have symbolized the new political structure and altered the logistics of overland and water transport routes as well as the orientation of mental maps. Finally, as well as an expanded range of heroic epithets, control over increased territory was emphasized in later Akkadian kings' titles, most notably in the new claim to rule over the "four quarters" from the time of Naram-Sin. The self-conferral of divine status by Naram-Sin also represents a dramatic break in the Mesopotamian conception of royalty, although ultimately one that was short-lived.

However, other Akkadian political acts seem to have been designed to have minimal impact and to validate Early Dynastic/Sumerian religious or cultural values. Many city-state leaders were retained as local governors (e.g., Meskigal of Adab under Sargon). Both Sargon and Naram-Sin installed their daughters as priestesses in the temple of the moon god at Ur, and all kings gave offerings in the temples of Sumer, especially Enlil's Ekur at Nippur (rebuilt under Naram-Sin and Shar-kali-sharri).

3 Akkadian Kings: The Legacy

Akkadian rule over Mesopotamia resonates through past and present, the spotlight shining most clearly on Sargon and Naram-Sin, who became the ideal models for Mesopotamian kings (Cooper 1993; Liverani 1993c), beginning in the succeeding Ur III Dynasty. Two Old Assyrian kings of the early 2nd millennium BC revived the names of Sargon and Naram-Sin (the latter also used by a king of Eshnunna); and the Neo-Assyrian king Sargon II chose the name of the first Akkadian ruler to shore up his shaky claim to power. Myths of the Akkadian kings formed parts of royal libraries as far away in place and time as Amarna-period Egypt, the Hittite capital of Boğazköy, and Neo-Assyrian Nineveh.

Sargon has a generally positive reception; he is glorified in texts as the first to unify the independent city-states of southern Mesopotamia and a Moses-like birth story was later ascribed to him. Unusually for a society that embraced hereditary wealth and status, his obscure origins were celebrated. By contrast, the response to his grandson Naram-Sin is ambivalent. He was a powerful, heroic warrior who controlled the known world, but his claim to divinity incited a mixed reaction in later scribal tradition, which invests this behavior with both enviable courage and dangerous arrogance. Statues of Sargon, Manishtushu, and Naram-Sin were placed in temples in southern Mesopotamia and provided with offerings in the Ur III and Old Babylonian periods (Westenholz 1997; Hirsch 1963) and a Neo-Babylonian forger was familiar enough with Manishtushu to create the

"autobiographical" Cruciform Monument and attribute it to him (Gelb 1949; Longman 1991).

Akkadian objects, as well as texts and royal identities, had extended biographies. The Naram-Sin Victory Stele, carved c.2150 BC, was still visible in Sippar almost 1,000 years later, until it was taken to Susa when southern Mesopotamia was raided by the Elamites c.1158 BC (Ch. I.2). This is the most famous instance of monument capture, but the Elamite booty included other valued and displayed Akkadian reliefs and statues (Amiet 1976).

4 Texts and Context

Mesopotamian texts describing the actions of the Akkadian kings fall into three groups: contemporary inscriptions on artworks and votive objects, later inscription copies, and later legends, including pseudo-historical records such as the Sumerian King List. These have varying degrees of reliability according to context and audience, but the first two tend to be considered valid, though biased, sources (Tinney 1995). The copies are most commonly texts from the Old Babylonian period purporting to collect inscriptions from dedicatory statues. While we must be skeptical, their stylistic similarities to genuine Akkadian inscriptions and their occasional descriptions of the statues themselves are encouraging (see Buccellati 1993 for a reconstruction of a Rimush statue and base).

Sargon's texts focus on his military activities in the southern plains, in particular against Lugalzagesi of Uruk. Sargon was also the first to claim that the ships of Magan (Oman), Meluhha (Indus Valley), and Dilmun (Bahrain) moored at Agade, hinting that Akkadian political expansion was economically motivated. The inscriptions of Rimush follow the same pattern, recording cities destroyed, mainly in Sumer and Elam (southwestern Iran), with the added details of numbers of captives and dead and weights of booty. Manishtushu's inscriptions add kings and cities further south in the Persian Gulf; but notably, the enumeration of enemies killed and captured abruptly ceased. The apparent absence of battles within the south suggests that his control there may have consolidated, making the implied threat in body counts no longer necessary. The Manishtushu Obelisk records a large land-sale in northern Babylonia that reflects Akkadian reorganization of land ownership, creation of royal estates, and the new practice of giving land as gifts to government and military officials. Although the land was bought and not appropriated, the sale might have been coercive (Westenholz 1999: 44; Van de Mieroop 2007: 66). Government archives from Girsu, Umma, and elsewhere confirm the royal allotment of land to officials (Foster 1982a). Short inscriptions of the first three Akkadian kings appear on stone vessels and maceheads dedicated in the temples of Nippur, Sippar, and Ur, in particular. These kings are identified mainly as "king of the world" (Sumerian LUGAL.KIŠ, in which "Kish" stands for Akkadian *kiššatu*, or "totality").

Descriptions of Naram-Sin's military activities cover a wider geographical area, comprising the Khabur plains (ancient Subartu), Upper Euphrates, Amanus mountains, southeastern Anatolia, and Oman. But the "Great Revolt" of two coalitions of southern city-states meant that Naram-Sin had to reconquer areas supposedly subdued by earlier kings. His titles reflect the expanded map of Akkadian territory, with the innovation of the "king of the four quarters" (LUGAL *kibratim arba'im*) and an emphasis on his going where no king had previously gone (Frayne 1993; Westenholz 1999). His inscriptions also describe temple construction and there are further vases and mace-heads with dedicatory texts. Thereafter, a retraction of territory is visible in the texts of Shar-kali-sharri; he fought Amorites at Mount Bashar (possibly Jebel Bishri) and Elamites and Gutians along his eastern border, but had already lost lands in all directions. His titulary also contracted: he retained the epithet "mighty" (Akkadian *danum*), but was merely king of Agade, not of the four quarters or the totality.

Although many texts were written during the reigns of these kings, it is impossible to verify their claims; for instance, Sargon's destruction of city walls at Uruk, Ur, Umma, and elsewhere is not confirmed by archaeological evidence. The acquisition of materials from Oman (diorite or, more correctly, olivine gabbro) and the Indus valley (carnelian) is supported by archaeological finds, but these may have arrived through trade, booty, or gifting. Destructions at the Syrian cities of Ebla and Mari may be equally attributed to Sargon or Naram-Sin; our temporal control is not fine-grained enough to separate their equal claims.

Later literary texts reveal more about the subsequent millennia and the reception, "social memory," and exploitation of the Akkadian kings than they do about their contemporary impact. These legends compress, select, and transfer events; even texts of the same date are at variance (Tinney 1995). As Westenholz (1999) argued, attempts to extract a "historical kernel" obscure the more important fact that the writers *believed* in the legends. Later texts venerate Sargon, describing his birth, abandonment, and rescue, and his attractiveness to the goddess Ishtar. In the *King of Battle* legend, he assisted traders in Anatolia, more relevant for the Old Assyrian than the Akkadian period. But later texts both venerated and deplored the actions of Naram-Sin: the tales of his favor by Ishtar, suppression of internal rebellion, and foreign conquests (the *Great Revolt*) celebrate his success, while the Ur III and later *Curse of Agade* and *Cuthean Legend of Naram-Sin* blame him for political and religious crisis, as a warning to later kings.

Aside from royal texts describing kings' actions, official archives detail the management of agricultural and pastoral land, labor, and products (Foster 1982a, 1993; Maiocchi 2009). In these archives, the same officials are often responsible for supplying the local governor's palace and city temples; and the detailed, single-event and monthly documentation of raw materials, equipment, processed products, and individuals' rights and obligations leaves no doubt that the bloated bureaucracy of the Ur III period (2100–2000 BC) inherited some systems from Akkadian scribes. Craft production and industry are less well documented,

although some administration of these is suggested by "ration" lists and records of commodities and manufactured goods (Foster 1982b, 1993). Non-royal archives indicate a thriving private economy in land sales and trade activities (Foster 1982b).

5 Architecture and Ceramics

Aside from artworks without context and grave goods, southern Mesopotamian archaeological evidence from the Akkadian period is meager. However, there are excavated Akkadian houses at Tell Asmar (Delougaz et al. 1967) and Nippur (McCown and Haines 1967; McMahon 2006) and these houses and neighborhoods match the organic arrangements of Old Babylonian Ur with their meandering streets, variable house plans that may include a courtyard, and tight packing of houses reflecting close social connections. Sub-floor graves were found beneath houses at these sites and Akkadian graves were added in the Royal Cemetery of Ur (Woolley 1934), which became less exclusive in the later 3rd millennium BC. These graves reflect general Mesopotamian traditions of treatment of the dead, containing pottery vessels for the trip to the underworld and status-dependent levels of personal ornamentation as well as seals, weaponry, and bronze vessels. The total ceramic assemblage and specific forms changed only gradually from the late Early Dynastic through the early Akkadian period (McMahon 2006). But there remains debate over the visibility and possible material culture markers of this transition and that between the early and late Akkadian periods (Gibson 1982; Gibson and McMahon 1995, 1997; Matthews 1997a; Roaf 2001; McMahon 2006). The ceramic sequence reconstructed from the Diyala excavations (Delougaz 1952) drew too sharp a distinction between Early Dynastic and Akkadian forms and the use of this sequence for dating other sites both north and south has perpetuated an artificial cultural divide. Distinctive "goddess-handled jars" persisted into the Akkadian period, while the ridged-shoulder jars often attributed to the Akkadian era appeared only late in the period and continued into Ur III times. Similarly, plano-convex bricks, once considered a hallmark of the Early Dynastic period, again on the basis of evidence from the Diyala region (Delougaz et al. 1967), persisted, particularly in domestic architecture, through the Akkadian period (McMahon 2006). Buildings traditionally dated to Early Dynastic, but which may straddle the transition from Early Dynastic to Akkadian, include Palace A and the "Plano-convex" Building at Kish.

Without the capital city of Agade, and with constructions such as the Ekur at Nippur covered by Ur III projects, architectural evidence from northern Mesopotamia is our best evidence of Akkadian architecture of power. Tell Brak (northeastern Syria) has two religious-administrative centers (Areas SS and FS; Oates et al. 2001) and a "palace" (Mallowan 1947). Mudbricks stamped with Naram-Sin's name in the latter leave no doubt it was a southern-imposed and

-commissioned construction. Its square plan, with large courtyards and symmetrical, narrow rooms, resembles a storehouse or military barracks rather than a palace. An administrative building lies adjacent to it (Oates et al. 2001: CH Level 4) and contemporary houses and a scribal school were exposed in Area ER to its east. Area SS, an extensive administrative complex, lies on the opposite side of the southern entrance to the city. At the site's northern edge, Area FS comprises a temple complex dedicated to Shakkan, a deity of steppe animals. The highly visible placement of all these buildings made a power statement both within the city and to the surrounding area. A comparable Akkadian administrative center at nearby Tell Leilan, including massive buildings, a palace, and scribal school, took over the central acropolis (Weiss et al. 2002; Ristvet et al. 2004; De Lillis-Forrest et al. 2007).

Sealings of Akkadian officials in the FS and SS complexes and Area ER houses reinforce the direct connection between southern and northern Mesopotamia (Aruz 2003: No. 156; Oates 2001a; Matthews 1997b). However, a distinctively local variant of seal style and sealing practice is seen in strung clay bullae from SS, impressed with numerical marks and seals bearing rows of frontal bull, lion and/or goat heads (Oates 2001a: 130 ff); other motifs, such as equid chariots, have also been attributed to the "Brak" style rather than being considered southern Mesopotamian (Oates 2001a: 126). Foreign rule did not eliminate local administrative traditions. Thus, the power architecture of these northern sites may also be a local hybrid not representative of southern forms.

6 Settlement Patterns

Rimush's inscriptions record deportations of thousands within the southern plains and, while the veracity of his claim is uncertain, the centralization of taxation and opportunities for new employment in the expanded state bureaucracy and industries should be visible in settlement hierarchies and locations. Exploitation of the northern plains should also have affected the size of both large sites and a number of smaller ones. However, neither a noticeable shift in site size hierarchy nor an increase in the number of smaller villages is apparent (Nissen 1993a). As Mario Liverani said: "If we didn't know from the texts that the Akkad Empire really existed, we would not be able to postulate it from the changes in settlement patterns, nor . . . from the evolution of material culture" (1993a: 7–8).

Reconstruction of the Akkadian settlement pattern of southern Mesopotamia is affected by the difficulty of separating Early Dynastic from Akkadian ceramics, the basis for most survey site dating. Based on the Diyala assemblages, Adams' work in the southern plains provided separate maps for late Early Dynastic and the Akkadian through Old Babylonian periods (for the Uruk area, see Adams and Nissen 1972) or for the late Early Dynastic and Akkadian periods (on the

central plains, see Adams 1981). But the late Early Dynastic maps must now be construed as covering not just late Early Dynastic but also the reign of Sargon and possibly his sons. Any Akkadian map covers the era of Naram-Sin, when we expect the densest, economically thriving occupation, as well as the state's decline under subsequent kings.

The problems of separating Early Dynastic from Akkadian material and identifying a distinctive, post-Akkadian assemblage exist in northern Mesopotamia too. Extensive surveys in the Upper Khabur region struggled to subdivide material from the later 3rd millennium BC (Meier 1986; Lyonnet 2000). To the east, the northern Jazirah survey subsumed the complexity between Ninevite 5/late Early Dynastic and the appearance of Khabur Ware around the time of Shamshi-Adad I into a single group (Wilkinson and Tucker 1995). A new regional "Early Jezirah" sequence has been developed, in which the relevant periods are EJ III through V (cf. late ED III through post-Akkadian or Ur III) (Pruß 2004; Koliński 2007 for recent restatements) but it is only just gaining widespread use, at the same time that a number of site-based, intensive surveys are nearing publication (e.g., the Tell Brak Sustaining Area). The continuity of types across the EJ subdivisions remains problematic for settlement pattern reconstructions from surface surveys (Ur 2010a) but the picture so far is of great, subregional variability (Wossink 2009: Fig. 5.14), which cannot wholly be explained by difficulties in establishing chronological markers.

7 Art

In contrast to the continuity seen in ceramics, the style and, to an extent, iconography of formal Akkadian artworks show a definitive change from the Early Dynastic period. Reliefs, statuary, and cylinder seals are distinctive for their elegant appearance. While sometimes characterized as realistic, they are actually highly stylized (and sometimes incorrect) in proportions and representation of hair, fur, and musculature. Mature Akkadian reliefs and seals consciously incorporated empty space that emphasized figures and their active relationships (Nadali and Verderame 2008).

Cylinder seals are dominated by two main themes: combating pairs of humans and animals, and scenes showing the introduction of human figures to deities. The animal and human combat/contest scene was a continuation from the Early Dynastic period but became increasingly heraldic and formalized and, at its best, presents extraordinarily beautiful imagery, both in the fine detail of individual figures and the balanced elegance of pairs. The contest scene became an emblem of Akkadian administration, in contrast to personal seal scenes of introduction (Zettler 1977; Gibson and McMahon 1995; Rakic 2003) which show a procession of deities leading a human figure toward a seated god. Such scenes became the model for the majority of subsequent Ur III and Old Babylonian seals.

Although the scenes were iconic and instantly recognizable, the skill of the Akkadian artists made every example unique through details of individual actors. There are smaller numbers of more complex seal scenes, such as battles among gods or hunting, which may represent myths (Frankfort 1939a; Amiet 1976; Nissen 1993a), mythical themes (Nadali and Verderame 2008), rituals (Barrelet 1970; Frankfort 1939a) or statements of ideology (Bernbeck 1996). During the Akkadian period many of the physical attributes of divinity (e.g., Ishtar's weapons and lion, the shoulder-flames, and gates of Shamash) were canonized.

Although the most skillfully executed and beautiful seals are the focus of many modern scholars, a range of quality is represented in this period, from the highlights of the seal of Shar-kali-sharri's scribe, Ibni-Sharrum, with its water buffalo and kneeling nude heroes with water jars (Aruz 2003: No. 135), through to rapid, sketchy combat scenes on seals in the Ur graves (see Woolley 1934: Pls. 205–15 for a full range). A variety of stones (and shell) was used, from simple limestone and imported lapis lazuli, already seen in the Early Dynastic period, to vibrant, high-visibility serpentine, jasper, rock crystal, and banded agates. The physicality of sealing practice also changed (Rakic 2003) to an emphasis on a centered inscription, flanked by combating pairs (Amiet 1976: 34; Nissen 1993a: 101). Beyond seals, other administrative tools such as weights are rare, although the presence of silver ingots and standard-sized coils in late Akkadian hoards at Tell Brak (Matthews 1994, 2003a; Oates et al. 2001: 45–6) imply the wide diffusion of the new weights and measures system; this is severely underrepresented in the archaeological record, however, due to the recycling of metals.

Reliefs are dominated by representations of military combat. As mentioned above, many Akkadian artworks were still on display in the temples of, e.g., Sippar and Agade in the later 2nd millennium BC and were captured by Elamite forces and removed to Susa. The Susa relief collection documents change across the first half of the Akkadian period, from fairly static, symbolic iconography in organized registers to loosely arranged narrative. The assemblage includes several diorite fragments attributed to a stele or stelae of Sargon, showing registers of marching soldiers, scenes of combat, bound naked prisoners, birds of prey, and a net full of enemies, reminiscent of the slightly more complete Early Dynastic Vulture Stele of Eannatum (Amiet 1976: Pls. 1, 5–6; Nigro 1998; Hansen 2003: Figs. 54–55). A comparison of the Sargon stele and the Vulture Stele underscores the continuity of scene between the periods while emphasizing the Akkadian period's clarity of detail, greater depth of carving, and new focus on the individual and human anatomy. For instance, Sargon has a waist, a feature denied to Eannatum. The Sargon stele has also been interpreted as a complex ideological statement of the new royal order, in that Sargon controls the net holding his enemies, whereas on the Vulture Stele it is the god Ningirsu who does this; it also promotes Ishtar to a larger role and higher status (Nigro 1998). However, the registers still present Sargon's soldiers as an overlapping pattern of figures, something only abandoned in Enheduanna's votive disc (Aruz 2003: No. 128), Rimush's stele from Telloh

(Amiet 1976: Pl. 25; Aruz 2003: No. 129) and a contemporary, green alabaster stele from Nasiriyah (McKeon 1970; Amiet 1976: Pl. 26; Aruz 2003: No. 131). In each of these, there is a new sense of space between individual figures and greater skill in showing human musculature and details of dress and weaponry.

Eventually, the incorporation of natural or landscape features and the abandonment of a horizontal ground line in favor of diagonal, upward trajectories appear on the Victory Stele of Naram-Sin (Amiet 1976: Pl. 27; Benoit 2003: Fig. 114; Winter 1999). The redundant symbolism is easily readable (the broken spear, the nakedness of captives, and the dead) and the foreignness of the enemies (the Lullubi from the Zagros mountains) is strongly indicated by their hair and clothing. Presentation of the king as a young and active warrior with a massive beard and much of his "perfect" body exposed (Winter 1996; Bahrani 2008a) echoes the new royal epithets, including "the mighty" (Akk. *danum*). However, neither the landscape nor the abandonment of registers was a consistent feature of Akkadian art, even within the reign of Naram-Sin, if one compares this with the rather stiff representation on the Pir-Hussein relief (Amiet 1976: Fig. 21; Aruz 2003: No. 130). The early Ur III stele of Ur-Nammu (c.2100 BC) saw a return to the Early Dynastic/early Akkadian register format.

Statues in the round were relatively rare. The "Bismaya head" and other non-royal votive statue fragments from Telloh, Adab, Assur, and Umma (Amiet 1976: Pls. 7–10, 28–30) reveal continuities of form and pose from the Early Dynastic period, but with more "life-like" proportions and details. They retain the Early Dynastic overemphasized eyes, which transfix deities with their devotional gaze. Royal statues are similarly uncommon. The largest number belongs to Manishtushu (Amiet 1972c) and their standardization suggests a program of placement in temples in key southern cities (Eppihimer 2010). The diorite statue, or skirt, of Manishtushu has a deceptively simple, geometric form that, upon inspection, reveals sophisticated skill in the rendering of fringes and shallow ripples in fabric (Amiet 1976: Pl. 13; Benoit 2003: Fig. 111). That the ripples are not structurally possible, a problem shared by the symmetrically clasped hands, detracts only slightly from their impressive technique. Another skirt, in limestone, and fragments of a seated statue have the same ripples and fringe, suggesting they were products of a royal workshop or even a single artist (Amiet 1976: Pls. 11, 15).

A shift in medium from the near-exclusive use of limestone in the Early Dynastic period to mixed diorite/gabbro and limestone in the Akkadian period is visible in the reliefs and statues from Susa, although the non-random nature of their preservation means it is impossible to be certain of this trend. There is a strong symbolic aspect to the "new" stone; diorite/gabbro represents the conquering of an exotic land and the capture of its resources, but also, like hematite, it is extremely hard and has paradoxical qualities of darkness and shine that may elicit complex human reactions.

Recycling means that metal statues are rarely preserved from any period in the Near East. The most famous Akkadian example is a complexly textured, copper head from a later context at Nineveh (Campbell Thompson and Hutchinson

1932; Mallowan 1936). It is attributed stylistically to the Akkadian period and by political history to either Sargon or Naram-Sin (and occasionally to Manishtushu, who may have re-established a temple to Ishtar at Nineveh, according to Samsi-Adad). The hairstyle is similar to that shown on the Early Dynastic, Meskalamdug helmet from the Ur Royal Cemetery, reliefs of both Eannatum and Sargon, and a diorite head of Naram-Sin (Amiet 1976: Pl. 30; Hansen 2003: Cat 137). The abundance of hair and its intricate weaves and curls have been equated with royal masculinity (Hansen 2003: 194). The Bassetki statue from Naram-Sin's reign, a standard base held by a nude hero, is another important work, both for its evidence of metal-casting skill and for its inscription, which describes the deification of Naram-Sin.

All the metal statues in this period were produced through hollow-core, lost-wax techniques, finished by surface engraving (Ch. I.16). The composition of a sample of the statues shows at least 98 percent are copper with traces of minor elements such as arsenic and nickel but no tin (al-Fouadi 1976; Strommenger 1986). Contemporary copper-bronze vessels from south Mesopotamia are occasionally also entirely made of copper, although their tin and other element percentages vary widely and may exceed 10 percent (Müller-Karpe 1993; De Ryck et al. 2005). This might imply a clear separation between workshops, from smelting upwards, in the production of statues as opposed to vessels (although analyses of Akkadian bronze vessels and objects from northern Mesopotamia show a low tin and arsenic content as compared to statues; De Ryck et al. 2005). The source of copper in the Akkadian period is traditionally located in Oman. At 160 kilograms, the weight of the Bassetki statue base is testament to the strength of this Gulf connection.

8 Imperial Power?

Akkadian rule over Mesopotamia is often described as an empire (e.g., Glassner 1986; Foster 1993; Kuhrt 1995; Westenholz 1997, 999; Nissen 1998; Akkermans and Schwartz 2003; Aruz 2003; Hansen 2003; Rakic 2003). And it is tempting to use "empire," since the Uruk and Early Dynastic political arrangements were states and the Akkadian Dynasty represents something quantitatively and qualitatively different (Liverani 1993b). The argument for empire, where expressed, is based on the distinct nature of royal ideology, the unprecedented encompassing and unifying nature of Akkadian rule, and its spread by military means beyond the traditional borders of the southern Mesopotamian plains (e.g. Weiss and Courty 1993; Weiss et al. 2002). While not specifying imperialism, Z. Bahrani has argued for a new concept of kingship under Naram-Sin (2008a: 102 ff.), including a new focus in art on the king's body as physically overwhelming, representing his power over the life and death of others.

But was the Akkadian system of political power an empire? Yoffee characterized it as a "territorial state (or empire)" (1995: 290) and many questions regarding

its degree of unification and the nature of its expansion have been raised (Michalowski 1993; Liverani 2005). If it falls short of an imperial definition, what was the nature of the Akkadian kings' control, since it was greater than a city-state? We are hindered in our reconstruction of the political system by a lack of knowledge about the capital city, Agade. Without administrative archives and economic records from the center, as well as contextualized statements of ideology in monumental architecture and art, we are missing key data that could illuminate mechanisms of control over other regions and the integration or non-integration of other peoples and cultures. In addition, the historic glorification of the Akkadian kings has had an impact on our own judgment of their importance, personal charisma, and military skills. The Akkadian period may be simply an "empire of nostalgia" (Barfield 2001: 38), an imagined, glorious past, more important as a myth or memory than an actuality.

Empires should be physically massive, governmentally bureaucratic, economically complex and ethnically, culturally and often linguistically heterogenous (Sinopoli 1994; Barfield 2001; Schreiber 2001). An empire should have an active ideology, an expressed wish for limitless rule and a program of activities to achieve this (Barfield 2001; M.E. Smith 2001; Liverani 2005); empires are usually embodied by a "larger-than-life" individual. An empire should be militarily expansive, with a physical infrastructure that enables centralization and long-distance communication (Barfield 2001; Schreiber 2001; Sinopoli 1994, 2001a). The Akkadian period has the requisite core bureaucracy, ideology, charismatic kings, and military program. But several of these aspects come to us through past inflationary filters, and the extent of control and internal heterogeneity remain questions. A recent material-culture-based approach to empire proposes a set of relevant approaches and data: comparable ceramic assemblages between edge zones and imperial core, visible effect of empire on settlement patterns, "imperial administrative technology" at core and edges, and materialization of ideology through visible landscape monuments (Glatz 2009; cf. Sinopoli 1994). Connections between northern and southern Mesopotamian ceramic assemblages are present, including distinctive angular or ridged jar rim forms and combed decoration seen, e.g., both at Nippur and Tell Brak (McMahon 2006). But these represent slight overlaps rather than a complete borrowing or the import of full sets. We are not yet able to write a narrative of the Akkadian effect on settlement patterns in the north or south, but our limited data do not seem to reflect imperial meddling. There are scattered pockets of administrative artifacts (texts and sealings) at Tell Leilan and Tell Brak, and some highly visible monuments, but the spaces between these are vast. An "empire" should have more than a few, disconnected outposts and stelae, especially when texts describe internal revolts and reveal its unstable core. Is the wish for domination and the assumption of its achievement, over the reality (Liverani 2005), a sufficient trait of empires?

Akkadian internal and external control measures provide ambiguous answers to the question of imperialism. A standing army is often listed as a crucial impe-

rial criterion (e.g., Schreiber 2001). Sargon's claim to have fed 5,400 men every day (Frayne 1993) defies solid interpretation; the number is suspiciously round and these might have been laborers, administrators, and/or soldiers. But a record of 60,000 dried fish from Lagash, to provide for the army, is suggestive that in at least some seasons the army was substantial, while other official texts list troops and military officials (Foster 1993). But an army and warfare are neither sufficient for nor unique to empire. Organized warfare, including mass death, has a prehistory in the region (Late Chalcolithic graves from Tell Brak and destruction at Tell Hamoukar). Organized armies already appear on Early Dynastic artworks (the Ur Standard from the Royal Cemetery, Eannatum of Lagash's Stele of the Vultures). The Akkadian kings raised the value of warriors and war as an agent of change (Forest 2005), but neither war nor armies were new. And violence played both ways; insurrection was common and a startling number of kings met a violent death: Rimush, Manishtushu, Shar-kali-sharri, and probably some of the four obscure kings between him and Dudu.

Other internal features, such as the imposition of language change and new metrology, can be used to flatten variation and to crack city or ethnic allegiance in a nation-state and need not be imperial. Much has been made of the divine ascription of Naram-Sin and his para-mortal right to rule. But royal divinity is not typical of undoubted Mesopotamian empires, such as the Neo-Assyrian, although many kings from the Ur III period onward claimed a close association with gods.

Meanwhile, Akkadian external measures were expressed mainly as control of places but not of people. To the north, boundaries and military goals were labeled after resources (the Cedar Forest or Silver Mountain) or territories and landmarks (the Four Quarters, the sources of the Tigris and Euphrates). Peoples in these regions were viewed as enemies to kill, not subjects to command. And an empire should be about power over people as well as power to annihilate and to exploit things. The south saw more killing, although the Akkadian kings both claimed booty and directed trade from the lands of the Gulf and the Indus. But unquantifiable booty does not make an empire, and there is evidence that Akkadian access to resources was neither secure nor monopolistic. Although diorite/gabbro and exotics such as carnelian flowed in from the southeast, the amounts from southern Mesopotamia, when spread over the years of even one king's reign, are paltry. Gold beads that were solid in the Early Dynastic period are more often copper covered with gold foil in the Akkadian period, an apt analogy for Akkadian control.

The problem of selective and inflated accounts in texts is compounded by sparse archaeological evidence of the relationship between Akkadian kings and bordering lands. Empires should have political and cultural influence over a wider area than that which they directly control (M.E. Smith 2001). Empires are also often associated with reactive political developments in adjacent regions, but no external region became a state or empire because of the reach of Akkadian influence beyond its borders. Elam, in western Iran, provides useful material to test Akkadian

influence. From the reign of Sargon, year names refer to the conquest of cities within Elam, while Old Babylonian copies of statue inscriptions describe many as booty from Elamite cities (Gelb and Kienast 1990; Frayne 1993; Potts 1999: 102). Rimush campaigned against many of the same places, and finally under Naram-Sin there is clearer – albeit minimal – evidence of a more permanent Akkadian presence in Elam. Bricks stamped with his name have been found at Susa and, unlike possibly mobile statuary, provide clear evidence of a commissioned building there, possibly comparable to that at Tell Brak. The official language and seal style of Elam conform to Akkadian rules and pottery and metal object types also match Mesopotamian models (Potts 1999: 116). Superficially, the story appears to be one of raiding, booty acquisition, and finally imperial incorporation.

However, contemporary texts include a treaty between Naram-Sin and a king of Awan (possibly Hita; Westenholz 1999: 92), which indicates that some Elamite rulers remained independent allies rather than subjugated vassals. Elamite material culture includes almost as many elements of Gulf or Indus valley origin or influence as of Mesopotamian. In addition, statues, seals, and plaques of the early 3rd millennium BC from sites such as Susa were already similar to those from contemporary southern Mesopotamia; Akkadian period cultural similarity between the regions has a deep history and does not here equate with political control. Rather than imperial control, Akkadianizing material culture in Elam provides a classic example of connection and emulation between elites within a wider region that was already tightly culturally integrated. Finally, a daughter of the king of Marhashi (Elam) was married to Shar-kali-sharri or his son. Dynastic marriage connections may integrate an empire (Sinopoli 2001) but also imply equality or even mutual threat.

Northern Mesopotamia is another area to examine for imperial aspects. The acropolis buildings, sealings, and texts at Tell Leilan imply an Akkadian outpost, matched by similar features at Tell Brak. The Tell Leilan project additionally argued for intensive and directed exploitation of the north's agricultural capacity, reorganization of regional settlement pattern, and, at Leilan itself, a system of ration measurement and imposition of Akkadian bureaucracy and ideology through scribal school training (Senior and Weiss 1992; Weiss and Courty 1993; Weiss et al. 1993; Besonen and Cremaschi 2002). In support of this, at least one state-run grain shipment moved from the north via Tell Brak to Sippar (29 metric tons; Ristvet et al. 2004); but this amount is not as large as it sounds, and there is no evidence for continuous, multiple shipments. The northern Akkadian *sila*-bowl is never seen in the south. A tablet from the Naram-Sin palace at Brak lists men from Nagar (Brak), Shehna (Leilan), Urkesh (Tell Mozan), and other northern cities, suggesting an Akkadian labor levy (Catagnoti and Bonechi 1992) or soldiers (Eidem et al. 2001: 110). But again, the numbers are small and the text describes a single event. It was only under Naram-Sin that we have proof of Akkadian presence in the north (leaving aside the possibly mobile objects of Rimush and Manishtushu at Brak, Nineveh, and Assur). And collapse of the

system occurred before it reached its full potential (expressed in the Unfinished Building at Leilan).

The area of northern Mesopotamia that shows Akkadian presence or influence is a strictly bounded triangle within the eastern Upper Khabur, from the Kawkab volcano (near modern Hasseke) to Shehna (modern Tell Leilan) and north to Urkesh (modern Tell Mozan) (Catagnoti and Bonechi 1992). Only the largest sites within that triangle were implicated. Otherwise, there is no evidence of Akkadian presence in the western Upper Khabur; Nabada (modern Tell Beydar) shrank in size during the early Akkadian period, and the buildings and material culture were local in style. A gap exists on the east between Leilan and the ambiguous and minimal Akkadian materials from the upper Tigris (Nineveh, Bassetki). In addition, there are no known outposts on transport routes between this eastern Khabur triangle and southern Mesopotamia, although it must be admitted that the intensity of research in the relevant mid-Euphrates and mid-Tigris area has been relatively low. Empires need not comprise one contiguous territory, but this situation gives the impression of isolated out-stations rather than even a lightly colonized region.

Nearer to the Taurus foothill zone in the Upper Khabur, Akkadian control was minimal, as represented by an equal marriage between Naram-Sin's daughter Taram-Agade and the leader of an independent Urkesh (Buccellati and Kelly-Buccellati 2002, 2003). The massive palace currently under excavation at Mozan expresses significant local power over territory, resources, and people. As in western Iran, the similarity of sealings at Urkesh to south Mesopotamian Akkadian style (Aruz 2003: Nos. 154–155; Buccellati and Kelly-Buccellati 2002) derives from a base layer of cultural connectivity between these regions reaching back to the mid-3rd millennium BC, with an overlay emulation between elites. Our knowledge of the Akkadian relationship with nomadic tribes, both within and beyond its territory, is also an unknown, but the autonomy of these tribes may have been significant.

Was the Akkadian system a "hegemonic state," in contrast to a city-state (Forest 2005)? Many archaeologists and historians of the ancient Near East use the terms "hegemony" and "imperial control" interchangeably. But in modern political thought, hegemony implies a significant element of consent rather than conquest, or leadership rather than oppression, and it is better used to designate political and cultural influence than imperialism. Hegemony may fit the cobwebbed and temporally variable veneer of control that the Akkadians achieved, but their ideology and expressed intent was for more absolute power over place and time.

Can the Akkadian system be called a nation-state? Unlike "hegemony," the relevance of "nation-states" to the past is generally denied. Most postmodern scholars place the innovation of the nation-state in the 18th–19th century AD and reject the application of this term to the more distant past as overly modernizing. This rejection may in part have developed through distaste at the cynical use of archaeological materials and the past have been used cynically in the

creation of some modern, oppressive, postcolonial nation-states further tarnished by "ethnic" struggle. But the term "nation-state" may be rehabilitated. Objectively, the Akkadian kings were engaged in overt "nation-building" with their internal, unifying measures, particularly language imposition. They aimed to develop a distinct "national identity" and they did create a distinct leadership identity that combined old and new elements. They had a clear idea of territory, within which variations of material culture, economy, religion, and history were tolerated but limited. They may not have had Benedict Anderson's novel and newspaper to represent and advertise an "imagined community" (1983) but their internal accounting and dating measures and the flexibility of existing Mesopotamian oral tradition were equally rapid modes of communication. Even the resistance of subsumed cities, social classes, and (possibly) nomads to unification may be a characteristic of nations.

9 Collapse

The collapse of the Akkadian political system in southern and especially northern Mesopotamia has been one of the most hotly debated topics in Mesopotamian archaeology and social history over recent decades. The most dramatic cause proposed for collapse is a drought, lasting several centuries, which affected the agricultural carrying capacity of northern Mesopotamia with a domino effect in the south (Weiss and Courty 1993; Weiss et al. 1993; Weiss 2000; deMenocal 2001; Weiss and Bradley 2001; Staubwasser and Weiss 2006). The proposed effects include the near-total abandonment of northern Mesopotamia and the mass movement of economic refugees into the cities of the south. As evidence, an aridity spike in a Gulf of Oman sediment core (Kerr 1998; Cullen et al. 2000), which shows increased aeolian dust for 300 years from c.4025 ± 125 years BP, has been cited. Similar, contemporary evidence of sharply increased aridity comes from the southern Persian Gulf (Aeolian deposits in lake sediments; Parker, Davies, & Wilkinson 2006); the eastern Arabian Sea (oxygen isotope variation in sediment cores; Staubwasser et al. 2003); the Arabian Sea off Oman (foraminifera fluctuations; Gupta et al. 2003); the northern Red Sea (salinity variations; Arz et al. 2006); Soreq Cave, Israel (O- and C-isotope variations in speleothems; Bar-Matthews et al. 2003), the Dead Sea (dropping lake levels; Enzel et al. 2003); the Jableh plain in northwest Syria (pollen core; Kaniewski et al. 2008); and even caves in central Italy (Drysdale et al. 2006) and cores in the Greenland ice sheet (Weiss 2000). Additional, far-flung evidence from the US and Europe and the approximately contemporary collapse of Old Kingdom Egypt, Early Bronze Age cultures around the Mediterranean, and Harappan cultures in the Indus form the basis for the argument that the "4.2 kya Abrupt Climate Change event," within which temporal parameters the historical collapse of the Akkadian state occurred, was a global phenomenon (e.g., Kerr 1998; Staubwasser et al. 2003; Drysdale et al. 2006; Staubwasser and Weiss 2006).

This collapse model has been widely criticized on climatic, historical, and archaeological grounds (see Wossink 2009 for a recent summary). Other climate records from the Arabian Sea indicate not a spike but a long-term, gradual aridity trend, within which an event at 4.2 kya is difficult to isolate (oxygen isotope variation in a Qunf Cave stalagmite, Oman; Fleitmann et al. 2003). The precise dating of climatic events has proven impossible and their relationship to each other and to equally slippery historical events is difficult to reconstruct. Moreover, these climatic records come from places that are far from the northern Mesopotamian plain in which the collapse most visibly occurred; and their reliability as proxies for environmental change within those plains varies greatly, depending upon the interaction of Indian/Asian monsoons, the North Atlantic Oscillation, smaller scale Mediterranean depressions, and Caspian-Black Sea westerlies (Cullen and de Menocal 2000; Gupta et al. 2003; Arz et al. 2006; Staubwasser and Weiss 2006; Magny et al. 2009). Aeolian dust has been recovered in relevant layers at Tell Leilan, sites in its vicinity, and Abu Hjeira south of Tell Beydar (Weiss et al. 1993, 2002), but these discoveries remain in a vacuum. It has also been argued that modern climate change has made "environmental determinism" models for past cultural change plausible again, after they had been written off in the 1970s as too rigid and impersonal (Coombes and Barber 2005). While the argument for total reflexivity of theoretical models may go too far, careful consideration of the enabling and limiting factors inherent in the interaction between culture and climate is needed; synchronicity does not equal causality. More specific data from within archaeological sites in northern and southern Mesopotamia are required, and their precise effects on human behavior must be analyzed before this debate can be concluded.

The archaeological evidence for collapse is mixed. Not all northern Mesopotamian settlements were abandoned: occupation continued at, e.g., Tell Brak and Chagar Bazar, although settlement size in each case was reduced. At Tell Brak, the monumental buildings in Areas SS and FS were filled and capped with ritual donkey burials and "sealing deposits," jars of precious materials and objects (Oates and Oates 1993; Oates et al. 2001: 41ff, 233–6). These sealing deposits are paralleled by hoards of precious metal and lapis objects in house contexts, buried at about the same time but probably with the intent of later retrieval (Mallowan 1947; Matthews 1994; 2003a: 203–9). This implies that the house occupants left rapidly but with the assumption that their absence would be temporary, while the occupants of the administrative buildings left more slowly and with fewer expectations. But the monumental buildings were replaced by houses, and the use (and possibly even construction) of the Naram-Sin palace persisted after this partial abandonment.

A massive administrative building was constructed in the post-Akkadian period on the highest point of Chagar Bazar (Tunca et al. 2007); a similar building was revealed at Tell Arbid (Bielinski 2002). Urkesh remained a large and thriving city (Buccellati and Kelly-Buccellati 2000, 2004). Tell Beydar, further to the southwest, contracted in size but retained a temple at its highest point (Bretschneider

et al. 2003). Like the buildings at Chagar Bazar and Arbid, its location was surely intended to achieve high visibility in a nomadized landscape. A shift of populations to increased pastoralism, relocation to smaller sites in pockets of still-viable agricultural land, and decreased hierarchical power (making settlements less archaeologically visible) are plausible alternative models to explain the reduction in size of large sites. Settlement along the Upper Euphrates in Syria and Turkey shifted to an arrangement of more villages and fewer towns (Wilkinson 1998b); but a true picture is still obscured by the abovementioned difficulty of defining northern post-Akkadian (EJ V) ceramics (Koliński 2007). Settlement patterns in the south should show an increase in site size and perhaps numbers, but the picture is murky; due to the difficulties with the menu of material culture, a purported increase in settlement (Weiss 2000: 89) may simply reflect rapid shifts of populations under Naram-Sin and/or under the powerful, early Ur III kings. Specifically collapse-related immigration, if it occurred, is invisible.

Mesopotamian texts do not record reduced rainfall or mass immigration, and their own legends, such as *The Curse of Agade*, ascribe the Akkadian downfall to the Guti, an illiterate mountain tribe (from the Zagros) sent by Enlil as punishment for Naram-Sin's transgressions, which had included, purportedly, the looting of Enlil's temple at Nippur (Cooper 1983b). However, the legend's contrast between civilized Mesopotamians and barbaric surrounding peoples is a generic aspect of the region's "historico-literary" texts that later reappeared in relation to the Amorites; the specifics are therefore questionable. The Sumerian King List does record a Gutian Dynasty with odd names and short regnal lengths; an Uruk Dynasty is listed as intervening between them and Shu-Durul. But both contemporary documentation and the necessary interpolation of the Sumerian King List imply that these Guti and Uruk dynasties overlapped with the later Akkadian period, beginning in the reign of Shar-kali-sharri. Gudea's reign at Lagash also overlaps with the final years of the Akkadian kings. The Guti held minimal control in the central alluvial plains (i.e., Adab, Umma, and Lagash), from which there are royal inscriptions, building inscriptions, and year names, but their power and reach are poorly known. Their presence must be seen as a symptom rather than a cause of collapse. Other external threats include various city-states in Elam, which nibbled at the eastern borders of the Akkadian zone – e.g., in the Nuzi area (near modern Kirkuk).

Internal problems have been less closely scrutinized and are less exciting than the climatic evidence and textual descriptions of barbaric hordes (although see, e.g., Glassner 1986; Yoffee 1995). But internal instability and "overstretch" are important considerations. Even if the Akkadian kings' claims of territorial control are exaggerated, the logistical needs of the larger army and multilayered administration of the Akkadians would have overstretched existing systems. Hyper-centralization of the economy and royal greed have also been cited by Glassner (1986) as causes of collapse. In addition, the simple possibility of social inertia is strong and the independent city-state arrangement that had persisted

from the 4th millennium BC Uruk period (if not earlier) through the end of the Early Dynastic period would not have been easily given up. The political arrangements so carefully crafted by the Akkadian kings were an added veneer to extant robust social, civic, and economic systems, and that veneer and its economic and labor demands were a cause of tension (Yoffee 1995). Under Sargon, the governors of many city-states were simply their former kings, and while this may have been intended to minimize change and reduce the chances of revolt, it had the effect of reminding the cities of their past freedom and providing a springboard for rebellion. Rebellions of various city-states occurred throughout the Akkadian period, even under the most powerful and successful kings, such as Naram-Sin.

We can even question the importance of political collapse. While the Akkadian Dynasty certainly declined and vanished, local resilience and adaptation are the opposite face of collapse (McAnany and Yoffee 2010a). And collapse is not visible in the south in quotidian material culture; for many people, the removal of the Akkadian veneer may have meant an economic improvement in their lives. Collapse did not mean disappearance: the Ur III kings inherited the ideology and national ideal of the Akkadian kings, while their seals and iconography are further material expressions of continuity. The social memory (Alcock 2001) of the Akkadian Empire was created during their reign. It evolved and was adapted and reinvented from the late 3rd millennium BC through the present day. From the wider perspective of Mesopotamian history, Akkadian political collapse was a minor blip in a long-term cycle of growth, contraction, and movements of peoples, a minor set-back greatly overwhelmed by cultural continuities.

GUIDE TO FURTHER READING

Surveys of Akkadian political history can be found in Foster and Foster (2009: Ch. 4); Kuhrt (1995: Ch. 1c); Nissen (1988: Ch. 6); van de Mieroop (2004, Ch. 7). Texts and historiography are discussed in the various chapters in Liverani (1993a), with many suggestions for further close text reading. Royal inscriptions of the Akkadian kings are collected in Hirsch (1963), Gelb and Kienast (1990) and Frayne (1993); the later legendary texts can be found in Westenholz (1997). Collected artworks of the Akkadian period are presented in Amiet (1976) (statues, reliefs, and seals), Boehmer (1965) (seals), and Aruz (2003). The Naram-Sin stele is one of the most closely analyzed Mesopotamian artworks; the discussions by Winter (1996, 1999) are among the most intriguing. The archaeological record and settlement pattern data for southern Mesopotamia are quite scattered. The surveys of Adams (Adams and Nissen 1972; Adams 1981) are a useful start, although the dating must be used with caution. Akkermans and Schwartz (2003), Kolinski (2007), and Ur (2010a) give good summary accounts of the archaeological problems and varied evidence from northern Mesopotamia. Many of the publications of the Tell Leilan project that deal with empire, collapse, and climate change are available as PDF downloads from their website: http://leilan.yale.edu/; accessed October 2011). A text-based approach to the Akkadian collapse is presented in Glassner (1986).

CHAPTER THIRTY-SIX

Central Asia, the Steppe, and the Near East, 2500–1500 BC

Michael D. Frachetti and Lynne M. Rouse

1 Introduction

Given the geographical focus of this volume and the theme of this section, it might be logical to discuss the societies of Central Asia and the Eurasian steppe as peripheral to the growth of Near Eastern empires from the 3rd to 2nd millennia BC. However, in this chapter we temporarily reorient the focus to investigate tangible ways in which innovations and extensive networks formed by societies of Central Asia and the Eurasian steppe (Figure 36.1) impacted the rapid-pace changes in political economy in the Near East during the late 3rd and 2nd millennium BC. In doing so, this chapter situates our view of Near Eastern empires and states within a wider and more complex arena of economic, political, and social interaction across Asia in the Bronze Age (Possehl 2007).

From roughly 2500 to 1500 BC, proto-urban communities of Central Asia and mobile pastoralists of the Eurasian steppe emerged as integral agents in the growth of a wide network of interactions that bridged the Far East and southwest Asia, millennia before the historically known Silk Road. From the 3rd millennium BC onward, innovations from the Eurasian steppe and Central Asia found their way into the cultures of the greater Near East; whether recognized as equid-drawn war carts depicted on the royal standard of Ur (2600 BC), "intercultural style" vessels at Susa transported by Elamite traders (c.2500 BC), or semi-precious stones and materials extracted from far across Inner Asia and worked into burial adornments of Ur III rulers (2100–2000 BC). To be sure, the city-states and

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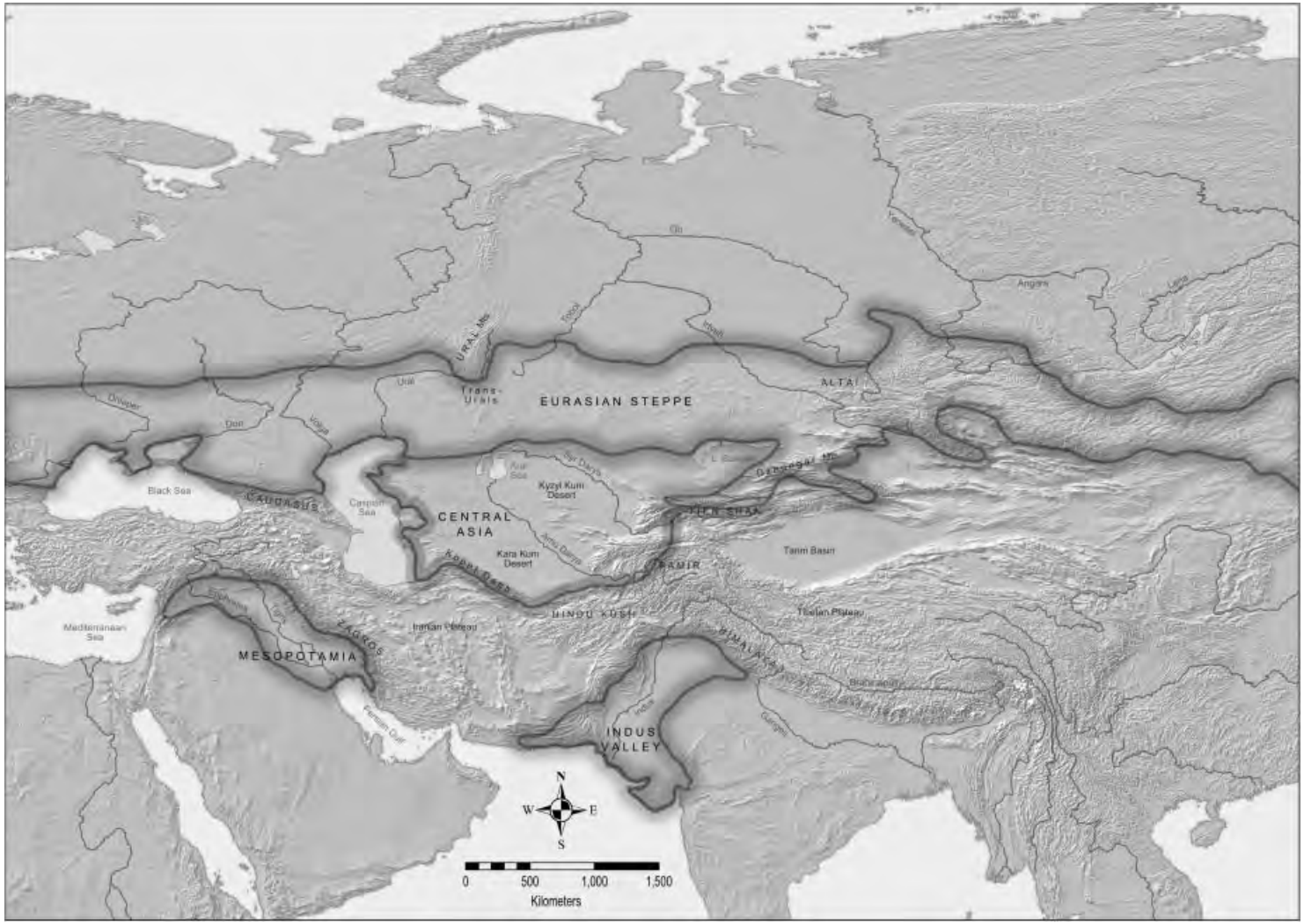

Figure 36.1 The Bronze Age world of Eurasia and Central Asia in relation to contemporary culture zones.

empires of Mesopotamia emerged rich in capital and ideological power by the end of the 3rd millennium BC and were undeniable forces in fostering material relationships that variously benefited and weighed upon their neighbors across southwest Asia. According to current archaeology, it was these neighboring societies – such as the Elamites of the Iranian plateau and the Harappans of the Indus Valley – who were more directly engaged with civilizations native to Central and Inner Asia.

The broad economic arena that took form across Asia in the late 3rd and 2nd millennia BC was not a top-down structure with Near Eastern empires dictating the terms of acquisition from distant subjects. Instead, practically and strategically generated lines of discourse and trade shaped the institutional alignment of groups far beyond the access of Near Eastern rulers, organically gestating independent civilizations in the oases, steppes, and mountains of Central and Inner Asia. For example, late 3rd millennium BC agriculturalists living along the Kopet Dagh mountains of Turkmenistan and foothills of Bactria bred a vital link with the Iranian plateau, connecting sites like Shortugai and Shahr-i Sokhta to resources in the Hindu Kush mountains (Lamberg-Karlovsky and Tosi 1973). Lapis lazuli and other commodities passed over long and diffuse chains of interaction across Central Asia and set the stage for durable economic ties between the Indus and the Near East (Potts 1999). Beyond these well-documented ties between Central and southwest Asia, recent archaeological discoveries in the mountain steppe regions of Kazakhstan now illustrate that similar networks likely extended north into the steppe as well. Mobile mountain pastoralists, like those living in the Dzhungar Mountains (Kazakhstan), were tapped into networks along Inner Asia's mountains and foothills transferring domesticated wheat, millet, and material innovations between southwest Asia and China in the late 3rd millennium BC (Mei and Rehren 2009; Frachetti et al. 2010).

Archaeological discoveries in Central Asia increasingly offer direct and indirect evidence of long-distance contacts in the Bronze Age (Possehl 2002b; Potts 2008a, 2008b; Salvatori 2008a), but our conceptual understanding of the various modes of social interaction that aligned these diverse and disparate societies is only now coming into clearer focus. Prehistoric populations living in the steppe zone and oases of Central Asia together represent a complicated matrix of intra/interregional diversity and overlap, which positions them as elemental players in the formation of Asian political economies more broadly. Here we start our investigation of this interactive arena with a basic geography of both the southern regions of Central Asia and the more northerly Eurasian steppe belt, before shifting attention to the main archaeological characteristics of these regions from 2500 to 1500 BC. This background provides the context to trace the growth of the extensive channels of interaction that emerged across "middle" Asia, both between Central Asian oasis cultures and the Eurasian steppe and further as part of the economic and political developments in the greater Near East during the Bronze Age. By way of a conclusion, some observations are made about the

impact of Central Asian networks of exchange on the wide-scale transformations of southwest Asian social landscapes by the end of the 2nd millennium BC. Ultimately, the goal of this chapter is to highlight the contribution of societies which, from the perspective of Near Eastern empires of the 3rd and 2nd millennia BC, lived beyond the periphery of their direct influence, yet which, in concrete ways, fostered the expansion of material and ideological innovations that were important to the growth of civilizations across Asia during the Bronze Age.

2 Geography of Central and Inner Asia

Environmentally, Central Asia represents a series of geographic transitions as one travels north from the Iranian Plateau down the rain-fed piedmont of the Kopet Dagh range to the arid deserts of the Karakum and Kyzylkum, and eventually onward to the desert steppes and grasslands of Central Eurasia (Figure 36.2). Of course these broad environmental zones are carved and variegated by major and minor rivers, oases, and mountain ranges. By mapping these geographic anchors as the core of middle Asia, we can highlight the Eurasian steppes and oasis zones of Central Asia as key interstitial territories between Mesopotamia, Iran, the Indus Valley, and China. The multidirectional access to a wide host of economic and political interactions, as well as a wealth of natural resources, shaped unique strategies of production and interaction in both the Central Eurasian steppe and southern Central Asian oases.

Located to the northeast of what is generally conceived of as the ancient Near East, Central Asia covers the contemporary republics of Uzbekistan, Tajikistan, Turkmenistan, parts of Afghanistan, and the northern fringe of the Iranian plateau. The area is bounded by the Caspian Sea in the west, the Kopet Dagh and Hindu Kush Mountains in the south, the desert steppes of Kazakhstan in the north, and the Pamir Mountains in the east. Many distinct environments are contained within this region, including nearly uninhabitable deserts, oases, rivers and marshy river deltas, clay basins, foothill plains, and mountains.

The dominant deserts of southern Central Asia – the Karakum (Garagum) of Turkmenistan and the Kyzyl kum (Qyzylqum) of Uzbekistan – are characterized by extreme aridity and long, hot summers, where daytime temperatures often exceed 50°C (120°F). Rainfall occurs primarily in winter and spring, but rarely exceeds 150 millimeters per year, while some areas may go without rainfall for up to 10 years. The deserts are shaped by strong winds and cut by high-impact rivers which form marshy, deltaic fans and oases in lowland basins. The result is a variety of landforms which are home to specialized forms of plant and animal life and human adaptations.

Rivers are the lifeblood of southern Central Asia, providing reliable natural water sources and productive agricultural hinterland for numerous ancient and modern cities. Both the Syr Darya (the ancient Jaxartes) and the Amu Darya (the

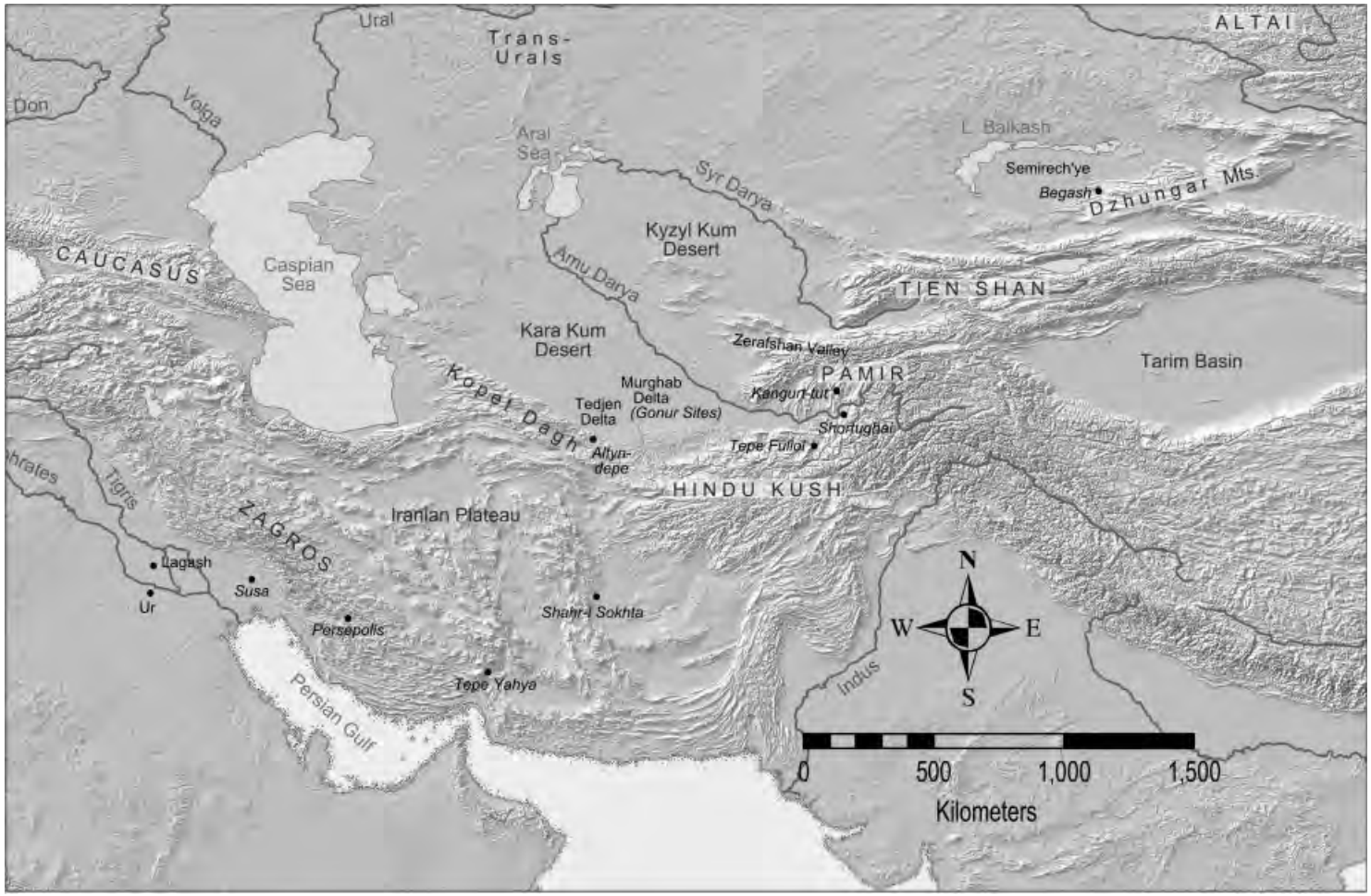

Figure 36.2 Sites and regions of Eurasia, Central Asia, and the Near East mentioned in the text.

ancient Oxus) rivers originate in glacially capped mountain peaks in the east and flow northwest toward the Aral Sea, depositing rich alluvial sediments (silts and clays) and providing water for irrigated agriculture along their courses in the lowlands. The waters of the Amu Darya have been so over-utilized in modern times for industrial-scale cotton production as to cause the nearly complete drying up of the southern Aral Sea, widely recognized as one of the most devastating anthropogenic environmental disasters of the 20th century (Micklin 2007). The diversion of Central Asia's rivers for irrigation agriculture is not a modern phenomenon, however, as evidenced by the exploitation of the Tedjen River delta (Geoksur oasis) in the Chalcolithic period, and the continuous use of canal-based irrigation in the Murghab delta from the Bronze Age to the present day. Stream-fed and runoff agriculture was practiced in the foothills of the Kopet Dagh from at least the 4th millennium BC onward, evidenced at the site of Anau.

The mountain zones of Central Asia, including the Kopet Dagh, the Pamirs (Afghanistan and Tajikistan), and the Hindu Kush (ancient Paropamisus), are zones of rich natural resources that have been regularly exploited since ancient times. Limestone, alabaster, steatite, carnelian, lapis lazuli, and other semi-precious stones and metal ores have been utilized from at least the 3rd millennium BC, exchanged for other raw materials and goods from as far away as Mesopotamia, the Persian Gulf, and the Indian Ocean (Hiebert 1994a; Possehl 2002b). Further into Inner Asia, the Tien Shan and Dzhungar mountains also provide rich plant resources for human and animal consumption, the seasonal exploitation of which has been key to the productive success of agropastoral societies, an adaptation documented from at least the Bronze Age and one that is still prevalent in the region today. Additionally, the mountain zones of Inner and Central Asia make up the traditional trade corridors connecting the Eurasian steppes with Mongolia and western China and Central Asian urban centers with India and the Near East (Frachetti in press).

Intensive strategies based in seasonally patterned movement and pastoral exploitation, known generally as mobile pastoralism, characterize the dominant economic basis for societies of the "Eurasian steppe zone." In its broadest definition, the steppe extends from north of the Black Sea to Mongolia and from the forests of southern Russia and Siberia to the border between arid steppes and sandy deserts of present day Kazakhstan, Uzbekistan, and Turkmenistan. These boundaries are primarily derived from the extent of the grassland and arid steppe ecologies, a typical but inconsistent environmental backdrop across most of this expansive territory.

Environmentally, the Eurasian steppe zone is best understood as a patchwork of localized environments and ecologic niches. Consequently it houses a diverse distribution of natural resources. Lush river valleys carved by such major rivers as the Volga, Ural, Tobol, and Irtysh are complemented by scores of smaller valleys fed by hundreds of smaller rivers and tributaries. These relatively stable environments stand in contrast to the mountain zones of the Tien Shan and

Dzhungar ranges, which experience drastic changes in temperature and precipitation both in a seasonal sense and between different altitudinal zones. Localized ecologic diversity is further highlighted in the Semirech'ye region, south of Lake Balkash in modern Kazakhstan, where the transition from arid, sandy steppe to fertile meadows to glacial peaks occurs over a distance of less than 400 kilometers. Ultimately, the diversity of Semirech'ye stands as a proxy for the geographically uneven distribution of resources and the diversity of ecological and climatic conditions in broader Eurasian and Central Asian contexts. It is precisely these localized conditions, and the sociopolitical and economic strategies they engender, that form the framework over which the social canvas of Bronze Age Asia was stretched.

3 Chronology and Archaeological Communities of Central and Inner Asia (2500–1500 BC)

In parallel with the rise of empires and states in Mesopotamia, Syro-Anatolia, the Persian Gulf, Iran, and the Indus Valley, Central Asia underwent a dramatic shift in social organization, production, and regional integration from the 3rd to the 2nd millennium BC. The Bronze Age of southern Central Asia is outlined chronologically by the Namazga sequence (Table 36.1), named after the type-site in the Kopet Dagh foothills of Turkmenistan. The Namazga I–III (Eneolithic/Chalcolithic) periods witnessed the development of early settlement hierarchies and burgeoning craft industries at sites along Kopet Dagh range (Gupta 1979; Kohl 1984) as well as increased contact and exchange with communities on the Iranian Plateau and in South Asia (Hiebert et al. 2003). By the Namazga IV period (Early Bronze Age) and continuing through Namazga VI (Late Bronze

Table 36.1 Gross comparative chronology of Central Asia and the steppe zone

	Bactria/ Margiana Oases	*Central Kopet Dagh*	*W. Kopet Dagh*	*Western Eurasia Steppe*		*Eastern Eurasia Steppe*
1500	Molali/ Takhirbai	Late Namazga VI	Anau IVa	Alakul	Andronovo Culture	. . . Karasuk
1700	BMAC	Namazga VI		Alakul		Fedorovo
1900	BMAC	Namazga V		Petrovka		. . . Fedorovo
2200	. . . BMAC	Namazga IV–V		Sintashta		Begash
2700		Namazga III–IV	Anau III	Catacomb/ Yamnaya		Begash (late) Afanasievo

Age), fully fledged urban centers such as Altyn-depe developed specialized craft industries (Masson 1968; Kircho et al. 2008) and clearly participated in inter-regional trade networks, most notably contributing to the crystallization of the Bactria-Margiana Archaeological Complex (BMAC or "Oxus civilization").

The BMAC is represented by large, fortified settlements in the Mughab delta of Turkmenistan and the foothills of northern Afghanistan (ancient Margiana and Bactria, respectively). These urban populations were dependent on irrigation agriculture and domestic animal husbandry (Sarianidi 1984; Hiebert 1994a; Moore et al. 1994; Miller 1999) as well as the importation of exotic raw materials such as metals and semi-precious stones to facilitate craft production (Hiebert 1994b; Salvatori et al. 2008).

Although the demographic and cultural genesis of the BMAC is intensely debated (see Kohl 2002; Sarianidi 2007; and Salvatori et al. 2008 for various viewpoints), it is clear that it participated in a wider theater of interaction. Francfort (1994) and Winkelmann (1997) noted the cross-regional stylistic repertoire underlying BMAC crafts, but emphasized the particular material expression of BMAC ideology in its own right. BMAC crafts display a unique constellation of art and material expression, depicting wild and fantastic animals and anthropomorphic heroes in combat on metal seals and ceremonial weaponry, as well as visually striking contrasts of color and material in worked stone objects and other small items (Hiebert 1994b). The Tepe Fullol treasure, found near ancient lapis lazuli mines in Bactria, one of the most well-known examples of BMAC material, illustrates the blend of local Central Asian craftwork and form mixed with, in this instance, Mesopotamian bull imagery (Tosi and Wardak 1972) (Figure 36.3).

Figure 36.3 A gold bowl depicting bull imagery from the Tepe Fullol (Afghanistan) treasure, dating to the Bronze Age in Bactria (courtesy of the Kabul Museum).

Although unique and readily attributable as BMAC materials, the variety of motifs and the semiotics of trade objects at this time clearly reflect the range of interactions linking south and southwest Asia with the urban centers of Central Asia (Sarianidi 2002; Kohl 2007).

Despite the wide stylistic resonance of BMAC craft production, the only naturally available local raw materials were clay/terracotta and bone, meaning that all other materials – including stone and metals – had to be imported from elsewhere. Evidently, the network for acquiring these raw materials was vast, illustrating contacts with south Asia (various marine shells), mountainous zones of Afghanistan and Tajikistan (semi-precious stone and tin), southern Iran (semi-precious stones) and the Iranian plateau (stone) (Hiebert 1994a, 1994b; Parzinger and Boroffka 2003; Law 2006). Finished BMAC objects have been identified in all these locations, though only a very small number of reciprocal finished items from these territories seem to return to the BMAC core region. Most notable among these cases are stamp seals found at Altyn-depe and carved "stick-devices" resonant of styles and symbols common in Indus civilization assemblages (c.2500–2000 BC) (Possehl 2002a: 230). Thus, the emerging pattern is one in which raw materials were imported to the BMAC region and finished products were exported back to those regions providing the raw material, as well as further afield to the societies of Elam and Mesopotamia.

While BMAC communities were fostering extensive exchange networks with civilizations to the south and west, mobile pastoralist communities dominated the economic and political landscape of the central Eurasian steppe by cultivating extensive networks, in their own right. Traditionally subsumed under the broad culture-historical moniker of the "Andronovo Culture," Bronze Age steppe communities exhibit broadly similar design elements and forms of material culture, burial traditions, and economies, with regional variations such as the Petrovka (c.1900 BC), Alakul (c.1650 BC) and Fedorovo (c.1800 BC) distributed from the Urals to the borders of western Mongolia and as far south as the foothill terraces and oases of eastern Tajikistan, Uzbekistan, Bactria, and Margiana (Turkmenistan) (Vinogradova 1993; Kuz'mina 2007). Material and economic aspects of this complicated mosaic of communities arguably emerged in regionally independent contexts as early as 2500 BC (Frachetti 2008). Recent studies at the site of Begash in southeastern Kazakhstan illustrate the development of a local pastoralist sequence from the mid-3rd to the late 1st millennium BC (Frachetti and Mar'yashev 2007), though documented shifts in ceramic styles and burial rites do indicate a new era of participation in material and technological exchange from 1900 to 1600 BC. As far south as Tajikistan, settlements such as Kangurt-tut and burial sites such as Zardcha Khalifa and Dashti Kozy exhibit ceramics and metallurgy with obvious parallels to late Bronze Age sites in the steppe zone (Bobomulloev 1998). These sites, roughly dated to the late 2nd millennium BC, suggest that the extension of steppe networks was intertwined with exchange vectors of southern Central Asia. It also appears that specialized pastoralists may have been the key to

this interaction (Avanesova and Dzhurakulova 2008). In fact, earlier innovations such as two wheeled chariots can also be traced confidently to steppe communities at Sintashta (2300–1900 BC) (Gening et al. 1992), while forms of bronze smelting and casting, and ideological registers innovated in the steppe became part of a wider practical and symbolic lexicon from China to Iran in the Bronze Age (Mei 2003; Peterson 2007; Chernykh 2009; Roberts et al. 2009).

Steppe Bronze Age societies are generally viewed through the lens of their shared designs in ceramics, bronze axes, jewelry, and burial constructions, while the genesis of such wide distributions of steppe material culture and symbolism remains one of the pressing questions in Central Asian archaeology. Some have proposed direct demo/cultural migrations to explain the geographic distribution, originating from the western territories of the steppe and reaching east to China and south to Tajikistan and Turkmenistan by 1500 BC (Kuz'mina 1986; Anthony 2007). Others have proposed a nuanced model of local interactions, whereby regionally entrenched pastoralists generated networks for rapid exchanges of materials and concepts via the normal geographic variation of their limited mobility patterns (Frachetti 2008). Assimilation and diversity of social, political, and even linguistic affiliation may also partly explain the admixture of material elements across the vast Eurasian landmass. As with most models of human behavior, the answer likely lies somewhere between these proposals, as these processes are not, necessarily, mutually exclusive.

4 Links Between the BMAC and the Steppe

The Murghab delta of southern Turkmenistan has been a context for cultural interaction in Central Asia since ancient times (Tashbaeva and Gritsina 2005), as typically sedentary farming communities of the lowlands and mobile agropastoral groups inhabiting the surrounding mountains and mountain steppes formed a complex interrelationship from at least the Early Bronze Age. Material cultural diversity in BMAC contexts is illustrated by the recovery of hand-made ceramic vessels and sherds (known as "steppe ceramics" or "Incised Coarse Ware," ICW) which have been associated with mobile pastoralists (Cerasetti 1998; Pyankova 1994, 2002; Vinogradova 1994; see Cattani 2008b: 143–145 for a concise list of such finds). The first appearance of peripheral, small-scale settlements within the BMAC landscape around 1800 BC and an apparently simultaneous shift in the sociopolitical organization of the BMAC itself may suggest the arrival of outside, pastoralist communities that stood to profit politically and economically through growing social ties and more distant regional access (Sarianidi 1975; Kohl 2002; Pyankova 2002; Salvatori 2008b).

Archaeological investigations aimed specifically at pastoralist strategies in the Murghab delta have been habitually overlooked in favor of large-scale investigations at urban BMAC centers. Two exceptions are the work of Fredrik Hiebert

at Gonur-N in 1989–90 and the investigation of Sites 1211 and 1219 by the Joint Italian-Turkmen Archaeological Mission in 2001–2 and 2006. Hiebert's excavation at a discrete scatter of predominantly ICW ceramics, located c.1 kilometer southwest of the fortified BMAC site of Gonur South, recovered pottery belonging to both ICW and BMAC traditions and dated stylistically to the Late Bronze Age (1800–1500 BC). Hiebert considered these forms consistent with the preparation, storage, and consumption of liquids (Hiebert and Moore 2004). On the basis of these observations and the proximity of Gonur-N to Gonur South, Hiebert concluded that Gonur-N represented a short-term, mobile pastoral encampment where members of independent mobile pastoralist and BMAC communities feasted together as part of negotiations over land use (Hiebert and Moore 2004). In this scenario of mobile-sedentary interaction, contact between the two groups was limited to marginal areas, and though interactions may have been formalized (through feasting), they were not necessarily regular or seen as especially essential to the survival of either group.

The only other published archaeological investigation of smaller, peripheral occupation in the Murghab delta was the excavation of Sites 1211 and 1219, which, like Gonur-N, were identified by a surface concentration of ICW ceramics and revealed thinly stratified Bronze Age deposits (Cattani 2004, 2008a; Joint Italian-Turkmen Archaeological Mission 2006). Unlike Gonur-N, these sites represent a more substantial occupation in area, as they are separated only by modern fields and probably represent different areas of the same 1 hectare site complex (Cattani 2004). These sites also probably represent more substantial interaction between different groups, attested by the mix of ICW and BMAC pottery, and the time and energy investment in construction of a semi-subterranean dwelling and storage areas. Additionally, domesticated grains found inside stylistically BMAC vessels may be evidence of trade, though we can only speculate about the bartered product – perhaps textiles, wool, or livestock? The archaeology from this case raises the possibility of physical exchanges of goods as a motivation for pastoralist occupation, rather than the social context proposed at Gonur-N. On the other hand, the data from Sites 1211 and 1219 do not preclude the possibility of occupation by sub-groups of the BMAC population, who moved seasonally for primarily agricultural rather than pastoral activities.

Regular contact between inhabitants of BMAC settlements and nomadic pastoral populations provides a logical explanation of how BMAC craftsmen may have acquired their raw materials, because the semi-precious stones and metals they used had to be imported from outside the core BMAC culture zone. The transformation of these raw materials into finished goods was an important step in the materialization of BMAC ideology, which, together with the construction of massive, carefully planned architecture and the control of a vast delta through irrigation, may have signaled their ability to control nature. The scenes of human figures overpowering animals depicted on BMAC seals may also reflect this "man versus nature" ideology.

Though the exact nature of BMAC ideology can be debated, the undeniable fact is that BMAC ideology and political economy were facilitated by the ability to procure raw materials. As such, mobile pastoralists may have played a foundational role in the development and flourishing of the BMAC by brokering the trade in raw materials that were so essential for the materialization of BMAC ideology. In so doing, the mobile pastoral groups did not sacrifice their own, independent identity (documented archaeologically as a distinct assemblage in both the Bronze Age and Iron Age). Rather, pastoralists may have strengthened and maintained their unique cultural role by constantly renegotiating the social relationships that defined their own sociopolitical structures (Frachetti 2009). From this perspective, mobile pastoralists in the BMAC region were not fringe communities; they were essential to the fabric of Bronze Age urban prosperity and helped drive the system of cultural, economic, and political interaction of the time.

5 Role of Pastoralists as Connectors

Although BMAC populations were successful in establishing a clear sociocultural identity materialized over a wide geographical area, mobile pastoralists directly contributed to the success of urban agricultural settlements and the development of their political economy by physically brokering that materialized ideology. The degree of autonomy of mobile pastoralists within the Central Asian economic arena and the extent of their influence on the BMAC both have theoretical consequences for broader explanations of the social dynamics that shaped interactive channels across southwest Asia (Masimov 1981; Hiebert 1994a; Pyankova 1994; Lamberg-Karlovsky 2002, 2003; Masson 2002; Kohl 2007; Sarianidi 2007).

One hypothesis might consider pastoralist groups in the Murghab delta an outgrowth of the BMAC communities themselves, much like the traditional model of Near Eastern pastoralism (cf. Lees and Bates 1976). However, the currently available archaeological data do not seem to support this, as no material cultural antecedents for this distinct, new, "steppe" assemblage are to be found within the BMAC remains and the appearance of distinct, ephemeral sites and their material began after the establishment of a productive BMAC agricultural system. Rather, the current data is more in line with an alternative model that recognizes groups of mobile pastoralists within the Bronze Age landscape of the Murghab delta as intrusive (Kohl 2002; Anthony 2007). This model rests on the working hypothesis that the ephemeral material remains of the Late and Final Bronze Ages (1800–1300 BC) can be clearly correlated with mobile pastoralists, an idea still under-documented by direct archaeological evidence. Nonetheless, there are strong and even exact parallels between ICW ceramic and architectural remains in the Murghab and archaeological materials of Bronze Age mobile pastoralists in the Tien Shan and Pamir mountains (Pyankova 1994, 2002; Vinogradova 1994; Cattani and Genito 1998; Cerasetti 1998).

In current Eurasian scholarship, economic exchange between mobile and sedentary communities, and especially the role of mobile pastoralists in exchange networks, is often used as a key index for assessing centralized control of resources and power. Koryakova and Epimakhov (2007) have argued for the coalescence of power in agrarian communities in Bronze Age Eurasia, a model that places sedentary communities at the seat of either heterarchically (Epimakhov 2009) or hierarchically (Anthony 2009) organized systems that incorporated peripheral mobile pastoral groups. In Central Asia, Hiebert (1994a), Sarianidi (2007), and Salvatori (2008b) have argued for a model of centralized control in at least a portion of the BMAC period, both in terms of sociopolitical power and manipulation of resources. In contrast, Frachetti (2009) argued that, among mountain mobile pastoral groups of Central Eurasia, social structures were not centrally organized but rather adapted locally to perceived sociopolitical, economic, and environmental conditions. Frachetti's model, termed "non-uniform complexity," roots power in the institutional alignments brought about through dynamic, shifting relationships between agents and communities. Similarly, Honeychurch and Amartuvshin (2007) and Stride et al. (2009) show that in medieval Mongolia and Uzbekistan, respectively, power in mobile pastoral groups was rooted not in any particular place, but in the ability of leaders to negotiate a shifting structure of social relations.

The BMAC craft industry was highly specialized and depended on regular access to metal and stone sources in the mountains of modern Iran, Afghanistan, Tajikistan, and Pakistan. These sources lie within the ranges of coeval mobile pastoralists, and there is strong evidence that these groups mined and possibly controlled the tin ores used in some BMAC craft production (Parzinger and Boroffka 2003; Anthony 2007). Additionally, it is clear the BMAC communities maintained a wide distribution network that reached India and the Persian Gulf (Fig. 36.4) (Hiebert and Lamberg-Karlovsky 1992; Potts 1993c, 2008; Hiebert 1994b; Possehl 2004; Anthony 2007; Salvatori 2008a). The links between these areas cross regions that have historically been utilized by mobile pastoralists (cf. Ratnagar 2004). If these routes were similarly exploited in the Bronze Age, mobile pastoralists would have been ideally placed to broker BMAC trade through a down-the-line exchange network (Vinogradova 1993; Christian 1998). By acting as middlemen, mobile pastoralists could have diversified their income sources without having to sacrifice a pastoral lifestyle or significantly alter their productive strategies, and, importantly, could thus establish themselves as peers rather than subjects of the BMAC communities.

6 Central Asia and the Steppe in Asian Interaction (MAIS Model)

Having outlined the florescence of interactive channels between Central and Inner Asia, we now turn our attention to the nature of interaction as it impacted the Near East. The networks of social interaction feeding diverse political

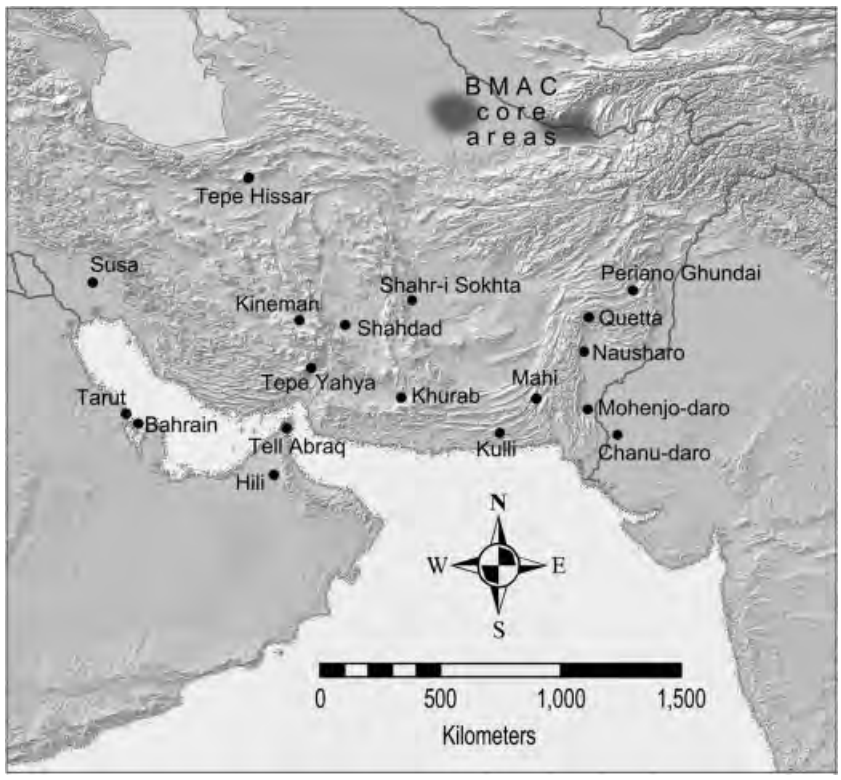

Figure 36.4 Distribution of archaeological sites with published BMAC objects.

economies across Central Asia were well formed by the early 2nd millennium BC, but from where did these networks emerge? In the mid- to late 3rd millennium BC, centuries before the start of the BMAC, the antecedent framework for wide-scale connections between Mesopotamia, Elamite Iran, the Persian Gulf, Oman, Central Asia, and the Indus Valley was taking shape. A pioneer trade network, which Possehl (2007) has called the "Middle Asian Interaction Sphere" (see also Ch. II.40; Tosi and Lamberg-Karlovsky 2003) appears to have fostered the transmission of select innovations and ideologies far across Asia before the more substantial political economic formations of the 2nd millennium BC.

The Middle Asian Interaction Sphere (MAIS) is attested by the exchange of objects sharing particular style and motifs categorized as the "intercultural" style (Kohl 1978). Ideological signifiers within the Intercultural Style are documented at the earliest stages of the MAIS and have led Possehl (2007) to postulate that ideology was key in fomenting the development of the MAIS. The intercultural style, identified on stone objects from Mesopotamia, the Gulf, the Iranian plateau, and the Indus Valley, depicts combatant snakes, bulls, lion-headed birds,

rosettes, and other geometric designs. Some of the images are best associated with particular regions, but over the whole of the MAIS the style is coherent. The participants of the MAIS clearly did share a symbology which, as Possehl (2007) has noted, may have formed the lexicon of a more durable belief system at that time.

The MAIS not only provided stylistic precursors to many of the BMAC motifs, but also established awareness of distant cultures and familiarity with administrative systems over a large geographical area. The nature of the MAIS trade relationships insured that exchange operated out of self-interest rather than through direct control. One such self-propelling relationship was the prolonged and direct exchange between Central Asia and the Indus Valley. These regions were in contact across modern Afghanistan from at least the 4th millennium BC, as evidenced through shared Quetta ware (Masson 1988) and developed complex societies at roughly the same time during the 3rd millennium (Kohl 2007). From about 2500–2200 BC, it appears that the trade relationship was facilitated by Indus merchants, documented by an outpost settlement at Shortugai and by Indus seals found at sites in Bactria and the Kopet Dagh foothills (Possehl 2002a). With the emergence of the BMAC, the relationship seems to have reversed, with characteristic BMAC materials appearing at sites in the Indus Valley and little Indus material recovered at BMAC sites. Unlike the earlier Indus system that saw trade moving through outposts, the BMAC finds are attributed to the movement of individual or small groups of merchants, demonstrating different systems of trade organization and administration. However, the use of seals as an administrative tool was common to both regions and throughout the MAIS, where they are documented from excavations at major settlements across the Iranian Plateau in the 3rd millennium BC (Hiebert 1994b).

Mesopotamia was the first southwest Asian region to see the development of an administrative system using writing, and texts have helped archaeologists reconstruct ancient trade and exchange networks from Central and South Asia into the Near East in the 3rd millennium BC (Potts 1999). Although references to the Elamites exist as early as 2600 BC, the Mesopotamians seem to have known little about the people in the far eastern reaches of their exchange networks and there is no demonstrable mention of Central Asia (Tosi and Lamberg-Karlovsky 2003). Nevertheless, sites such as Susa and Tepe Yahya in Iran clearly acted as lynchpins in the MAIS trade network, linking Mesopotamia to the resources and interleaved ideologies circulating across middle Asia in the 3rd millennium BC. More direct material ties between Mesopotamian empires and Central Asia are not completely missing in the record, as a cylinder seal found recently near Togolok in the Murgab delta region (site 1220) illustrates striking iconographic similarity to earlier seals found at Ur (1st Dynasty) and Lagash. Finds such as this suggest that thematic and possibly more direct economic alignments between the Near East and Central Asia might have existed even further into antiquity (Salvatori 2008c).

7 The Inner Asian Mountain Corridor (IAMC)

The benefits of the MAIS network were not restricted to urban agriculturalists; it is simply more research in Iranian and Central Asian urban centers that makes it appear that way. The mid-/late3rd millennium BC also shows some of the earliest archaeological evidence for ties between agricultural communities of southern Central Asia and pastoralists of the vast Central Eurasian steppe belt. Although still fairly isolated at this time, early mobile pastoralists of the steppes and Inner Asian Mountains introduced a number of technologies and materials that impacted upon the ideologies and practices of east Asian and southwest Asian civilizations. A number of vectors of exchange among steppe populations and their neighbors are evident – most notably through the Caucasus (see Ch. II.35) and likely, within the steppe itself, east/west across Eurasia. However, recent archaeology provides mounting evidence to propose more substantial exchange and interaction along the "Inner Asian Mountain Corridor" (IAMC) before the 2nd millennium BC (Frachetti in press). Although still regionally patchy, archaeological evidence from along the foothills and highlands of the Hindu Kush, Pamir, Tian Shan, and Dzhungar Mountains illustrates that mobile upland communities had formed incipient trade networks far earlier than previously thought (Frachetti et al. 2010).

Although steppe and mountain pastoralism likely emerged along different pathways across Central Eurasia, interaction between neighboring pastoralist communities brought about a recognizable shift toward a broadly similar "steppe-type" of pastoralism, based predominantly on mixed herding of sheep/goat and cattle, with limited numbers of horses (Benecke and von den Dreisch 2003; Frachetti and Benecke 2009; but see Outram et al. 2009). From western to eastern Eurasia, this mixed form of mobile pastoralism replaced earlier, more specialized and regionally conscribed strategies found in the western, central, and eastern steppe territories. Variable ecologies across the steppe engendered territorial overlaps of patterned mobility strategies, which may partly explain the punctuated dispersion of technologies and pastoralist regional networks that is evident in the shared materials, technologies, and ideologies across the grasslands at the start of the 2nd millennium BC. Steppe pastoralists of the late 3rd millennium BC also initiated economic transformations that might be considered "globalizing" changes from the perspective of non-pastoralist communities of Central and East Asia as well (Frachetti 2008).

Evidence for 3rd millennium BC trade throughout the IAMC is limited, but the available data are tantalizing. A burial excavated at Sarazm, an agricultural village (3500–1800 BC) located in the lower Zerafshan valley of Tajikistan (see above, Figure 36.2), provided one of the few cases of broadly categorized "steppe" type ceramics dating to the late 4th or early 3rd millennium BC (Lyonnet 1996: 67). The analysts suggest the burial form and vessels recovered at Sarazm

are stylistically similar to ceramics of the Afanas'evo culture, material associated with mobile pastoralists living far to the north in the Altai Mountains (Avanesova and Dzhurakulova 2008). N. Avanesova has also recently published a key burial site, Jukov, which illustrates more abundant parallels with Afanas'evo forms in the Zerafshan Valley and provides another well-documented example of contact between (proto-) mountain pastoralists and village agriculturalists in the region (Avanesova and Dzhurakulova 2008). Given that domesticated sheep and goats were heavily exploited at sites like Sarazm, we might expect that some form of mobile pastoralism was practiced by communities of the upper Zerafshan Valley, where rich pastures are abundant (Frachetti in press). A local pastoralist contingent is clearly documented in the 2nd millennium BC throughout the upper and lower Zerafshan Valley (Tajikistan and Uzbekistan respectively), but there is still much work to be done toward establishing an absolute chronology for the growth of relationships with agriculturalists in the Pamir and Zerafshan foothill zones. In the Pamir Mountains, earlier Eneolithic populations have been documented (Ranov and Karimova 2005) but definite pastoralist sites of the 3rd millennium BC are few and the scope and distance of these connections is still a matter for speculation. Whether extensively mobile as pastoralists or not, there is certainly clear archaeological evidence from Indus Valley sites of the 3rd millennium BC for exploitation of economic resources in the Pamir and Hissar mountains, such as metal ores or (semi-)precious stones on the part of mountain communities (Law 2006).

Traveling further north along the mountain corridor, pastoralist settlements in the Dzhungar Mountains of Kazakhstan more clearly demonstrate that mobile pastoralist communities had developed diffuse ties to agricultural communities during the 3rd millennium BC. For example, the Early/Middle Bronze Age levels at Begash provide the earliest direct evidence for emerging exchange networks across the mountains and into western China. Recently published botanical evidence from Begash illustrates the ritual use of domesticated wheat and millet in cremation ceremonies around 2300 BC (Frachetti et al 2010). The archaeological context of the Begash wheat and millet – a cremation burial – does not indicate that the grains were grown locally at this time. Rather, free-threshing wheat, most typical in the southern reaches of Central Asia and the Indus (Fuller 2001), was apparently exchanged northward along the foothills of the IAMC and possibly further east along the Tien Shan range into China through the Hexi corridor (cf. Flad et al. 2010). In the opposite direction it appears that broomcorn millet, most common in China and unknown in southwest Asia until the 2nd millennium BC, was also passing through the hands of steppe pastoralists. Although not the focus here, domesticated broomcorn millet was likely traded westward along the same mountainous corridor out of China, situating sites such as Begash directly at the cross-roads of extremely wide contacts already by the mid-3rd millennium BC.

At the same time as incipient networks were forming along the IAMC, we see other material and economic innovations such as carts (and later chariots), horse

domestication, and bronze smelting techniques all stemming from the western Eurasian steppe zones during the 4th and 3rd millennium (Kohl 2007; Ch. II.35). Whether developed first among agriculturalists of the circum-Pontic region or elsewhere in the mid-4th millennium (Kohl 2007; Kenoyer 2009), four-wheeled carts became clearly employed as status items within burial *kurgans* of the so called Yamnaya (Pit-Grave) culture, mobile pastoralists living across the north Caucasus c.3100 BC (Shishlina 2008). As noted above, carts were quickly adopted as high status items at least by the mid-3rd millennium BC, as reflected on the Royal Standard of Ur in the late Early Dynastic III period (Postgate 1992) and appeared in BMAC burials at Gonur in Margiana (c.2000 BC) (Sarianidi 2002; Kohl 2007). The earliest spoked, two-wheeled chariot comes from Sintashta in the Ural steppe region (southern Russia, c.2100–1900 BC) (Gening et al 1992; Anthony 2007). This technology, or at least the idea of it, quickly spread across the Eurasian steppe, as illustrated in petroglyphs depicting spoke-wheeled chariots (c.1800 BC) at Terekty in Kazakhstan, a Bronze Age rock-art sanctuary adjacent to the Bronze Age site of Begash (Mar'yashev and Goryachev 1998). Well known in Mesopotamia by the 2nd millennium BC, chariots became integral to the symbolic power of kings at least by the end of the Akkadian period (Postgate 1992: 246), and ultimately were transmitted across the steppe to the Shang burial sites at Anyang in China by 1200 BC (Cheng 1960).

The likely routes of exchange and passage that fostered the spread of high-status innovations such as the chariot beyond the steppe surely reflect an intricate web of routes with both direct trajectories through the Caucasus into Mesopotamia, as well as northern and southern passages along the IAMC. The trade lines that crossed the Caucasus (Ch. II.35) clearly shaped styles and meanings of metallurgy and other commodities in the Near East from the late 4th millennium BC (Kohl 2007). Mountain/steppe miners on the eastern fringes of Inner Asia – likely nomadic – traded tin bronzes across diverse pathways from the Altai to the Urals and from the tin-mines of the Zerafshan valley to Iran by the Late Bronze Age (Parzinger and Boroffka 2003; Chernykh 2009). The complex process of circulation of raw materials, finished objects, and innovative technologies across Inner Asia in the 3rd millennium BC suggests that steppe and mountain pastoralists contributed significantly to the growth and ideological shape of the urban political economies of the BMAC, the Indus Civilization (Harappans), and the Elamites of the Iranian Plateau – civilizations variously in dialogue with the empires of the Near East throughout the late 3rd and early 2nd millennium BC (Potts 1999).

8 Conclusion

From the 4th millennium BC, societies living throughout the oases of Central Asia and the steppe grasslands of (Inner) Eurasia ushered a "global" expansion

in the scale of interregional trade and interaction (Frachetti 2008). Aspects of this expansion gestated for centuries until the middle of the 3rd millennium BC, when political economies across Asia reflect unprecedented alignments of social, political, and economic institutions that recast the interactive landscape of the region (Frachetti 2008, 2009). Here we have focused on the relationships between mobile pastoralist communities of the steppe and urban agriculturalists, where greater evidence for direct interactions with southwest Asia are more evident. In exploring this relationship, it appears that socially and economically pluralistic communities had access to and helped shape the context of trade and material transfer that spawned considerable homologies in symbols and ideology across southwestern and Central Asia in the Bronze Age. Other chapters in this volume devote energy to conceptually and physically illustrating the evidence of these exchanges; here we can propose that the city-states of the Near East, and the empires that they gave rise to, were able to manipulate both economic and political arenas by virtue of their access to exotic commodities. For Near Eastern leaders, these commodities – both raw and finished – were expressions of influence, tribute, deity and globalism, perhaps in the same way that rare or exotic objects are used today. What is remarkable about the agentive role played by Eurasian and Central Asian communities in the passage of metals, technological innovations, stones, grains, and symbols is the apparent lack of a centralized structure of institutions to guide the interchange across incredible territory. Almost inherently, their geographic location at the interstices of eastern and southwestern Asia served them in their own development and enrichment, while cultivating the essential shifts that promoted the success of societies extending from the Near East to the Iranian Plateau, the Indus Valley and East Asia (Kohl 1978; Lamberg-Karlovsky 1996; Kenoyer 1997; Possehl 1997). As these shadowed societies are exposed under more intensive scrutiny, we are compelled to reconceptualize and relocate the essential roots of sociopolitical development of ancient Old World civilizations.

GUIDE TO FURTHER READING

For general orientation on the archaeology of Central Asia in the Bronze Age see Hiebert (1994a). Recent archaeological investigations of the Bactria Margiana Archaeological Complex can be found in Salvatori et al. (2008). Detailed, synthetic studies of the Bronze Age of Central Eurasia include Anthony (2007), Kohl (2007), and Kuz'mina (2007).

CHAPTER THIRTY-SEVEN

The Ur III, Old Babylonian, and Kassite Empires

Marlies Heinz

1 Introduction

One common aspect characterizes Babylonia throughout 900 years of historical, political, economic, and cultural history and thus forms a kind of unifying continuity. This is a certain form of political organization, namely an imperial structure. Three different terms indicate the local origins of the major historical phases between c.2100 and 1200 BC, each of which had its geographical starting point in Babylonia. The term "Ur III" designates an intra-urban political development in the city of Ur itself which was the third dynasty that arose there in antiquity. The term "Old-Babylonian" refers to a chronological and regional development in Babylonia as well as a stage in the development of the Babylonian language. The expression "Kassite" refers above all to a group of people that had migrated from the Zagros region in modern-day Iran into Babylonia. Despite all their differences, these chronological periods and cultural phenomena all share an imperial structure that served as a unifying theme throughout this long period in Babylonian history.

2 The Empire: Characteristics and Implications

The existence of empires illustrates the power as well as the necessity of a ruling elite to secure dominance via supra-regional expansion. The main spatial characteristic of an empire is its supra-regional geographical extent – i.e., its spatial

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

extension beyond a local center or core region in which a ruling elite exercised power. Politically speaking, the empire is expressed through the domination by one political elite of other ruling elites, whether near or far. The forms and scales of domination and control, as well as the degree of political autonomy amongst local elites within dominated areas, varied considerably in this process of empire formation. Above and beyond the establishment of a local and regional rulership, the building of an empire necessitated strong political and ideological signs that made the legitimacy of the ruling order obvious to all concerned – the people who identified with the dynasty as well as, if not even more so, those of the "other" – i.e., the dominated social and cultural entities. Economically, an empire aimed at controlling the resources of the areas and societies that it dominated. Socially and culturally, the creation of an empire thus entailed contact and/or confrontation with people belonging to the "other," and thus to different traditions of social life, political organization, political leadership, religion, value systems, and self- and world-views.

3 Ur III: How the Empire Came Into Being, Developed, Functioned, and Collapsed

The founder of the new Dynasty of Ur and the person who laid the foundations for the Ur III empire was Ur-Nammu. A man of high military rank, Ur-Nammu was installed as governor of Ur by his brother, Utu-hegal, general as well as king of the neighboring city of Uruk and of the land of Sumer. From this military position, Ur-Nammu succeeded in becoming king of Ur. Many of the details of his career are unknown, but it is clear that the rise of Ur-Nammu meant at the same time the disempowerment of his brother at Uruk. Ur-Nammu seems to have had a well-functioning army at his disposal. According to his own inscriptions, Ur-Nammu succeeded in taking over not just Ur and Uruk but also northern Babylonia, particularly the area around Nippur and as far north as the Diyala region, thus assuming rulership over Sumer and Akkad (southern and northern Babylonia) and its eastern neighbor Elam. He extended his rule far beyond the area that his brother, as "king of Uruk and Sumer," had governed, and created a supra-regional sphere of influence beyond the core area of Ur and Uruk, a fact reflected in his title "king of Sumer and Akkad." Notwithstanding the extension of this polity, the most important centers remained in the south, the core of Ur-Nammu's kingdom. Ur became the capital and at the same time one of the major religious centers in Sumer, just as important as Nippur in northern Babylonia. The new king kept close ties with Uruk, even calling himself "brother of Gilgamesh," the legendary king of Uruk.

Unsurprisingly for a dynasty, Ur-Nammu's successor was his son Shulgi. Shulgi's foreign policy built on the aims of his father by enlarging the sphere of Ur's political influence. Campaigns led Shulgi to the north and northwest of his

father's territory as far as northern Iraq and western Iran. The advantage of controlling these territories was obvious – these were the areas where the Mesopotamian south, poor in natural resources, could satisfy its needs and safeguard its long-distance trade with adjacent regions. Shulgi's enlargement of the Ur III sphere of influence is reflected in his titles. Whereas his father called himself "king of Sumer and Akkad," Shulgi used both this title and "king of the four quarters (of the world)," signifying that his power extended to Assyria in the north, Mari in the west, and Tell Brak and the Khabur-region to the northwest of Mesopotamia. Shulgi's son Amar-Suena and Amar-Suena'a son Shu-Suen preserved the territorial achievements of their fathers and forefathers, but did not expand the territory of the dynasty. The last king of the Ur III Dynasty, Ibbi-Suen, also tried to preserve the empire, unfortunately enjoying less success than his predecessors. A severe economic crisis during his reign seems to have accelerated a process of decay that eventually led to the demise of the Ur III Dynasty and empire, roughly a century after Ur-Nammu, Ibbi-Suen's great-great-grandfather, had founded it.

When a king established himself by breaking local tradition and acting against the local ruling order – and when he created a new geopolitical order and an empire by breaking the local, regional, and supra-regional traditions of political, religious, and spatial order – he had to think carefully about how to gain acceptance for his (usually militarily-enforced) political acts. How does a king, ruling against the rules, so to speak, represent himself in order to gain the acceptance and authority necessary to establish and stabilize his power at a local, regional, and supra-regional level? Ideally, he must succeed in representing himself as the one who secures the prosperity of the communities affected, creating the image of a king who obeys the gods in taking care of their requests and upholding local traditions, despite the fact he was the one who broke with them. Should the king present himself as the one obedient to the gods and thus conceal the fact that, by changing the local political order, he has, in many ways, interfered in the competences of the local gods? One way around this dilemma is for the king who breaks with local traditions to present himself as the one, who, by expelling the existing king, is re-establishing the "real" local traditions, thus creating the image of a defender, not a destroyer, of local customs. At the same time, a king aiming at creating an empire should offer all those societies under his power the chance to develop an identity that rises above the local "we." To secure its authority throughout the empire, the ruling elite had to do everything in its power to prove to the local populations that their rulers took full responsibility for local, regional, and supra-regional affairs.

When Ur-Nammu developed his rulership and expanded the territory of his power, he paid careful attention to the spatial and political organization of his newly gained territories. Internal frontiers ran along rivers and channels and formed clearly marked administrative districts. These were ruled by administrators under the control of Ur-Nammu and, at the same time, were seen as being protected by local gods. The political advantage of this organization was a clear

division of authority, which made it easy to control his subordinates. Moreover, in this way Ur-Nammu recalled the past when the city god was responsible for the territory of an entire city-state, something that no longer applied in an empire.

Ur-Nammu developed and maintained the canal system, thereby securing the water supply for the fields and at the same time enhancing transport routes. He thus built up a local, regional, and supra-regional infrastructure, necessary both for inter-city and long-distance trade, and for securing and maintaining political control throughout the empire. Thus, investment in and maintenance of the canal system went beyond economic needs and was a clever political and ideological ploy. The new political order secured the prosperity of a large part of the population, enabling Ur-Nammu and his successors to control far more than just the economy the empire.

Ur-Nammu created something new while at the same time exploiting ancient local traditions. At Ur, Nippur, Uruk, and Eridu he created the *ziggurat* – an unprecedented, stepped tower of brick on which the temples of the highest gods were erected. At Eridu he looked after the needs of Enki, god of wisdom and sweet water, and thus one of the most important gods for the existence of mankind. Ur-Nammu's concern at Uruk was, in part, connected to his family history. The *ziggurat* of Uruk was dedicated to the city goddess Inanna. At Nippur, among others, cultic buildings set up by Ur-Nammu – the *ziggurat* and another temple – were dedicated to Enlil, who was the city god and also the highest god in the Sumerian pantheon. Unsurprisingly, Ur, the seat of Ur-Nammu's Dynasty, received the greatest attention. The local *ziggurat* had been dedicated to the city god Nanna, the moon-god. Built within a huge courtyard and abutted by a second courtyard, the temple also contained the house of the **en**-priestesses and the cultic building for the goddess Ningal, Nanna's spouse. The religious buildings were surrounded by secular ones. A storage magazine as well as the palace of Ur-Nammu and his successors were part of this architectural ensemble. Nearby stood three buildings, built for the royal funerals.

Ur-Nammu thus made it clear to the public that he and his new administration served the essential needs of the gods and thus of the populace. At the same time, he enhanced his own rule with a comprehensive local, regional, and supra-regional building program. Throughout the empire, architecture and spatial design symbolized the worldview of Ur-Nammu, who developed a visible master plan – a type of religious architecture as a sign and symbol of the new order – that applied everywhere. Standardization characterized the new signature of power – the *ziggurat* – which was placed beside and combined with local architectural monuments and may have served to create a common identity amongst disparate local cultures within the empire. The monumentality of the buildings, the effort behind the building program, the demonstration of power – encompassing the control of resources of all kinds: manpower, time, space, the religious world – and the creation of the new and at the same time the respect for the old: all reveal the astute political thinking of Ur-Nammu. The new ruler projected a

view of himself as a religious man, upholding and respecting the old traditions and, at the same time, leaving nobody in doubt that his power and the new order were absolute, without alternative. The new and the old stood side by side, but the new did not threaten the old. Ur-Nammu insured this through his clever placement of new cultic monuments and by according due respect to the gods of each local tradition. Even where local gods were worshipped in new temples, the effort put into building them demonstrated Ur-Nammu's high regard for them. The imperial building program thus contained two messages: the new was both powerful and obviously accepted by the local gods. At the same time, it served as an invitation to local populations to identify with it, as well as an admonition to be aware that there was no alternative.

At Ur, yet another message might be seen in the spatial arrangement of the major monuments there. The gods and the ruler lived side by side. That they belonged together and formed a unit was thus clearly visible to all. The gods were housed in the most monumental building and were accorded the highest esteem. The rulers lived next to them in more modest buildings. At the same time, the life of the living elite and the life of the dead were inextricably intertwined. After death the dead still shared the same space with the living members of the society – as well as with the place of worship created for the gods – clearly shown by the location of the funeral houses.

Standardization was not only used to express the new by means of spatial design. It was also employed to create a visual image of the new order. Royal cylinder seals depicted the kings of the empire in the role in which they obviously wanted to be seen and remembered throughout the empire. Thus, the most important aspect of their rulership as well as the characteristic of the new consisted of the motif of the king as a religious man – not as a warrior, not as a fighter, and rarely as a builder. Ur-Nammu and his successors did not choose a local, traditional story or scenario to represent themselves but, rather, a subject that could be understood widely without presuming a knowledge of local history or tradition. The king was portrayed as a servant of god, introduced to the god by a goddess who led the king to the god. This focus on one subject might be explained by the nature of those who both saw and used the seals. While monumental architecture was visible to many, and this could hardly be controlled – no one could be excluded from seeing a *ziggurat* – images on royal seals were addressed to a different audience. Royal seals served as an instrument of official administration. As such, they were seen and used only in elite circles and by powerful administrators where alternatives to the ruling order would have been considered undesirable. The higher administration had to be loyal to the new order, the success of which depended heavily upon such loyalty. Politically and ideologically, it seems to have been expedient to emphasize this to the administrative elite and thus exclude any alternative to the status quo. It was not so much the subject that was very new, as the exclusion of the variety of subject matter that had previously circulated on cylinder seals.

Another theme that illustrates the overarching authority of Ur-Nammu as the ruler of the empire was his image as a builder. This role was not a result of his own doing, but rather of his Nanna, city god of Ur, who had selected him for this purpose. Ur-Nammu was the architect, simultaneously, of the built environment, the new political order, and the empire. Ur-Nammu was the first ruler to use this image of himself as a means of visualizing his political deeds as founder of the empire.

Ur-Nammu's responsibility for a territory larger than that of a city-state was also expressed in the compilation, and thus the standardization, of laws which were valid for everyone in the empire. The collection of laws known as the Codex Ur-Nammu regulated, among many other things, daily affairs and guaranteed legal uniformity throughout "Sumer and Akkad." This was not the written codification of local traditions but rather the consolidation of an instrument of supra-regional order, and must have been a top priority of the founder of the Ur III empire.

Architecture, pictorial representation, and the codification of laws were all measures to guarantee the success of the new order and its representatives throughout the empire. Mechanisms to enforce each visible act of the king were an important ideological tool in memorializing the good government of the Ur III kings. To do this, Ur-Nammu created a new vehicle, also used by his successors: the royal hymn. In it the royal character and accomplishments in the service of the empire and on behalf of those affected by the new political order were all praised.

How did the successors of Ur-Nammu fare? Shulgi followed on from his father and introduced several organizational innovations. Whereas his father standardized the law, Shulgi added the homogenization of Sumerian cuneiform and weights and measures. The empire encompassed about 40 administrative districts, ruled, as was the case under Ur-Nammu, by civil and military administrators controlled by Shulgi. Marriages between male members of the royal court of Ur and female members of elite families throughout the empire became increasingly important and served to stabilize it. The need for stability was great. The MAR.TU/Amurru nomads (see below) were considered a threat to the political, economical, and cultural achievements of the empire. To keep them out of the heartland and away from cultivated areas, Shulgi began to build a massive wall in the Diyala region (northeastern Iraq). The greatest innovation in Shulgi's lifetime, however, was his deification. Shulgi became not only the ruler of the empire, but its god. He thus positioned himself at the very top of the community, emulating Naram-Sin, the Akkadian king, who was the first Mesopotamian ruler to be deified (Ch. II.34). Deification raises a number of questions. Was this a sign of the king's power? Was it a demonstration that the king's rule was unassailable? Deification was against the tradition throughout the empire and it must have required enormous power to create a new tradition in a domain as conservative and sensitive as religion.

Subsequent rulers of the Ur III Dynasty adopted the custom of deification and at the same time worshipped their predecessor, the late king, as a god. In addition to pursuing a building program and a standardized visual program in the arts, Shu-Suen commissioned statues of himself and had them distributed throughout the empire. God and king were thus united, and this was typified by his drive to build temples for his own worship all over the empire. The best-preserved example is the Shu-Suen temple at Tell Asmar (ancient Eshnunna). The form of the temple type followed accepted tradition, but the dedication of a building to a living, deified king was paralleled only in the Akkadian period, when a temple was built for the worship of the god/king Naram-Sin.

How did the empire collapse? The Ur III Dynasty lost control of its territory mainly due to economic problems that adversely affected a number of cities. More and more cities rose up in rebellion and freed themselves from the grip of Ur. Contact was lost between Ibbi-Suen, the last king, and his administrators in the periphery. A dramatic report survives that informs us about the end of Ur. The gods had left the people of Ur defenseless. As a result, the city was destroyed and Ibbi-Suen was taken away as a captive to Elam (modern southwest Iran).

The economic crisis allowed a high-ranking military officer, Ishbi-Erra of Mari, to extract political concessions from Ibbi-Suen. Promising to neutralize the threat of the MAR.TU nomads in the west, Ishbi-Erra blackmailed Ibbi-Suen into appointing him king of Isin. Once in this position, he proved disloyal, cooperating with other kings against Ur and establishing a powerful position that made him the head of the core territory of the former empire. One decisive move was Ishbi-Erra's support of the Nippur priesthood, some of the empire's most powerful religious elites. For Ibbi-Suen, the loss of Nippur, the spiritual center of Sumer, and, by extension, the loss of the support of Enlil – the god who was alone empowered to bestow kingship – was a disaster. The final blow for Ibbi-Suen came when the army of Elam raided Sumer and destroyed Ur – an event commemorated in the *Lamentation over the destruction of Sumer and Ur*.

In terms of both territory and organization, the reign of Ishbi-Erra can seen as a continuation of the Ur III empire. The decisive change was the end of the dynasty, as power passed from the domination of the Ur-family to the unrelated Ishbi-Erra at Isin. Ishbi-Erra did not enjoy this position for long, however. Although he tried to continue the imperial traditions of Ur, more and more city-states gained their political independence and he progressively lost control of the empire and its resources. Uruk, Babylon, Larsa, Eshnunna, Assur, and Mari – to name only those that stand out in the historical record – became powerful enemies of Isin, but of these it was neighboring Larsa that was most problematic. As it had been between Lagash and Umma in the 3rd millennium, water became a cause of political rivalry and ultimately war. The imperial structure disintegrated, and city-state-based, decentralized polities prevailed for the next two centuries in Babylonia.

4 The Role of the Amorites

The influence of the so-called Amorite tribes, semi-nomads who migrated from the Syrian desert west into Babylonia, became increasingly significant in the post-Ur III period. This was a process that had already begun in the 3rd millennium BC. Like all migrations, that of the Amorites (Sumerian MAR.TU; Akkadian *Amurru*) brought new traditions to Babylonia in terms of lifestyle, world-view, values, economic organization, political habits, and religious views. Increasingly, the ruling elites of the bigger cities had an Amorite background, a sign of successful integration and acculturation on the part of the Amorites and of the fact that the local residents and societies tolerated the new migrants. It is not yet clear how and why nomadic and tribal chiefs decided to abandon their mobile lifestyle and settle permanently in one place, and how they gained their positions and status as urban kings.

5 The Old Babylonian Empire

The founder of the First Dynasty of Babylon, Sumuabum, was an Amorite. It was Hammurabi, however, the sixth king of this dynasty, who first succeeded in extending the power of Babylon, subduing the elites of the neighboring cities and establishing a sphere of influence that resembled, territorially speaking, the empire of the Ur III Dynasty. When Hammurabi came to power, his predecessors had already extended their power beyond the immediate area of Babylon. Unlike Ur-Nammu, however, Hammurabi did not act against the local political tradition in order to obtain his position. Through his own conquests he extended his area of political control from central Babylonia to the north as well as to the Mesopotamian south. He defeated Sippar, Eshnunna, and the Diyala region, conquered Elam in the southeast, and headed south, where he took control of Ur, then the most important Persian Gulf trading station. Hammurabi was not only a successful military officer, he was also capable of forging advantageous alliances with contemporary kings for the purpose of joint military campaigns, using them to build up and solidify the Old Babylonian, or rather the "Hammurabi" Empire (an organization that political science would call a "one-man empire." In the 30th year of his reign, he assumed the title "king of Sumer and Akkad." In reality, however, as we know from his royal inscriptions and from the prologue of his law code, the Codex Hammurabi, he governed a much larger area, stretching from Mari in the west to Elam in the southeast, and from Assur and Nineveh in the north to Ur in the south – in other words, an area roughly the size of the former Ur III empire.

Hammurabi had a strong army and he was a clever strategist. The army worked efficiently under his command and, consequently, Hammurabi represented

himself as the conqueror of the world and the pre-eminent military ruler of his time. He drew attention to the fact that it was he who had brought and guaranteed the prosperity of all countries under his power. To emphasize this role as caretaker and protector, he fostered an image as the good shepherd of his subjects – an image that placed Hammurabi squarely in the tradition of Mesopotamian rulers who had used this title since the 3rd millennium BC. Propaganda and the transmission of the ruling ideology were thus manipulated and maintained by an already ancient strategy. Hammurabi enforced the new global political and economical order by waging war, depriving local elites of their power, and legitimating the new order with references to the traditions and values of the past. And in order to assert his entitlement to being seen as the world's ruler and to make his position completely invulnerable, he claimed that Enlil, the god of the world who alone bestowed kingship on men, had given him the title "king of the four quarters (of the world)" and thus legitimated his political deeds.

Nevertheless, in spite of such assertions, there might well have been a gap between his propaganda and the reality of his reign. That this was not the case is due to the fact that the internal administration of the empire was organized under his watchful eye. In every occupied city Hammurabi deployed an administration which stood under his supervision and was decidedly not of local origin. Acts of disloyalty by the conquered cities also obviously occurred. That Hammurabi was not one to hesitate in destroying such rebels is made clear by his use of water, alternately flooding opponent cities or cutting off their supply as the situation demanded.

According to the written tradition, the shaping of the material world followed the clever propagandistic strategy of legitimating the new with the traditional. Hammurabi visibly demonstrated his role as caretaker by looking after temples and irrigation works and by protecting the conquered cities under his rule. According to his own texts of self-praise, he thus took over the duties that in former times had devolved upon local kings. The material evidence of these building activities, however, remains largely undiscovered. At his capital Babylon, for example, buildings from Hammurabi's own time lie buried beneath meters of debris from his later successors, in some cases below the modern water table. Thus, any signs of how Hammurabi may have presented his new world order in architectural terms – in the sense that Ur-Nammu identified himself and his empire with the *ziggurat* – are missing.

Hammurabi's assertion that it was he who took care of the irrigation works throughout the country, created flourishing landscapes and built to the honor the gods, was an important measure in legitimizing the new political order on a local, regional, and supra-regional level. These actions met the material as well as spiritual requirements of people throughout the empire, regardless of their origin or place of residence. Moreover, according to his own political propaganda, Hammurabi controlled the nodal points that guaranteed long-distance trade with the Persian Gulf, the Indus Valley, the Levant, Cyprus, and the Mediterranean.

The building of such trade relationships and communication routes necessarily implies that Hammurabi controlled everything in his empire. His pronouncements to the effect that all his actions served the best interests of the people were also governed by the principle that these actions served first and foremost to secure and expand his power. The guarantee of imports is evidence of this statement. Imports were used to secure royal power, for, as a rule, luxury goods were distributed to the members of the power elite, thus serving mainly as a political tool to keep them loyal to the king.

The royal inscriptions, self-image, and hymns praising Hammurabi give the impression that continuity, not change, characterized his reign – even though the political context had changed considerably. One visible representation that can be attributed directly to Hammurabi is the scene carved on the stele on which the Codex Hammurabi is inscribed. The seated sun god Shamash hands the rope and rod, surveyor's tools that represented kingship as well, to the standing Hammurabi. This is an expression of his mandate to act as the builder – both of houses and of empire. Ur-Nammu was the first to use such imagery to illustrate his political deeds as the founder of an empire. Thus, Hammurabi did not create a new image of kingship but, instead, followed traditional and well-known conceptions of how a king should be seen and remembered. Once again, propaganda and ideology functioned according to the time-honored convention of placing the new beside the old, thus concealing the potentially threatening aspect inherent in all signs of change.

Seals and themes that can be associated directly with Hammurabi and his persona as a "one-man empire" are lacking in the archaeological record. In general, the presentation scene was adopted and modified, according to the needs of the users. In contrast to the Ur III period, however, warrior scenes occurred as well as the depiction of the king as warrior. The representation of Hammurabi as warrior suited both his ideology and his propaganda. The prologue of the Codex Hammurabi explains this imagery. It was the wars, successfully led by Hammurabi, that had brought peace to the empire and justice for all – and it had been the most important gods of this empire who had supported him in his campaigns. The extension of the political influence of cities was, as a rule, connected with the expansion of the influence and competence of the city-gods. With the reign of Hammurabi and his foundation of the empire, the prominence, characteristics, and functions of Marduk, until then only the city god of Babylon, multiplied and began to serve the needs of a supra-regional power in demonstrating and legitimating its world domination.

The territorial achievements of Hammurabi were not of long duration. The so-called Old Babylonian Empire was more a "Hammurabi empire" than the empire of the First Dynasty of Babylon. Hammurabi's son, Samsu-iluna, could not hold on to the territory conquered by his father and, after the reign of four more successors and continual wars, economic and social tensions, the city and Dynasty of Babylon not only lost its leading position among the powers of

the south but were conquered by the Hittite king Murshili I in the early 16th century BC.

6 The Kassites: How the Empire Came Into Being, Developed, Functioned, and Collapsed

The Kassites migrated during the 2nd millennium BC from the Zagros region of western Iran into Babylonia. Texts from the reign of Samsu-iluna mention conflicts between Kassites and the Babylonian army. Kassites were called "foreign" and "strangers" in Babylonia and at the same time they are attested in economic texts as farm workers and soldiers in the Babylonian army, where they sometimes gained high rank. It is thought that their knowledge of horse-breeding and chariotry earned them high positions at the Babylonian court. How the jump from such high military positions to absolute political power took place is not yet known in detail. The written sources suggest that the Hittite defeat of the First Dynasty of Babylon and the subsequent withdrawal of the victorious Hittite army in the early 16th century BC created an opportunity for Kassite elites to take control of the city. This implies that the Kassite "strangers" were by then a community within Babylonia that was powerful and well organized, both politically and militarily. By this time, a Kassite kingdom already existed along the Euphrates with its center at the city of Terqa (modern Tell Ashara). Details about the founder of the first Kassite Dynasty and about the installation of this dynasty in Babylon are not yet known. Nevertheless, it is obvious that in a relatively short period of time the Kassites were able to expand their political power to such a degree that we can speak of a Kassite empire.

The Babylonian kinglist mentions 36 Kassite kings, organized according to the dynastic system. Of these Agum (II), whose dates are uncertain, is the first who can be historically verified. Agum II called himself king of Babylon, and claimed to rule at the behest of all of the relevant Babylonian gods – An, Enlil, Ea, Marduk, Sin, and Shamash. At the same time, he emphasized that he was the biological son of Shuqamuna, one of the two Kassite gods having the authority to install kings. Thus, not being a member of a traditional, aristocratic Babylonian family was actually emphasized – a remarkable step for a community that not too long before had been considered "strangers." Besides the honors and legitimate right to be king of Babylon given to him by the local gods, Agum II called himself king of the Kassites and the Akkadians, king of Alman and Padan (located in northeastern Babylonia), and king of Gutium (an area east of the Diyala-region in Iran, presumably stretching as far as Lake Urmia). The Mesopotamian south obviously did not (yet) belong to the Kassites. That the empire was established without war seems unlikely, if we recall the history of early Mesopotamian empire formation. Yet Kassite propaganda emphasized, among other things, that Agum II had brought back the statue of Marduk,

deported during a previous period of unrest. The re-establishment of the livelihood of the Babylonians was, according to his propaganda, Agum's outstanding success.

The Kassite Empire continued to develop under a further 26 kings. Ulamburiash, fourth king in the Kassite Dynasty, conquered southernmost Babylonia, proclaimed himself king of the Sealand, and became king of Babylonia as well. For the first time, Kassite rule included the Mesoptamian south and within Mesopotamia extended as far north as Assyria. In the 15th century BC, Karaindash I, who called himself king of the city of Babylon, of Sumer and Akkad, king of the Kassites and the land Karduniash (the name of the Kassite Empire at the time), was the first Babylonian king to meet an Egyptian pharaoh, Thutmose III. The expansion of Kassite political influence was consolidated with the rule of Kurigalzu I. He strengthened the alliance with Egypt through interdynastic marriages, sending his daughter to Egypt to be married to the Egyptian pharaoh. Kurigalzu I called himself "king of the four quarters" and, for the first time since the Ur III period, had himself deified, a logical step for a ruler who strove for world domination and needed maximum legitimacy. While he pretended to have had the support of all the gods within his empire, he still considered the Kassite gods Shuqamuna and Shumaliya to be his personal deities.

In the mid-14th century BC major problems with the Assyrians for the first time threatened the existence of the Kassite Empire. The accession of Karahardash (1333 BC), grandson of the Assyrian king Assuruballit I (1363–1328 BC), and son of the Kassite king Burnaburiash II (1359–1333 BC) by his Assyrian wife Muballitat-Sherua (a daughter of Assuruballit I), provoked a Kassite revolt. The Kassite elite killed him and enthroned their own favorite, Nazi-Bugash (1333 BC). Assuruballit took revenge for the death of his grandson, attacking Babylon, killing Nazi-Bugash, and installing another Kassite on the Babylonian throne who came to be called Kurigalzu II (1332–1308 BC) (Brinkman 1976: 166). This was not a randomly chosen name, but one that harkened back to that of the first global player among the Kassite kings, Kurigalzu I.

Although supported by Assyria, times were tough for the Kassite Empire. After the death of Assuruballit I, wars against Elam and problems with Assyria ensued. Kadashman-Enlil II (1263–1255 BC), however, exploited the rivalries of his enemies. He forged alliances with both the Hittites and the Egyptians, a constellation that constituted a major threat to the growing power of Assyria. For roughly 40 years this alliance protected the Kassite Empire from its northern neighbor. Under the reign of the Assyrian king Tukulti-Ninurta I (1243–1207 BC), however, the situation changed, this time for the worse. According to his royal inscriptions, Tukulti-Ninurta I conquered all of Babylonia and brought the Kassite king Kashtiliashu IV (1232–1225 BC) to Assur as a prisoner. Additionally, he tore down the city wall and fortifications of Babylon, thus stripping the city of protection and any sign of political autonomy. The statue of the god Marduk was again captured and taken to Assyria, the final blow for Babylon and

its inhabitants. The city was vandalized, its people killed, but still the Kassite elite were able to rebel against this Assyrian violence.

In effect, "history repeated itself" as the Assyrians again nominated a vice-king to be the local leader, while the Kassite nobles nominated their own Kassite king, Adad-shuma-usur (1216–1187 BC), the son of Kashtiliashu IV. Although details of his rule are unclear, Adad-shuma-usur's 30 years on the throne constitute the longest reign of any Kassite king (Brinkman 1976: 89). Interdynastic marriages with Elam are attested. but when the Elamite king Shutruk-Nahhunte's claim to the Kassite throne, based on the fact that his mother was Kassite, was rejected, he invaded Babylonia, conquering and plundering its cities from the Diyala region to the Persian Gulf. An enormous amount of booty was taken back to Susa, where French archaeologists at the beginning of the 20th century found such objects as the Codex Hammurabi and the victory stele of the Akkadian king Naram-Sin.

Shutruk-Nahhunte's son, Kudur-Nahhunte, became governor of Babylon and Babylonia and the Kassite Empire continued to decline. Renewed Kassite rebellions and repeated attempts to nominate Enlil-naddin-ahhi (1157–1155 BC) as their own king led Kudur-nahhunte to destroy Babylon. Enlil-naddin-ahhi was captured and carried off to Elam, along with the cult statue of Marduk, who became a prisoner of the new Elamite superpower. After nearly 400 years of supremacy over Babylonia and the neighboring regions, the Kassite Empire finally and definitively come to an end.

One of the most important ventures of the Kassite rulers was their self-representation as kings, installed and legitimized by the relevant Mesopotamian gods. Kassite kings thus wanted to be remembered as being obedient to the traditional local gods. The claim that the return of Marduk from captivity happened under Kassite rule must have been an extremely effective piece of propaganda. Kassite adherence to Babylonian religion found its material expression in the care of extant Babylonian temples as well as in the building of new ones, such as the Ishtar temple at Uruk (see below). This temple presented a specific aspect of Kassite acculturation. Like the rulers of earlier empires, Kassite kings understood the importance of connecting the traditional cultural traits with new ones, concealing the fact that they had created a new geopolitical order and thus in reality broken with local traditions. Nominally, the Kassite kings ruled in the name of the Babylonian gods, but the gods who protected and guided them remained Kassite ones. Similarly, the titles of the Kassite kings followed Babylonian norms, but their personal names remained Kassite. Finally, the Kassites cleverly exploited language – Sumerian for building inscriptions and Akkadian for international and political correspondence – in keeping with ancient usage.

Land grants became an important tool of Kassite political patronage. As formerly influential elites lost their power, a new group of landowners developed, one on whom the Kassite kings bestowed their largesse in return for political support. The classical Kassite monument, the so-called *kudurrus* (see below), is a physical embodiment of this phenomenon.

The Kassites established a comprehensive network of control all over the empire. From city to region, administrators stood under the control of the Kassite kings. Economically, the palace dominated the temple, although the temples and priesthood of Nippur, the traditional religious center of Mesopotamia, were taken care of and provided with everything they needed. The Kassites knew how to avoid religiously based upheavals. Enlil, rather than Marduk, became the most important politico-religious authority in the country, the kingmaker and the one who conferred rule over the world. The god with the highest and most extensive authority thus became the most highly esteemed Mesopotamian god under the Kassites. International acceptance of the new world order was demonstrated by the economic and political alliances with the Hittites and especially with the Egyptians, the global power in the Near East.

The principle of combining the old with the new became particularly visible in the built environment. The political propaganda of the Kassite kings announced the caretaking of the traditional temples and reverence for the Babylonian gods. However, this did not deter the Kassites from introducing new elements in Babylonian religion. King Karaindash conducted divine services for Ishtar at Uruk. The temple built for her, its form and especially its external façade decoration – male and female gods placed in niches around the temple – was unparalleled. The temple type as well as its isolated position in the city were likewise unparalleled. Thus, the modification of tradition seems not to have been a problem for the Kassites.

Kurigalzu I took the great step of not only changing but breaking with tradition when he left the religious and political center of Babylon and built Dur-Kurigalzu (modern Aqar Quf), the first and only purely Kassite center of the empire about 200 kilometers north of Babylon. Leaving Babylon, a city with a centuries-old tradition as a cultural center, was an unmistakable sign, but what did it really mean? Were the Kassites expressing their own view of the world and the world order they had created with the building of Dur-Kurigalzu? Certainly, they did not hide the fact that they were not fully acculturated in the Babylonian tradition, but unequivocally emphasized it. While Agum II distinguished himself by returning the cult image of Marduk to Babylon, it was Kurigalzu I who, in his propaganda, explicitly transcended the Babylonian sphere and presented himself as the "king of the four quarters." At the same time, Enlil, the ancestral figure among the Babylonian gods, became increasingly important, while the prominence of Marduk receded. The new world order got a new world center – Dur Kurigalzu – and at the same time the world-view changed and with it the meaning of Babylonian traditions. But as always when a government changes the seat of government, one must ask, was this an expression of power or a sign of weakness? Kurigalzu I demonstrated power in having the manpower and economic resources necessary to build a new city. At the same time, it is possible that the long-established local elites of Babylon might have been obstructing the political and religious goals of the global ruler Kurigalzu I.

The new and most characteristic image-bearer of Kassite culture is the so-called *kudurru*. *Kudurru* is the Kassite term for "border" or "boundary." The term is also used by archaeologists to designate carved stone boulders, up to 1 meter high, that display a variety of divine symbols, objects, architecture, stars, and animal hybridsm as well as text that informs us about the distribution and ownership of land. With the *kudurrus*, the Kassites developed their own visual language. A specific form and system of communication became visible, without the illustration of action that could be easily read and understood. Divine symbols had been used for centuries, but the Kassites were the first to canonize their forms. The reading and understanding of these symbols presupposed some knowledge of their meaning, but whether this knowledge was widespread in Kassite society, representing a kind of standardized shorthand, or whether only a specific group of educated people knew the meaning of the symbols, is unknown. The *kudurrus* were sources of information about land ownership. As noted above, Kassite kings granted land to new owners who thereby become a powerful group of supporters, while old landowners, who lost land, threatened to become a danger for the Kassite kings.

Cylinder seals of the period reflect much more of the religious world than their Ur III and Old Babylonian predecessors. The Kassites used the well-known presentation scene, with some modifications. They truncated the story, so to speak, by depicting a seated god and a prayer (i.e., a prayer incised in cuneiform on the seal itself), a human male or the intercessory goddess, thus a *pars pro toto* of what would earlier have been a scene depicting an intercessory goddess leading a human being to a seating god. The pictorial area was also filled with symbols and other beings, such as dogs, flies, and grasshoppers. As on the *kudurrus*, the text of a prayer, addressing the god, incised on Kassite cylinder seals assumed great importance.

The decline of the Kassite Empire became obvious when the Assyrians begun to intervene in domestic affairs. Instability grew and the attacks by the Elamites army increased political problems in Babylonia. International alliances temporarily eased matters, but could not ultimately halt the erosion and decline of the empire. Marduk was again captured and taken away, this time to Assyria. A war had to be waged on two fronts, against both the Assyrians and the Elamites. In the end the Elamites were successful. After 400 years of Kassite political rule, the empire collapsed and that collapse brought about the end of the Kassites as a political force in Babylonia.

7 Conclusion: 900 Years of Empire and Struggle for Supra-Regional Supremacy

In conclusion, a few aspects seem to have characterized imperial politics between 2100 and 1200 BC. Strong propaganda was necessary to convince the subject

social groups that each of the established political orders was *de facto* the best and only order to secure the prosperity of all affected by imperial conquest. Control in both the religious and economical domains and a strong and loyal army were essential to each empire's success. The propaganda deployed, and the messages used to create a common "we" and to foster the acceptance of the new, differed in each case. Yet in each empire a sensitivity was shown to earlier cultural habits and traditions which were mobilized to confer legitimacy upon the new world order of the Ur III, Old Babylonian, and Kassite kings.

GUIDE TO FURTHER READING

On the subject of "empire" generally, see Pomper (2005). For a series of studies concerning empire and change in political orders in times of crisis, see Heinz and Feldman (2007). For theoretical studies related to migration in the ancient world, see Lucassen (2010).

CHAPTER THIRTY-EIGHT

The Hittite Empire

Trevor Bryce

1 Indo-European Origins

Around the middle of the 18th century BC, a king called Pithana led his troops against the city of Nesa and took it by storm. Nesa lay in central Anatolia, just south of the river today called the Kizil Irmak, the Halys of Classical and the Marassantiya of Hittite texts. Also known as Kanesh, Nesa was the seat of one of several Middle Bronze Age kingdoms of central Anatolia, and the headquarters of the network of Assyrian merchant colonies spread through eastern and central Anatolia. It now became the new royal seat of Pithana, whose ancestral city Kussara lay in the anti-Taurus region. From Nesa, Pithana and his son and successor Anitta embarked on a series of military campaigns both east and west of the Kizil Irmak, which culminated in Anitta's conquest of the city of Hattush. This was the capital of the kingdom of Hatti, then ruled by a man called Piyusti. It was located within the Kizil irmak basin on the site of the later Hittite capital Hattusha. Piyusti had been Anitta's most formidable opponent. His defeat marked the end of the kingdom of Hatti. Anitta razed Hattush and declared its site accursed by sowing it with weeds. It was never again to be resettled. But Anitta commemorated his victory by recording it on a stele set up in the city's gateway, and 150 years later, this account of his and his father's triumphs had become firmly entrenched in Hittite historical tradition (Hallo and Younger 2003: 182–4).

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

Pithana's and Anitta's exploits are generally regarded as a prelude to the history of the Hittite kingdom, whose origins probably date to the early 17th century, early in the Late Bronze Age, half a century or more after the empire built by Anitta had disappeared and the Assyrian colonies had come to an end. The royal dynasty that held sway over the kingdom for virtually the whole of its history, until its collapse early in the 12th century, was of Indo-European origin. Opinion varies widely on when Indo-European speaking groups first appeared in Anatolia. Most scholars favor the theory of Indo-European migrations into the region during the Early Bronze Age (3rd millennium BC), but earlier dates have also been proposed. All we can be certain about is an Indo-European presence in various parts of Anatolia by the early 2nd millennium – on the basis, primarily, of Indo-European names in the texts of the Assyrian merchants. In the Late Bronze Age Hittite texts, three main groups of Indo-Europeans are discernible: one group speaking a language called Palaic, located in the region of later Paphlagonia on the southern shore of the Black Sea; a second group that became widely dispersed though central, southern, and western Anatolia during the 2nd millennium, called the Luwians; and a third group called the speakers of the Nesite language. As a matter of modern convention, we call this language "Hittite." It is from the Nesite-speaking population group that the royal Hittite dynasty emerged.

As its name indicates, Nesite was so called after the city which Pithana adopted as his capital. It is likely that, at the time of Pithana's conquest, the city already had a substantial Indo-European population and that Pithana adopted the language it spoke as his own. But Nesite may in fact have been his native language, if the city from which he came, Kusshara, was primarily an Indo-European foundation. His statement that he made the inhabitants of Nesa "his mothers and fathers" *may* indicate ethnic affinities between the two cities. But other interpretations of this curious expression are possible. At all events, Kusshara was regarded by at least one future Hittite king, Hattushili I, as his ancestral home.

2 The Old Kingdom

Hattushili is in fact the earliest Hittite king with whom written records can be associated. He ascended his throne c.1650 BC (for the dates used throughout this article, see Bryce 2005: 376–80), and from his own and other Hittite records, we know that there was at least one king who preceded him on it. Hattushili reports the exploits of the first clearly attested Hittite king, a man called Labarna, probably his grandfather. In a series of military conquests, reminiscent of those of Pithana and Anitta, Labarna established his sway over many of the small states of eastern Anatolia, from the Marassantiya basin southward to the coast of the Mediterranean (Bryce 2005: 64–8). Later Hittite kings adopted his name as a royal title, much like the title Caesar in Roman imperial titulature. We do not know where the base of his operations was located. Perhaps it was the city

Kusshara, the original home of Pithana. But in any case, his grandson (?) and probable successor Hattushili took a major new step in the consolidation of Hittite power in Anatolia, by resettling the site once declared accursed by Anitta, originally called Hattush and now Hattusha. A large outcrop of rock, today known as Büyükkale ("Big Castle"), provided an excellent location for a citadel, for it was virtually impregnable from the north and could easily be protected by walls built on its eastern, southern, and western sides. The region in which the city lay had abundant water supplies from seven springs, and was at that time thickly forested. Practical considerations such as these clearly outweighed any qualms Hattusili may have had about defying the curse placed upon the site.

Hattushili consolidated and extended Labarna's conquests in central Anatolia, and then carried his arms into Syria. Here he conducted a number of campaigns against the northern Syrian states, like Alalakh in the Amuq plain and Hahhum on the Euphrates (Bryce 2005: 70–3). He crossed the Euphrates and penetrated deep into northern Mesopotamian territory, where he contracted an alliance with a king called Tunip-Teshub (Tuniya), ruler of the land of Tikunani (Salvini 1996).

For all their apparent success, Labarna's and Hattusili's military ventures fell far short of establishing what we might call an empire. Labarna's attempts to hold his conquered territories by sending his sons to govern them proved disastrous. Rebellions broke out in the territories, and Hattushili had to conquer them all over again. Further, Hattushili's Syrian campaigns were little more than raiding expeditions which established the king's credibility as a war-leader and brought rich plunder into his treasuries but failed to make any lasting impact upon the regions thus afflicted. No attempt was made to annex them or subject them in any way to permanent Hittite authority. Indeed, many of them were, and continued to be, vassal states of the northern Syrian kingdom Yamkhad, whose capital was located at Aleppo. Hattushili never succeeding in capturing Aleppo itself. It fell finally to the Hittites during a campaign against it by Hattushili's grandson and successor Murshili I, who followed up his victory by marching south along the Euphrates to the city of Babylon, which he captured, sacked, and destroyed (Bryce 2005: 97–100). This last exploit, dated to c.1595 BC, brought to an end the dynasty of Hammurabi (Ch. II.37).

Murshili too made no attempt to impose his sovereignty upon the lands and cities he had conquered in Syria and Mesopotamia. And within a few years of his military triumphs in these regions, he fell to an assassination plot. The assassin Hantili, Murshili's brother-in-law, now became king. Struggles over the throne in Hattusha persisted through the reigns of five of Murshili's successors, which weakened the kingdom to the point where it not only lost most of its subject territories, but suffered invasion of its core territory, particularly by Hurrian forces from the southeast. This was the first, and would not be the last, time the Hittite kingdom was brought to the brink of annihilation. Order was restored by a king called Telipinu (c.1525–1500 BC) – also a usurper – who drove the enemy occu-

piers from his homeland, and firmly imposed his authority within it. Most importantly, he established fixed rules for the royal succession, assigning considerable powers to a body of officials called the *panku*. Protection of the reigning sovereign was clearly the prime responsibility of this group, which was authorized to take severe disciplinary action against any subjects, including those of the highest rank, who sought to defy the new succession provisions (Hallo and Younger 2003/I: 196–7). Further afield, Telipinu set about regaining, by force of arms, some of the territories lost by his predecessors. But in one case, he adopted a policy which was to become a lynch-pin of later Hittite influence through much of the Near Eastern world. In southeastern Anatolia a new kingdom had been formed out of the local territories formerly subject to the Hittites. It was called Kizzuwatna. Instead of attempting to regain its territory by military action, Telipinu negotiated a settlement with its ruler Isputakhsu, confirmed by treaty. The treaty was to become an important diplomatic instrument used by many Hittite kings for the maintenance of their control over their subject territories and the establishment of peaceful relations and alliances with foreign rulers.

In the short term, however, Telipinu's reforms and policies had but limited effect. During the next century, the Hittite kingdom made relatively little impact on the international scene. No more campaigns were undertaken into Syria, and squabbles broke out afresh over the royal succession. But Hatti's fortunes rose once more, early in the 14th century, when a man called Tudhaliya occupied the throne in Hattusha. His accession marked the beginning of a new era in Hittite history, the period of the "New Kingdom," which lasted for just over two centuries, until the fall of the Hittite capital Hattusha c.1186 BC. It was in this period that the Hittites built what became for a time the most powerful empire in the Near Eastern world.

3 Language and Scripts

At its greatest extent, in the 14th and 13th centuries BC, the Hittite Empire stretched from the Aegean coast of Turkey across Anatolia through Syria south to the northern frontier of Damascus, and to the western fringes of Mesopotamia. The core region of the empire was what is now commonly referred to as the Hittite homeland, which lay within the region of north-central Anatolia roughly defined by the Marassantiya river. This homeland territory was called the Land of Hatti in Hittite and other ancient sources. "Hittite" is a modern term derived from biblical sources. The Hittites themselves never used any form of ethnic designation. They simply called themselves the people of the land of Hatti – a name which goes back centuries and perhaps even millennia, before Hittite history begins. Hatti was the traditional name of the region, and the term "Hattian" is applied by scholars to the region's indigenous culture, including its art, language, and religion. Remnants of this culture survived in the Hittite

period. Indeed, it is possible that the population of the Hittite homeland, including the capital, had a significant Hattian component, at least in the kingdom's earlier years. The Hittite, or more strictly the Nesite, language was certainly the kingdom's official language, used for written communications between the kings and his officials, and in letters and treaties exchanged between the king and his western vassal rulers. It was the language of the elite administrative class of the kingdom, a testimony to the Indo-European origins of the royal dynasty. But we cannot be sure how widely spoken it was outside the highest levels of Hittite society. It was undoubtedly a minority language within the kingdom as a whole, and perhaps even within the Hittite homeland, and the capital itself.

For writing their documents, the Hittites used the cuneiform script, adopted from northern Syria, or from scribes brought back from the region in the wake of Hattushili's campaigns there. The great bulk of our information about the Hittite world is derived from these tablets, first deciphered by a Czech scholar Bedřich Hrozný during World War I. The majority of the tablets have been found in various locations in the Hittite capital, as well as in the kingdom's regional centers. Wood was also used as a writing material. Though no wooden tablets have survived, we know of their existence from references in the clay tablets to "scribes of the wooden tablets." Important documents, like international treaties, were sometimes inscribed on metal, including gold, silver, and bronze. One of the most significant finds made at Hattusha in recent years is a bronze tablet, fully intact, more than 350 lines in length, and containing the text of a treaty between one of the last Hittite kings, Tudhaliya IV (c.1237–1209 BC), and his cousin Kurunta, who had been appointed appanage ruler of the southern Hittite kingdom Tarhuntassa (Hallo and Younger 2003/II: 100–6).

The repertoire of Hittite cuneiform tablets includes international and vassal treaties, a wide range of correspondence, between Hittite kings and their officials, vassal rulers, and foreign peers, festival and ritual texts, mythological texts, lists of duties for royal officials, and a collection of 200 Hittite laws. Seal impressions provide another important category of written information about the Hittite world. The seals of kings, other members of their families, and high officials were impressed on a range of documents, including land-grants, royal gifts, treaties, and records of goods purchased. Many of the seals are digraphic. They contain (for example) the name of a king and his titles in an inner circle, written in a hieroglyphic script (see below), and the king's name and titles and information about his genealogy in (usually) two outer rings, written in the cuneiform script. Only a few hundred of these seals were known prior to 1990, in which year an archive of 3,535 of them came to light during excavations on a rocky outcrop, now known as Nişantepe or Nişantaş, located in the so-called "Lower City" of the Hittite capital (Neve 1992: 48–63). The great majority of the new discoveries were clay *bullae* – i.e., lumps of clay stamped with a seal and attached to a document as a certificate of authentication. There were also a small number of seal impressions on land-grant documents.

The hieroglyphic script used on the seals represent the language used by Hittite kings for their monumental inscriptions. It first appears on a small number of royal seal impressions, dating to the Hittite Old Kingdom and bearing, in hieroglyphic symbols, the Hittite royal title *Labarna*.

The language of the script is not Hittite, but Luwian. This was the language of one of the three Indo-European population groups whose presence is first attested in Anatolia in the early 2nd millennium BC. The Luwians were undoubtedly the most populous and widespread of these groups, and by the Hittite New Kingdom may well have formed a substantial component of the Hittite homeland population. Their language also makes its appearance, in cuneiform script, in a number of ritual passages inserted into Hittite texts. The reading and decipherment of the Luwian hieroglyphic script (the name "hieroglyphic" is adopted from the so-called, but totally unconnected, pictographic script of ancient Egypt) proved an almost impossible task until the discovery, in 1946, of a bilingual text with both Phoenician and Luwian hieroglyphic versions, at Karatepe in eastern Cilicia. Though difficulties still remain, particularly with the reading of a number of the script's symbols, the problems of decipherment have been largely solved, thanks to the work of a number of scholars, primarily J.D. Hawkins, H. Çambel, A. Morpurgo-Davies, and G. Neumann (Hawkins 2000).

Hieroglyphic inscriptions dating to the Hittite Empire include a few graffiti found on the paving stones and orthostats of the Temple of the Storm God at Hattusha as well as a number of bowls and other small metal objects from this period. But the great majority of Late Bronze Age hieroglyphic texts appear as monumental inscriptions on rock faces and built stone surfaces. Of 13th century date, most of these have been found within the Hittite homeland, but they are otherwise widely distributed throughout Anatolia. Some record a king's military exploits and other achievements, or are attached as epigraphs – i.e., identification labels – to the figures of deities or Hittite kings or other members of Hittite royalty. Why did Hittite kings choose the Luwian hieroglyphic script for their public monuments? The usual answer is that it was a much more impressive visual medium than the cuneiform script for the purposes of public display. But T. van den Hout has argued that the main purpose in using this form of communication was to help Hittite kings identify more closely with the Luwian populations in whose regions many of the inscribed monuments were located (van den Hout 2006: 222–37). That may well be so. In any case, the Luwian hieroglyphic script became the standard medium used by Hittite royalty for recording their achievements on stone in many parts of the empire, including Hattusha, during the empire's final century. The longest known inscription in Luwian hieroglyphs appears on the rock face at the site of Nişantaş in the Hittite capital. Though now almost entirely illegible, enough of its first line can be read to identify its author as Shuppiluliuma (II), the last Hittite king (1207–? BC). Also dating to Shuppiluliuma's reign is a recently discovered hieroglyphic text found in one of the rooms of a two-chambered structure on the so-called Südburg ("south hill") at Hattusha,

just south of the royal acropolis (Hawkins 1995). This inscription, which is accompanied by reliefs of a deity and the king himself, records a number of the king's military operations in southern Anatolia. It is perhaps a condensed version of the longer Nişantaş inscription. The building in which it appears is believed to be what Hittite texts call a KASKAL.KUR, a symbolic entrance to the Underworld.

4 The Hittite Empire in its Near Eastern Context

Written sources of information provide us with a reasonably comprehensive outline picture of the evolution, development, and fall of the Hittite Empire, though this picture is constantly being adjusted as new information comes to light. Campaigns undertaken by the Hittite king Tudhaliya I as far as the Aegean coast in the west and the Euphrates in the east established the basis for the re-emergence of Hatti, the kingdom of the Hittites, as a major international power (there is some uncertainty as to whether the western and eastern campaigns should be assigned to two different kings called Tudhaliya; hence the convention of referring to the king or kings in question as Tudhaliya I/II.) In the west, Tudhaliya fought several campaigns against enemy coalitions, most notably one commonly known as the Assuwan Confederacy (Bryce 2005: 123–7). Among the leading members of these coalitions were a number of states known collectively as the Arzawa lands, whose populations, most scholars believe, included large Luwian-speaking groups. Despite the victories Tudhaliya claimed to have won during these campaigns, and the thousands of prisoners of war he allegedly brought back from them, the west remained a constant threat to Hittite security, as later events were to demonstrate. In the east and southeast, Tudhaliya claimed crushing victories over Aleppo and the kingdom of Mitanni. He may have paved the way for his operations in the region by annexing the kingdom of Kizzuwatna, which had fluctuated in its external alignments between Hatti and Mitanni.

By the end of the 16th century, the kingdom of Mitanni had been formed from a number of small Hurrian states in Upper Mesopotamia. One of the four great kingdoms of the Near Eastern world during the first half of the Late Bronze Age, it was to become Hatti's greatest rival for political and military supremacy over northern Syria and eastern Anatolia. The other great kingdoms of the age were Egypt, which also sought to expand its territories in Syria, particularly under the pharaoh Thutmose III (1479–1425 BC), and Babylon. The rivalry between Hatti and Mitanni came to a head in the reign of the Hittite king Shuppiluliuma I (c.1350–1322 BC), whose accession to the Hittite throne, by the path of usurpation, followed a period when the Hittite kingdom was, once again, almost obliterated. This happened during the reign of Tudhaliya III, Shuppiluliuma's father and predecessor. In what is commonly called the "concentric invasions," the Hittite homeland was attacked from all around its frontiers and occupied by enemy forces (Bryce 2005: 145–8). Contingents from Arzawa figured prominently among the attackers. Tudhaliya abandoned Hattusha and took refuge in

a place called Shamuha, probably located on the upper course of the Marassantiya river, which he used as a base for driving the enemy forces from the homeland. Almost certainly, Shuppiluliuma was the principal architect of the recovery of the homeland, and the restoration of Hatti's status as one of the great powers of the age. No doubt he felt he had the right to succeed his father, in place of his brother Tudhaliya the Younger, the designated successor, who was assassinated in a palace conspiracy.

Once he was firmly seated upon his throne, Shuppiluliuma set his sights on achieving the ultimate ambition of his career, the elimination of the kingdom of Mitanni. Within five or six years of his accession, he had largely realized this ambition. In 1344 BC he conducted a massive campaign of conquest against Mitanni's allies in northern Syria, and followed this up with an invasion deep into Mitanni's homeland in northern Mesopotamia, capturing and plundering its capital Washukkani (Bryce 2005: 161–3). The Mitannian king Tushratta was forced to flee for his life. He was later assassinated by a group of his own subjects, including his son. Shuppiluliuma now became overlord of northern Syria, subjecting to vassalhood the former subject territories and allies of the Mitannian king. But elements of Mitannian resistance lingered on, and it was not until 1326 BC that the final Mitannian stronghold Karkamish on the Euphrates fell to Shuppiluliuma after a six-day siege (Hallo and Younger 2003/I: 190). Shuppiluliuma forthwith placed Karkamish under the rule of his son Sharri-Kushukh (Piyassili) as viceroy. He also appointed another of his sons, Telipinu, as viceroy in the former Syrian kingdom Aleppo. For the first time, large territories outside the Hittite homeland were under direct Hittite rule. Other northern Syrian states retained their own rulers, who were obliged to swear oaths of allegiance to Shuppiluliuma as his vassals. A number of scholars would argue, with some justification, that it was with Shuppiluliuma that the era of the Hittite empire truly began. But there is no doubt that the foundations of empire had been laid several generations earlier, by the first king called Tudhaliya.

Hittite sovereignty was also established in the west, particularly in the reign of Shuppiluliuma's son and second successor, Murshili II (c.1321–1295 BC), who ascended the throne after the premature death of his brother Arnuwanda, Shuppiluliuma's first successor. Military campaigns conducted in the west by Murshili in his third and fourth regnal years were sufficient to bring to heel the recalcitrant Arzawa states in the region (Bryce 2005: 192–7). Their subjection and allegiance to Murshili was formalized in a series of vassal treaties which Murshili drew up with their rulers.

5 How the Empire Was Controlled

The treaties were personal contracts between the king and his vassal ruler (see Beckman 1999b: 11–124). The latter was bound to his overlord by a number of obligations. He swore allegiance to the Great King, and pledged support for his

legitimate successors; he undertook to provide the king with troops, particularly when the king or his commanders were campaigning in his region; he promised to inform the king of anti-Hittite activities in his region, to have no dealings with the rulers of foreign states, nor to harbor refugees from Hittite authority, and (in at least some cases) to pay an annual tribute into his overlord's coffers. Provided he fulfilled his treaty obligations, the vassal was allowed, in almost all cases, to rule his state as he saw fit. And, in the event that his kingdom was attacked by outside forces or he was threatened or overthrown in a coup by his own subjects, he was guaranteed the protection of his overlord. Sometimes, Hittite garrisons were stationed in vassal states. But this happened only when the states in question had a history of prolonged instability or were located in frontier territories that were vulnerable to enemy incursions.

The vassal treaty system was one of the most important instruments used by Hittite kings in maintaining their authority over their subject territories. At its height from the mid-14th to the mid-13th century BC, the Hittite Empire consisted essentially of its core homeland territory, the Land of Hatti in the strictest sense, and a large network of subject states, spread over much of Anatolia and northern Syria. As we have noted, Shuppiluliuma I extended direct Hittite rule into Syria with his appointment of his sons as viceroys in Karkamish and Aleppo. Otherwise, Hatti's control over its so-called empire was a relatively loose one, which depended ultimately for its survival on the loyalty and support of treaty-bound vassal rulers. There were periods when the vassal system worked relatively well, particularly during the reign of Murshili II. But there were also many occasions when vassal states rose in rebellion against their overlord, or overthrew a pro-Hittite ruler, necessitating campaigns by the Great King himself or by one of his high-ranking military commanders, to reassert Hittite authority in the region. In the wake of such campaigns, hundreds and sometimes thousands of the populations of the rebel states were brought back to the homeland as deportees, along with large numbers of livestock and other booty. This had the twofold effect of restocking the homeland's workforces and significantly reducing the prospects of further uprisings in the subdued states, since many of the deportees culled from the local populations must have been able-bodied males of military age. In their new homeland, the deportees were given various roles. Some were assigned to the king's officers, to work on their estates as agricultural laborers; some were drafted into the royal militia; some were assigned cultic duties in the Hittite land's numerous religious establishments; and large numbers were settled in regions with low populations near the kingdom's frontiers.

Shortage of manpower seems to have been a chronic problem throughout Hittite history, and the deportation system must have played an extremely important role in replenishing the kingdom's human resources, particularly for agricultural and military purposes. Hittite military expeditions were always costly enterprises, even if ultimately successful, because of the drain they imposed on the kingdom's available manpower. For major campaigns, the king's standing

army had to be supplemented by levies drawn from the agricultural workforce. And the absence of large bodies of Hittite troops on campaigns far from their homeland exposed the homeland to attack from the enemies across its frontiers. One of the most formidable and persistent of such enemies consisted of tribal groups from Kashka, a rugged and in parts impenetrable region located in the Pontic mountains south of the Black Sea and north of the Hittites' northern frontiers. Kashkan forces repeatedly raided Hittite territory, particularly in periods when Hittite armies were engaged in expeditions abroad. Though Hittite kings frequently scored victories over Kashkan armies, and destroyed many Kaskhan settlements, the enemy remained an elusive and ultimately unconquerable one.

It is understandable that on many occasions Hittite kings attempted to settle problems that arose in the vassal states, particularly problems associated with rebel movements, by diplomacy rather than military force. A number of their campaigns against the western Arzawa lands, for example, were undertaken only when all attempts at resolution of a crisis by diplomatic means had failed. The western states were particularly prone to rebellion, often, it seems with the prompting and support of a foreign power called Ahhiyawa in Hittite texts. Most scholars believe that Ahhiyawa was the Hittite way of referring to the Greek Mycenaean world, and in some cases to a specific kingdom within this world, perhaps Mycenae itself. The name Ahhiyawa, which also appears in the variant form Ahhiya, is thought to come from the word Akhaioi (Achaeans), one of the names by which the Greeks are known in Homer's epic poems. If the identification is valid, it is clear from Hittite texts that at least one Mycenaean king sought to expand the territories he controlled onto the Anatolian mainland, into what was Hittite vassal territory, and using local anti-Hittite elements as agents for this expansion. For a time, the important city called Milawanda (Milawata) on Anatolia's western coast came under Ahhiyawan or Mycenaean control, and was used by the Mycenaean king as the main base for the extension of his activities through the western Anatolian coastal regions. Milawata was the Bronze Age ancestor of the city later to be called Miletus.

6 Hatti's Relations with Egypt

In the southeast, Hatti's subject territories extended through northern Syria to the frontier of the land of Damascus, which marked the northern limit of Egypt's subject states. Disputes between Hatti and Egypt over control of two local Syrian kingdoms, Amurru and Qadesh, located in the Orontes region to the north of Damascus, had culminated in two military showdowns at Qadesh between Hittite and Egyptian armies. The more famous of these, fought in 1274 BC between the Hittite king Muwattalli II and the pharaoh Ramesses II (Hallo and Younger 2003/II: 32–40), resulted in a stalemate. But the Egyptian forces withdrew

to the region of Damascus, and Amurru and Qadesh were gathered firmly within the Hittite fold. A gradual easing of tensions between Hatti and Egypt led finally to the conclusion of a peace treaty in 1259 BC drawn up between Ramesses and Muwattalli's son and second successor Hattushili III. Unlike the Hittite vassal treaties, the Hittite-Egyptian treaty represented a bilateral agreement between its contracting parties. Versions of it were prepared separately in Hattusha and Ramesses' capital Pi-Ramesse, each from the respective treaty partner's viewpoint (Beckman 1999b: 96–100). The Hittite version was originally written in Akkadian, from a first Hittite draft, inscribed on a silver tablet, and then sent to Egypt, where it was translated into Egyptian. The Egyptian version of the treaty was first composed in Egyptian, and then translated into Akkadian on a silver tablet before being sent to Hattusha.

Akkadian was the international language diplomacy of the Late Bronze Age, and many of the tablets found at Hattusha could be read some years before the decipherment of the Hittite language, since they were written in Akkadian. This was the language used by Hittite kings in their communications with their vassal rulers in Syria and in their correspondence with their foreign counterparts. A large number of letters have survived in the Hittite archives from the reigns of Hattushili III and Ramesses II, exchanged between the Hittite and Egyptian kings and also members of their families, in the period leading up to the treaty, and subsequently in the years preceding the first of two marriages which Ramesses contracted with Hattushili's daughters. Each king addressed the other as "my brother," and "Great King." The latter form of address was reserved exclusively for the rulers of the four great kingdoms of the age. The other rulers were the kings of Assyria and Babylon. Assyria had occupied the power vacuum left in northern Mesopotamia by the Hittite destruction of the Mitannian Empire, and became an increasing threat both to its southern neighbor Babylon and to the territories west of the Euphrates. Indeed, fear of a resurgent Assyria, formerly a vassal state of Mitanni, may have been one of the prompts for the treaty concluded between Hattushili and Ramesses.

7 The Duties of Royalty

Like his royal brothers, the Hittite king exercised three major functions: he was the chief priest of the empire, he was its supreme judicial authority, and he was commander-in-chief of its armies (Bryce 2002: 11–31). In all his functions, his role was very much a hands-on one. His appointment as king was divinely sanctioned, but he ruled merely as the servant and chief executive officer of the storm god, the most important deity in the Hittite pantheon. The religious duties which he was expected to fulfill in person were numerous, and in some cases had to take priority over all his other activities. Kings are known to have cut short military campaigns in order to discharge a particular religious responsibility – or

else invoke the wrath of the offended gods, which might be unleashed in the form of a plague of devastating proportions. Not least among the king's religious duties was the celebration of certain religious festivals, which often entailed pilgrimages to a number of the kingdom's cult centers. Of the four most important festivals of the religious calendar, two were held in spring – the AN.TAH.ŠUM ("crocus") and the *purulli* ("earth") festivals – and at least one and perhaps two in autumn – the *nuntarriyashas* ("festival of haste") and the KI.LAM ("gatehouse") festival. The AN.TAH.ŠUM festival was performed primarily for the Sun-Goddess of Arinna, consort of the storm god and the second most important deity of the Hittite pantheon.

The Hittite New Year festival way have been celebrated in a natural rock sanctuary located 1 kilometer northeast of Hattusha and now known as Yazilikaya ("Inscribed Rock"). Hattushili III built a gatehouse and temple complex with interior court and inner sanctuary across the front of the site, and his son and successor Tudhaliya IV embellished the complex with relief sculptures. The main group of reliefs in the main chamber (Chamber A) consists of two files of deities, male on the left and female on the right (with one exception in each case). Their depiction and their names, presented in the Luwian hieroglyphic script, show marked Hurrian influence, illustrating the strong impact which Hurrian culture made on the Hittite civilization, especially in Late Bronze Age Hatti's final century. In the second, narrow, rock chamber in the complex (Chamber B), 12 running or marching gods are depicted, with curved swords over their shoulders. They are generally believed to be the 12 gods of the underworld. On the wall opposite them, two human figures are represented. From the royal cartouche above his name, the smaller of the figures can be identified as Tudhaliya IV. He is dressed in priestly garb, with long robe and close-fitting skull-cap, and he carries a curved staff (Latin *lituus*). The larger figure, who extends a protective arm around him and grasps his wrist, is Tudhaliya's patron deity Sharrumma. On the same wall, the relief of a dagger plunged into the ground, its hilt consisting of a human head, with two protomes of lions beneath, is also considered to have underworld associations. A number of scholars have speculated that Yazilikaya may have served as a mortuary chapel in the kingdom's last decades. Chamber B may be Tudhaliya's tomb. If so, it would be the only known royal tomb from the Hittite world.

One of the most powerful figures in the Hittite kingdom was the woman known as Tawannana. In most instances, she was the king's chief consort, and held office for the whole of her life, even if her husband died before her. She was chief priestess of the Hittite world, and by virtue of this and her other roles, she could be a powerful influence within the kingdom. This sometimes proved dangerous for the kingdom's stability, as illustrated by Murshili II's accusations against his stepmother, the Tawannana of the day, wife of his deceased father Shuppiluliuma and a Babylonian princess in origin. Accusing her of stripping the palace of its treasures to lavish on her favorites, introducing undesirable foreign

customs into the kingdom, and murdering his wife by witchcraft, Murshili had her banished from the kingdom (see Bryce 2005: 207–10).

But the most powerful of all reigning consorts was the Hurrian priestess Puduhepa, whom Murshili's son Hattushili (III) married on his way home from Syria, following the battle of Qadesh. Apart from her role as chief priestess of the Hittite realm, a role reflected in a number of religious reforms which she made, she closely partnered her husband in many other activities, particularly in the judicial sphere. The king's responsibilities as supreme judge within his realm were far-reaching. Capital offences were referred to him for judgment, and he served as a final court of appeal for all his subjects, as illustrated by an appeal made to him by a priest in Emar on the Euphrates, who was in dispute with a local garrison-commander over property and taxes. Puduhepa's engagement in the administration of justice at a microlevel is illustrated by the judgment she handed down in a case involving a damaged boat in Ugarit. She deputized for the king in this case, and actually used his royal title "My Sun" in authenticating the document recording her decision.

The Hittite collection of 200 laws provide us with many valuable insights into the mores and value systems of Hittite society (Hoffner 1997a; Bryce 2002: 32–55). Though in many instances adopted from earlier Mesopotamian laws, particularly those of the Babylonian king Hammurabi, the Hittite laws generally take a less draconic, more pragmatic approach to the administration of justice. More emphasis is placed on appropriate compensation for the victim of an offence than punishment per se for the offender. The Hammurabic (and biblical) "eye for an eye" principle has no place in Hittite legal provisions. The laws are far from comprehensive in their coverage and consist for the most part of a selection of legal precedents based on earlier court rulings. Property rights figure prominently in the laws, as do marriage provisions – understandably, since marriage regularly involved a transfer of property, in the form of dowries and bride-prices. The status of parties to a dispute had a considerable bearing on the penalties imposed upon the offender and the compensation awarded to the victim. Mutilation was in a number of cases prescribed for a slave offender, whereas such punishments were replaced for offenders of free status by monetary compensation, or compensation in kind. Certain categories of sexual offences were punishable by death, but in general capital punishment was relatively rare.

As commander-in-chief of the Hittite army the king was expected to lead campaigns against rebel or enemy forces in person. Indeed, many kings were engaged in military campaigning for a large part of their reign. On a number of occasions, however, the king delegated command to his highest-ranking officers, generally a close member of his family and often one of his sons, typically the crown prince or one of his brothers. The core element of the Hittite militia was a standing professional army, made up of infantry and chariotry which wintered in military barracks in the capital and could be used as a laborforce for building projects or as a policeforce when not engaged in military duties. For major cam-

paigns, their ranks were supplemented by levies from the homeland population, and also by conscripts provided by various provincial districts. According to Ramesses II, the Hittite king Muwattalli assembled a force of 47,500 infantry and chariotry for the showdown at Qadesh, boosting his own forces with mercenary contingents.

8 Archaeological Sites Within the Homeland

Our knowledge of Hittite history and civilization based on written sources is complemented by archaeological data from various sites within the Hittite world. The largest and most important of these sites is the Hittite capital Hattusha, founded c.2000 BC by an indigenous Hattian population group. It lies adjacent to the modern village Boğazköy (Boğazkale). Excavations have been conducted on the site from 1906 to the present day, primarily as joint operations of the German Archaeological Institute and the Deutsche Orient-Gesellschaft (Neve 1992; Seeher 2002). In its first Hittite phase, beginning around the middle of the 17th century BC, the city was relatively small (c.62 ha). Its two chief features were an acropolis, located on the rocky outcrop now called Büyükkale, where the royal palace and ancillary administrative buildings were located, and to the northwest of it the Temple of the Storm God, a vast, sprawling complex covering an area of more than 20,000 square meters. This first city lacked adequate defenses, until the 15th century BC king Hantili II built an 8 meter thick wall around it. It subsequently fell to invaders and was sacked in the reign of Tudhaliya III (first half of the 14th century BC). The second phase of the city's history began with the restoration of Hittite authority through the Land of Hatti probably late in Tudhaliya's reign. Hattusha underwent a major redevelopment and a expansion of its boundaries to the south. The city now covered an area of c.185 hectares, tripling its original size. It was protected by new walls extending over a distance of 5 kilometers, punctuated by towers at 20 meter intervals along its entire length. The fortifications included an extension to the northeast, spanning a deep gorge and enclosing within the city limits a mountain outcrop now called Büyükkaya. Access to the city was provided by a number of gates in the walls, the most important of which, still to be seen *in situ*, are the Lion, Sphinx, and Warrior Gates. The first of these provided the main ceremonial entrance to the city. The last features on its interior a relief sculpture of a god, equipped for battle. The original city, with the royal acropolis and the Temple of the Storm God walled off within it, is now commonly referred to as the "Lower City," to distinguish it from the great, southern extension, the "Upper City." Excavations conducted in the Upper City by P. Neve brought to light the foundations of 26 temples, increasing to 31 the total number of temples so far unearthed at Hattusha (Neve 1992: 23–43).

Neve believed that Hattusha's substantial redevelopment was due largely to Tudhaliya IV in the late 13th century BC, though allowing that Tudhaliya's father Hattushili may have been the inspiration behind the project. However, Neve's successor J. Seeher has argued, from a range of criteria including radiocarbon dating and pottery analysis, that parts of the Upper City had been occupied and fortified much earlier, in the late 16th or early 15th century BC. We have referred above to a number of comparatively recent finds within Hattusha, including the Südburg structure, with its reliefs and inscriptions, the seal archive unearthed at Nişantaş and the bronze tablet discovered outside the Sphinx Gate. Other recent discoveries include 11 underground grain-pits on Büyükkaya (dated to the 14th–13th century BC) and an above-ground grain-storage complex, consisting of two parallel rows of 16 chambers each (dated to the late 16th/early15th century BC). The granaries, discovered by Seeher, had a total capacity of almost 8,000 tons of grain, mostly barley (Seeher 2000). Seeher also discovered five reservoirs, which he called the "southern ponds," built on the plateau in the Upper City. Up to 8 meters deep, four of these were rectangular in shape, one circular. They have been dated to the 15th century BC. Probably fed from nearby springs, they must have provided a large part of Hattusha's water supply for a short time before silting up and being abandoned by the end of the century.

Forty kilometers northeast of Hattusha lie the remains of the site now known as Alaça Höyük, a fortified Hittite city containing a palace, residential quarters, and several temples (Bryce 2009: 20–2). Well preserved remains of the city's main gateway, flanked by sphinxes, depict in relief a religious festival in progress. The Hittite king and queen are represented standing before an altar of the storm god, represented as a bull. A seated goddess is also depicted – almost certainly the Sun Goddess of Arinna, consort of the storm god. Alaça Höyük may well have been the city Arinna, the goddess's cult-center. Reliefs on the sculptured blocks forming the city's gateway depict other participants in the festival, including acrobats, a sword-swallower, a lute-player, perhaps a bagpiper, cult officials and animals for sacrifice. The city is also well known for its pre-Hittite Early Bronze Age II remains (mid-/late 3rd millennium), which feature 13 "royal" shaft graves, whose most impressive contents, accompanying the burials, include ritual disk and arc standards, incorporating stylized bulls and stags.

Excavations conducted in north-central Anatolia in comparatively recent years have brought to light a number of previously unlocated Hittite sites known from written sources. These include the provincial administrative centers of Shapinuwa, Tapikka, and Sarissa. Shapinuwa is located 60 kilometers northeast of Hattusha, on the site of modern Ortaköy. Covering an area of 9 square kilometers, it is frequently attested in Hittite texts as a religious and administrative center and a base for Hittite military operations. Excavations have been conducted at Ortaköy by A. Süel since 1990 (Süel 2002). Prominent among its architectural remains is a structure designated as Building A, tentatively identified as a palace or administrative building. Three thousand tablets came to light in this building, in widely

dispersed fragments. Although not yet published, the majority are apparently Hittite letters with some administrative texts. Other texts are written in Akkadian, and there are a few Hittite-Akkadian, Hittite-Hattian bilingual texts. About 25 percent of the corpus consists of ritual texts written in Hurrian. The tablets have been dated to the first half of the 14th century and probably belong to the reign of Tudhaliya III. Of the other buildings unearthed on the site, one has been identified as the ground floor of a storeroom (Building B) and two are believed to have been part of a ceremonial complex (Buildings C and D).

Tapikka lay a short distance to the east of Shapinuwa, and 116 kilometers northeast of the Hittite capital (near modern Maşat). Though a relatively small site (c.10 hectares), it probably also served as a regional administrative center and military base of the Hittite kingdom. Excavations (1973–84) by T. Özgüç revealed a citadel and lower city (Özgüç 2002). Occupation began in the late 3rd millennium, but the settlement reached its peak in the first half of the 14th century BC, probably during the reign of Tudhaliya III, when its most important feature was a 4,500 square meter building erected on the citadel, clearly the headquarters of the local administration. The remains of the north and east wings of this building, commonly referred to as a palace, are preserved, as well as an inner, colonnaded courtyard. The only significant remains of the lower city are those of part of a temple. Among the small finds from the site, the most important was a tablet archive, consisting of 116 texts. Of these, 96 are letters, mostly exchanges between the king and his local officials. For the most part they deal with matters relating to the security of the region. It is believed that the entire corpus may date to a period of a few months, immediately preceding the city's destruction by enemy forces during Tudhaliya's reign. Texts of a cultic nature were also found. These have been dated to the final phase of Tapikka's existence in the 13th century BC.

The city of Sarissa (modern Kuşakli) was located south of the Marassantiya river, 200 kilometers southeast of Hattusha. It was founded in the 16th and destroyed in the first half of the 14th century BC, no doubt during the massive invasions of the Hittite homeland in this period. Excavated since 1992 by A. Müller-Karpe, the 18 hectare site consists of an acropolis, with settlement spreading over its terraces and slopes and flat areas at the bottom of the hill, and a lower hill lying to its south (Müller-Karpe 2002). The whole area is enclosed within a double casemate wall, with access to the city via four main gates. The largest and most impressive building on the slopes of the acropolis is a rectangular complex of more than 110 rooms, whose focus is a central court. Since its layout is similar to that of the sacred buildings at Hattusha, it is thought to be a temple, perhaps of the storm god. Among its small finds were a number of clay sealings, with the inscription "seal of Tabarna, the Great King. Who changes it will die," and two well-preserved letters of what philologists call the "Middle Hittite" period. Sarissa no doubt played an important role as one of the Hittite kingdom's administrative centers on the outer fringes of the homeland.

9 The End of the Empire

The Hittite kingdom came to an end early in the 12th century BC, within the context of the upheavals associated with the collapse of the Late Bronze Age civilizations and centers of power throughout the Greek and Near Eastern worlds. Many reasons for the collapse have been suggested, including a prolonged drought, food shortages, uprisings of local populations, the collapse of international trading networks, and invasions by outsiders, including the so-called Sea Peoples of Egyptian records. A number of these factors in combination may have been responsible for the end of the Hittite kingdom. Factional rivalries within the royal dynasty may also have played their part in weakening the kingdom to the point of extinction. Some signs of this are evident in the reigns of the last kings of Hatti. The final event which marked the end of the Hittite kingdom was the fall of Hattusha, but there is some question about the circumstances in which this occurred. Earlier excavators of the site, notably K. Bittel and P. Neve, attributed Hattusha's destruction to enemy attack. But Neve's successor, J. Seeher, has argued that this conclusion can no longer be maintained. In his view, and that of his successor A. Schachner, Hattusha was abandoned by a large part of its population, most notably its elite elements including the king and his family, before its destruction. All indications are that many of the city's buildings, including the palace, were systematically cleared of their contents by their occupants, who took these with them on their departure (Seeher 2001). Certainly the destruction by fire of large parts of the city can be attributed to enemy invaders. But according to Seeher, when the invaders entered the city, it was almost deserted.

That of course raises the question of where the city's inhabitants went. A number of scholars assume that many of the peoples of western and central Anatolia moved southeast, following the fall of the Hittite kingdom, and resettled in southeastern Anatolia and northern Syria, where the Iron Age "Neo-Hittite" kingdoms (Ch. II.42) emerged from the late 2nd millennium onwards. "Neo-Hittite" is a term applied by modern scholars to a number of Iron Age kingdoms in these regions (Karkamish, Kummuh, Malatya among them), because they display a degree of cultural continuity with the Late Bronze Age Hittite world, including the retention of the Luwian hieroglyphic script for recording their kings' achievements, the retention of royal Hittite names in their ruling dynasties, and the preservation of a number of Hittite elements in their art and architecture. But conclusions about ethnic and cultural continuity between the Late Bronze Age Hittite Empire and its alleged Neo-Hittite successors raise more questions than they answer. The reasons for the fall of the empire and the subsequent history of its populations remain matters for speculation.

Above all, what happened to the inhabitants of Hattusha after they abandoned their city? Archaeology may one day find us an answer to that question.

GUIDE TO FURTHER READING

O.R. Gurney's 1952 book *The Hittites*, last reprinted in 1990 (with some revisions), is a useful general work on Hittite history, society, and civilization, but it has been superseded in many respects by Collins (1990). Works devoted specifically to Hittite military and political history include Klengel (1999) and Bryce (2005). In the former, aimed more specifically at an academic market, each section is accompanied by a detailed list of the relevant primary written sources. Bryce (2002) covers a range of aspects of Hittite society and civilization, including the role of the king, the laws, marriage provisions, the gods, rituals and festivals, warfare, merchant operations, and myth and literature. Burney (2004) is a comprehensive reference work on Hittite cities, lands, and archaeological sites. Beckman (1999b) provides translations, with accompanying notes, of the majority of extant Hittite treaties, a selection of the correspondence exchanged between Hittite kings and their vassal rulers and foreign counterparts, and a selection of other diplomatic texts. It belongs to a series of publications on the writings of the ancient world published by the Society of Biblical Literature, Atlanta. Other books in the series include Hoffner (1990) on Hittite mythology and Hoffner (2009) on Hittite letters. The latter contains both transliterations and translations of a wide range of Hittite letters, accompanied by extensive notes. Useful general chapters on the history and archaeology of the Hittite Empire and its Iron Age Neo-Hittite successors are contained in Sagona and Zimansky (2009).

CHAPTER THIRTY-NINE

Elam: Iran's First Empire

Javier Álvarez-Mon

1 Introduction: Geographical and Territorial Considerations

The appearance of Elam as a political and cultural notion is deeply entrenched in the unique lowland/highland physical setting provided by the Iranian provinces of Khuzestan and Fars. This setting was responsible for conditioning the material wealth, cultural resiliency and longevity characterizing Elamite civilization. It also determined the political history of Elam as an empire by providing a buffer and retreat zone that allowed for the periodic mustering of expansionistic ambitions upon neighboring political entities. Throughout the centuries, however, the notion and identity of Elam underwent noticeable alterations that forced the reformulation of its territorial, political, social, and cultural character.

The etymology of the name Elam attests to the significance of a ubiquitous geographical presence: the Zagros highlands. The earliest written sources (in Sumerian) speak of the (land) NIM "high, elevated." Akkadian rendered the term *elamtu/elammatum*, possibly related to *elûm* ("high, upper") or, alternatively, derived from the Elamite word *halHa(l)tamti*, meaning conceivably "gracious lord-land" or just "high land." The modern name Elam is a transcription of biblical Hebrew (*'élam*) from which Greek *Aylam* is derived.

While *stricto sensu* the word Elam acknowledges a physical feature occupied by highland political entities and peoples (highlanders), in time, it came to represent the unique character of a civilization resulting from the interaction of cultures situated in lowland Susiana (broadly the plain of the present-day province

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of Khuzestan in southwestern Iran) and the Zagros highlands (broadly the present-day province of Fars with its capital Shiraz). In geomorphologic terms, Susiana is an extension of the Mesopotamian plain but with the significant difference that the soil components of this rich alluvial plain were determined by its proximity to the highlands and by numerous river courses (the Karkheh, Karun, Marun or Jarrahi, and Zuhreh or Hindian). Situated between the plain and the highlands, a foothill corridor provided an ecological niche ideal for settlement and pastoralism. Next to the Zagros mountains, the most conspicuous physical boundaries were the Persian Gulf, the main rivers irrigating the Susiana plain and Fars (the Kur with its affluent the Pulvar) and the associated large, dynamic marshland and tidal floodplain located to the south and southwest of the Ahwaz anticline. The single most important overland route was the north/west–south/east plain-foothill-highland corridor connecting the political centers of Susa and Anshan (Potts 1997a: 19–42; 1999: 10–42; Steve et al. 2002: 359–61; Gasche 2004, 2005).

2 Elam Before Elam: Susiana and the Kingdoms of Awan and Shimashki

When Elam emerged and how this term came to embrace various highland Zagros polities, eventually incorporating the Susiana plain, is not entirely apparent in the archaeological and textual sources. Information on the pre-Elamite period – roughly the interval between the foundation of Susa c.4000 BC and the unlocking of the historical door made possible by textual sources around 2700 BC – is largely determined by the study and interpretation of materials unearthed in western Elam, scattered sites in the Elamite highlands, and the better known Mesopotamian archaeological sequences. This evidence provides a picture of great regional diversity, suggesting various models of interaction amongst Mesopotamian city-states and the inhabitants of Susiana and the Zagros highlands. The earliest, unequivocal textual references to Elam around 2675 BC together with Elamite royal inscriptions of the time of Shutruk-Nahunte (12th century BC) link the emergence of Elam to highland polities recognized, most notably, under the banners of Awan and Shimashki. Paradoxically, while much of the genesis and formation of Elamite cultural identity can be presumed to have evolved out of multifaceted patterns of interaction amongst highland regional powers, our earliest sources are heavily biased in favor of "Suso-Mesopotamian" relationships.

In many ways Susiana can be considered boundary territory. From the Mesopotamian perspective, it was the gateway to the eastern Iranian highlands and the plateau beyond, indispensable for access to primary resources such as metals, timber, and stone. From the highland perspective, it was the gateway to a web of flourishing, riverine, Mesopotamian urban-based networks, manufactured

luxury goods, and unmatched cultural and social complexity. A significant element in this network and one of the most important settlements in the prehistoric Near East was the city of Susa. Its early chronology has been divided into two periods: Susa I (c.4000–3700 BC) and Susa II (c.3700–3100 BC). Susa I incorporated two distinct areas, both located on top of two natural outcrops c.7–10.5 meters above the level of the surrounding plain. The southern town extended over c.7 hectares (the *alumelu* "high-rising" city, *Acropole* mound) and the northern town extended over c.6.3 hectares (the *Apadana* mound – so named because it was topped by the remains of the columned palace or *apadana* of the Achaemenid Persian king, Darius I). A massive wall c.6 meters wide at the base may have enclosed the Apadana settlement. At a slightly later date this wall included a large, perhaps elite, building with a north–south/east–west orientation and plastered walls. The Acropole mound hosted an enormous solid terrace (*haute terrasse*, or "high terrace") built c.7 meters to the north of a rectangular mudbrick platform (*nécropole/massif-butte funéraire*, or "funerary structure") used as a burial ground for hundreds of bodies associated with eggshell-thin, finely painted wares (Susa I style pottery). The high terrace was a stepped, mudbrick construction with a 2 meter high socle (c.82 × 90 meters), on top of which stood a smaller, monumental platform c.9 meters high. The façade above the socle was decorated with sets of decorative, cylindrical nails or wall cones of baked clay. It has been suggested that this enormous structure must have supported the earliest sanctuaries or most important community buildings of Susa. To the north were additional architectural remains interpreted as grain storage facilities and workshop areas containing potters' kilns. In addition to these sizeable architectural complexes, Susa I was characterized by an advanced metallurgical (copper) industry. This period ended in a massive fire affecting buildings on the Acropole and the Apadana (Dyson 1966; Canal 1978b; Steve and Gasche 1990; Potts 1999: 45–52; Steve et al. 2002: 403–9).

The settlement of Susa II was characterized by changes in the orientation of buildings, brick sizes, and ceramics. The Susa I style pottery was given up in favor of forms with obvious parallels at Uruk in southern Mesopotamia. A major regional, socioeconomic transformation is thought to have taken place. This is indicated by the appearance of an accounting system that evolved from counters (*calculi*) to counters contained in clay balls (*bullae*) and finally to written texts (tablets). Attested in Acropole I Levels 18–17, the earliest cylinder seals at Susa display scenes of daily life such as grain storage in tall granaries topped by cupolas. This period also witnessed an increase in the sheer number and size of sites on the Susiana plain. Susa grew eastwards as the mounded settlement areas called *Ville Royale* ("royal town") and *Donjon* ("dungeon") by the site's French excavators doubled the size of Susa, making it c.25 hectares or more. The Acropole contained residential houses and large numbers of conically shaped, decorative wall nails (as opposed to the cylindrical shapes attested in Susa I, but otherwise similar). The significance of these changes has been interpreted variously (Potts

1999: 52–71; Steve et al. 2002: 409–13). It is generally believed there was a cultural break associated with the arrival of populations from the Mesopotamian plain to the west. Differences of opinion exist, however, with respect to the degree of political influence exercised by the newcomers. The view that Susiana was part of a broader regional process of colonization emanating from Uruk has not gained support, and a more nuanced approach that sees progressive adaptation to Mesopotamian, urban-centered economic models and the reorganization of older exchange networks has more adherents (Wright and Johnson 1975; Potts 1999: 58; Steve et al. 2002: 414).

The nature of settlement during the Susa III (or "Proto-Elamite") period (c.3100–2700 BC) is fraught with many preconceptions and much ambiguity. The final occupation (Level 17) of the Acropole high terrace at the end of Susa II included large ash deposits suggesting destruction by fire; yet the northern part of the terrace contains residential remains in the vicinity of a large city wall, indicating that this part of the city was not affected by fire. A most significant development was the appearance at this time (Acropole I, Level 16; Ville Royale I, Levels 18 B–A) of the first so-called "Proto-Elamite" or "Susa III" tablets, a writing system originally interpreted by V. Scheil (1905: 59) as an archaic form of the later Elamite language (Dahl 2002). This view has generated abundant discussion regarding possible links to the earlier (Susa II) numerical systems, the old Elamite language (c.2300 BC), and the later, so-called "linear" Elamite texts from the reign of Puzur-Inshushinak (c.2100 BC). The fact that Susa III/Proto-Elamite tablets have been found at sites distributed across the Iranian Plateau (Tal-e Ghazir, Tal-e Malyan, Tepe Yahya, Shahr-i Sokhta, Tepe Özbaki, Tepe Sofalin) adds an intriguing aspect to the puzzle. Their spatial distribution has given rise to the notion that a supra-regional economic enterprise (a "Proto-Elamite civilization") centered in Susiana may have existed (Alden 1982; Sumner, 1997: 406; Potts 1999: 71–83; Steve et al. 2002: 414–17; for radiocarbon dates, see Wright and Rupley 2001: 96–7). Despite differences of interpretation, we appear to have a writing system and a technical apparatus of bookkeeping procedures that developed independently from Mesopotamia and were used across a network of Iranian towns. This technological revolution was paralleled by a change in glyptic and ceramics. At the same time, and at the height of the Susa III period, the pace of settlement accelerated in the highlands of Fars. The town of Anshan (Tal-e Malyan) on the Marv Dasht plain, a future eastern Elamite capital, grew to five times the size of Susa in what is known there as the Banesh period (3400–2800 BC). The site covered c.50 hectares within a massive, 5 kilometer long city wall built on a foundation of large stone boulders (Ch. I.31). The interior walls of the large (15 × 25 meter) ABC building there were decorated with polychrome, geometric patterns recalling both eastern and local pottery traditions and perhaps exhibiting associations with textiles (Nickerson 1977; Álvarez-Mon 2005b: 152 n8–10). Malyan appears to have been an impressive political and economic center whose regional, if not interregional, influence is

likely to have been significant. This period of settlement expansion has been interpreted as the result of an arrival of migrant populations from the lowlands.

The Early Dynastic period at Susa (Susa IV or Susa D, c.2700–2375) is represented to the north of the high terrace on the Acropole mound by architectural complexes including large jars and grain storage facilities. The Acropole continued to be the religious heart of the city, as attested by the probable existence of a temple ornamented with votive limestone wall plaques exhibiting relief decoration (Pelzel 1977). The ceramics of this period included cream-colored vessels painted with red-orange-black motifs and distinctive iconography such as a chariot pulled by an ox, running horses, and fish. These wares are known as "second" or "Susa II" style and are distributed throughout a broad swathe of the central Zagros as far north as an imaginary line running from Kermanshah to Hamadan (Potts 1999: 85–159; Steve et al. 2002: 418–39). The inhabited extent of the city at this time is difficult to estimate. However, the existence of hundreds of tombs and related material, excavated (albeit poorly and with little attempt at documentation) in the Ville Royale (I) and Donjon by R. de Mecquenem suggests a large urban center whose inhabitants continued to support high levels of metallurgical production represented by weaponry with parallels in Luristan and chariot wheels made of wood with nailed copper tires (Mecquenem 1943: 123, Fig. 89; Amiet 1966: 143, Fig. 103).

At around 2675 BC the first unequivocal reference to Elam appears in the so-called Sumerian King List. The text states that after "kingship was lowered from heaven" (Col. i.1) "the king of Kish (En)Mebaragesi carried away the spoil of the weapons of the land of Elam [Col.ii. 35–37] and [Sumerian] kingship went from Kish to Uruk, from Uruk to Ur, from Ur to Awan, and from Awan back to Kish [Col. ii. 45–iv. 19]" (Jacobsen 1939: 83–97). The inclusion of Elam and Awan here is intriguing. At this stage in history, the extent to which Sumerian scribes distinguished between Awan (the city) and Elam (the highland territory) is uncertain. The fact that they are generally mentioned separately, that two of the earliest kings of Awan bore Elamite names, and that later Elamite kings traced their political (and cultural) identity to Awanite rulers suggests that Awan and Elam may have possibly been coterminous or, more likely, that Awan was a part of the Elamite territory. At the same time, the fact that Awan was mentioned amongst the cities of the Sumerian heartland suggests that it must have been relatively close by, even if its precise location remains unknown. Based on parallels between burial goods from Susa IV, the Pusht-e Kuh region (Luristan), and the Deh Luran plain, Potts (1999: 92) suggested that Awan may have been centered on the Kangavar valley (possibly with the chief settlement at Godin Tepe). Regardless of where Awan was located, the Sumerian King List marks the beginning of a documented pattern of antagonism, trade exchanges, and alliances between Mesopotamia and Zagros-bound polities associated with Elam that lasted for millennia.

Except for the brief interval marked by the reign of the last king of Awan, Puzur-Inshushinak (c.2100), it appears that Susiana was for all practical purposes just one more component of the Mesopotamian socioeconomic and political network. From the Akkadian period (c.2334–2154) to the collapse of the Ur III Dynasty in 2004 BC, a sequence of Mesopotamian kings ruled over Susa, sending their armies on incursions into the highlands and pursuing alliances through interdynastic marriages and, one must assume, treaties of peace and exchange. Eventually, this pattern of asymmetric exchange and hostility seems to have fostered the emergence of highland alliances, eventually culminating in the creation of a multicentric Elamite state.

A most significant document from this period is a fragmentary Elamite text, found at Susa, that records a treaty between Naram-Sin of Akkad (2254–2218 BC) and an Elamite ruler whose name is uncertain (Scheil 1911: 1–11; König 1965: 29–34; Hinz 1967). The content is highly relevant for the history of Elamite language and for the construction of an Elamite religious identity, as it begins with an invocation to more than 30 deities, 26 of whom are of Elamite origin. The "treaty" part of the document states: "the enemy of Naram-Sin is my enemy; the friend of Naram-Sin is my friend." These words suggest an alliance between Akkad and Awan/Elam against a mutual enemy, perhaps the highland Guti, and provides a warning against placing too much emphasis on the often antagonistic rhetoric of Mesopotamian royal inscriptions. Throughout this period, Susa remained under the umbrella of Mesopotamian influence; albeit with evidence of continuing relations with the highlands, the Iranian plateau, and the Persian Gulf. The physical manifestations of this are attested on the Acropole (Levels 1 and 2) in the form of a building interpreted as a granary and in a small area of domestic remains in the Ville Royale I. For the most part, ceramics, metalwork, and glyptic styles follow Mesopotamian norms. Native traditions are most prevalent in clay figurines.

Puzur-Inshushinak (c.2100 BC), the last ruler of Awan, incorporated Susa and Anshan into the Awanite kingdom, conquered more than 70 Iranian towns, and raided northern Babylonian settlements seeking control of the great Khorasan road (the route from southern Babylonia to the Iranian Plateau and on toward Central Asia) and the highland kingdom of Shimashki (Potts 2008b). In addition to these expansionistic activities, his reign was marked by the creation of a unique script known as Linear Elamite (or Proto-Elamite B) that survives in only 19 inscriptions. Of the 103 signs recorded, more than 40 are only attested once. The restricted number of signs and inscriptions has thus far thwarted the decipherment of Linear Elamite. The identity of Puzur-Inshushinak, the political character of Awan, and the characteristics of the "national" language of the kingdom remain matters of scholarly debate. At Susa, the evidence of a decorative votive nail with a text stating "Puzur-Inshushinak **ensí** of Susa *šakkanaku* of Elam, son of Shimbishhuk-Inshushinak, the temple of Shugu he has restored,"

together with a large statue of the enthroned goddess Narundi, flanked by two lionesses (and bearing a bilingual inscription), and the remains of an alabaster statuette possibly representing Puzur-Inshushinak himself (found in what has been identified as the temple of the goddess Ninhursag), suggest that Puzur-Inshushinak successfully subscribed to a tradition that adopted (and co-opted) the cultural accoutrements of this ancient and vast urban center (Mecquenem 1911: 71; Amiet 1966: 227, Fig. 166; Steve and Gasche 1971: 61 n71 and 73, Pl. 8.4–7).

With Puzur-Inshushinak gone, the Susiana lowlands were reintegrated into the Mesopotamian political orbit under the Ur III Dynasty. Textual information for this period is abundant, but heavily filtered through a Mesopotamian-Susian lens. The Sumerian kings left ample evidence of their religious zeal and administrative practices at Susa through monumental royal constructions and inscriptions (Malbran-Labat 1995). Foundation nails inscribed by Shulgi (2094–2047 BC) suggest he erected temples on the Acropolis to Inshushinak and Ninhursag (apparently above the remains of earlier constructions situated next to the earlier high terrace; Amiet 1966: 238). Another temple probably founded at this time was erected on the southwestern flank of the Ville Royale and included at least three pairs of large, painted terracotta lions guarding the main entrance (Amiet 1966: 292–3). Shulgi's political position was solidified through a series of diplomatic marriages between his daughters and the kings of Anshan, Marhashi, and Bashime. As in earlier times, Sumerian appointees used the titles "governor of Susa" and "viceroy of the land of Elam." During the reign of Shulgi's son, Amar-Suena (2046–2038 BC), the southern Mesopotamian city of Girsu (modern Telloh) became the chief urban entrepôt for trade with the eastern territories, and the governor of Girsu assumed the title *sukkal mah*, or "Grand Regent." The last Ur III rulers, Shu-Suen (2037–2029 BC) and Ibbi-Suen (2028–2004 BC), continued the policy of combining dynastic marriages with military incursions into the highlands. Yet, in 2004 BC a coalition of Elamites and *Su*-people (LÚ.SU^{ki}) from the land of Shimashki captured Ur. King Ibbi-Suen, together with the statues of Nanna and other Sumerian divinities, were taken prisoner to Anshan. In the *Lamentation over the destruction of Sumer and Ur* we read that Ibbi-Suen was taken to the land of Elam in fetters (where he died) and Ur was reduced to "mounds of ruin and ashes" (van Dijk 1978). The Elamite king responsible for the fall of Ur may have been the ruler of Shimashki, Kindattu. Like Awan, it remains unclear where Shimashki was located.

With the unification of Susiana and the highlands by Shimashki, the dual political and territorial structure of the Elamite kingdom was inaugurated. With Susiana secured, the pattern of antagonism appears to have shifted from the Elamite highlands to lower Mesopotamia proper. Politically, the 20th century BC witnessed periods of warfare alternating with diplomatic marriages and peace treaties. Ishbi-Erra of Isin (2017–1985 BC) named his 12th regnal year after a victory over Elam, but in the same year he gave his daughter Libur-nirum to the

son of the Elamite *sukkal* Humban-shimti; the following year was again named after the defeat of Elam and the Su-people, and his 23rd year was named after the expulsion of the Elamites from Ur, suggesting an Elamite military presence in the region for some years prior. His descendant, Shu-ilishu of Isin (1984–1975 BC), commemorated the return of the cult statue of Nanna that had been taken by the Elamites from Ur to Anshan. A similar pattern of close Elamite engagement in Mesopotamian affairs emerges from other documented sources. Around 1980 BC the ruler of Eshnunna (modern Tell Asmar, eastern Iraq), Bilalama, gave his daughter Mekubi to Tan-Ruhuratir, the governor of Susa, in marriage. Mekubi marked her presence at Susa by building a temple to Inanna in the religious quarter of the Acropole (Steve et al. 2002: 439). In his first regnal year, Iddin-Dagan of Isin (1974–1954 BC) gave his daughter Matum-niattum in marriage to Imazu, king of Anshan, son of Kindattu. And king Gungunum of Larsa (1932–1906 BC) named his 3rd and 5th regnal years after wars against eastern Elamite territories: first Bashime and then Anshan.

3 The Old Elamite Period: The *Sukkalmahs* (c.1900–1500 BC)

Shilhaha was the first ruler to be called *sukkalmah*, "Grand Regent," and thus is considered the founder of a new dynasty. As the "chosen son of Ebarat," he claimed to be descended from the ninth king of the Shimashki Dynasty and "king of Anshan and Susa." It is unclear, however, what the relationship was between the last rulers of Shimashki (c.1900 BC) and the first *sukkalmahs*. There is no indication of a sharp break between the two, possibly reflecting temporal overlap and dynastic links (Potts 1999: 160–87; Steve et. al. 2002: 440–52).

From the Mesopotamian viewpoint, the early centuries of the 2nd millennium BC were a period dominated by the cities (and dynasties) of Isin and Larsa followed by the empires of Shamshi-Addu of Assyria (1813–1781 BC) and Hammurabi of Babylon (1792–1750 BC). Gradually, textual documentation has led to a modification of this Mesopotamocentric view of international geopolitics. In Elam the early 2nd millennium BC was marked by a political (and territorial?) reorganization under the *sukkalmahs* followed by an expansionistic period that took Elamite political and economic interests beyond their "natural" territorial boundaries – i.e., the area bounded by Mesopotamia in the west, the Persian Gulf in the south, Fars in the east and Kermanshah in the central Zagros mountains to the north. This area, termed "Elam Major" by D.T. Potts (1999), constituted a kingdom whose prestige and influence were unprecedented.

In tandem with Assyria, Babylonia, and Mari, Elam rose to be one of the main political and military powerbrokers of the second millennium BC. The Elamite kingdom of the early 2nd millennium BC was characterized by distinctive systems of government, succession, and titulature. The organization of power followed a tripartite structure along the lines of a "triumvirate" composed of a chief ruler

or *sukkalmah*; a senior co-regent, the *sukkal* of Elam (often a brother of the *sukkalmah*); and a junior co-regent, the *sukkal* of Susa (often a son or nephew of the *sukkalmah*). This system may have insulated Elam against disastrous dynastic struggles. Another much discussed singularity of Elamite kingship consists of the use of the royal title "sister's son" (*ruhušak*), originally perhaps indicating royal incest between a king and his sister. Whatever its interpretation, it seems clear that in many cases it assumed a purely symbolic status with the function of providing legitimacy to the royal lineage. This expression, together with terms of family affiliation supported by iconographic evidence, also underscores the singular role played by women in Elamite history.

By the late 19th century BC, the prestige and authority of the "Great King of Elam" (*šarrum rabûm ša Elamtim*) increased to the point where Elam was orchestrating political changes in Mesopotamia. During the reign of Shamshi-Addu the *sukkalmah* Shiruk-tuh and a 12,000-strong force of Elamite soldiers campaigned on the upper course of the Lower Zab in eastern Mesopotamia. The death of Shamshi-Addu brought an end to the early period of Assyrian imperial aspirations and opened the northwestern territories to Elam's expansionist interests. Babylon and Mari joined in an alliance with the *sukkalmah* to conquer Eshnunna, recognizing the leading authority of the Elamite king, probably Siwepalar-huppak. Letters from the Mari royal archives explicitly document the threats by the Elamite king against Hammurabi of Babylon, telling him to leave the towns of Eshnunna or risk an invasion, and counseling him to break off all correspondence with Zimri-Lim of Mari. A similar tone was used with Zimri-Lim of Mari, Atamrum of Allahad, and Ishme-Dagan of Isin. Elamite influence extended all the way to the Mediterranean, where the prince of Qatna in Syria proposed to submit to the Elamite king if the latter would take up the fight on his behalf against the kingdom of Aleppo. A telling expression of the submissive status of the Amorite kings appears in the correspondence between the Syrian and Babylonian rulers in which they addressed each other as "brother" but considered themselves "sons" of the *sukkalmah* (Durand 1990; Charpin and Durand 1991: 62; Wu 1994: 169; Sasson 1995b: 904; Villard 1995: 881).

The particular treatment of the Elamite king can be explained by the historical status of Elam, the vast resources of the Iranian plateau, and Elamite influence in the commercial network of Anatolia and northern Mesopotamia (perhaps seeking ultimate control over the lucrative interstate commerce in tin which involved commercial links with Central Asia and Afghanistan). Elamite western expansion resulted in the creation of a Mari–Babylon–Aleppo alliance and perhaps in the emergence of a "national" Amorite conscience that shared a common interest against the *sukkalmah*. In three consecutive campaigns, from 1764/3 to 1762/1 BC, Hammurabi confronted the Elamites and attacked their western proxy cities and allies: Eshnunna, Larsa, Subartu, and Gutium (Marhashi and Malgium apparently being out of reach). To complete the victory, Hammurabi put an end to the kingdom of his former Amorite associate Zimri-lim of Mari

(1776–1761 BC). The Mari texts provide an historical snapshot of the influence of the Elamite emperor in the western and northern regions. Together with contemporary inscriptions from Anshan, these documents demonstrate that Elam was one of the largest polities of the early 2nd millennium BC and attest to an ongoing pattern of Elamite involvement in Mesopotamian and, in this case, Assyrian affairs.

The general wealth and politically expansionistic outlook of the *sukkalmah* period is reflected in the material culture of the times by a wealth of archaeological and monumental remains from its western capital (Susa), the Zagros mountains (Kurangun), and the eastern capital of Anshan (Tal-e Malyan), which at this time (Kaftari period, 2200–1600 BC) reached its maximum extent of no less than 130 hectares. On the other side of the kingdom, Susa expanded towards the east with a succession of new constructions in the Ville Royale (chantier A, Levels XV to XII), reaching c.85 hectares in extent. These neighborhoods provide important evidence of Elamite vernacular architecture (Badawy 1958, 1966; Fathy 1986; Kubba 1987; Manzoor 1989). Houses were constructed following the "agglutinative" principle – i.e., different buildings shared common walls along narrow streets to reduce the total surface area exposed to the sun. Characteristic of these houses were large courtyards and associated "reception" halls. Only the courtyards were paved with baked bricks (perhaps for rain collection). The unpaved streets were used as a dumping ground for all sorts of discarded objects, such as broken pottery, animal bones, ashes, and clay figurines. Level XIV of the Ville Royale combined modest houses with large villas belonging to the Susian elite. The well-excavated house of Temti-Wartash, the great chamberlain of the Elamite palace at Susa, was a palace-like, monumental residence with no fewer than six courtyards and 50 ground-floor rooms divided into private and public reception areas. The thickness of the walls around the central courtyard and "reception hall" suggest the existence of a second floor or, possibly, a high, vaulted ceiling. Levels XIII and XII of the Ville Royale contained similar monumental architecture, a substantial city-wall to the north, a building interpreted on the basis of the cuneiform texts found in it as a school, and, in Ville-Royale XII, a building that may have been a tavern or perhaps a brothel with a network of large underground jars, presumed to have been for beer. Building also continued in the religious area of the Acropole. A ramp was added or restored leading to the *Ekikuanna*, a temple of Inshushinak, and to the temple of the goddess Ishmekarab, the escort of the dead to the netherworld.

The material unearthed at Susa is a heterogeneous sample reflecting both Mesopotamian and Elamite traditions combined with materials originating from the borders of the Persian Gulf all the way to Bactria in Central Asia (modern northern Afghanistan and southern Uzbekistan). There is one area of artistic production that can be considered emblematic of a distinctive Elamite highland personality, namely the sculptural art represented in the rock-cut sanctuary of Kurangun and at Naqsh-e Rustam (Miroschedji 1981: 25d; Seidl 1986; Vanden

Berghe 1986). Kurangun is situated in western Fars near the ancient highway linking the Elamite capitals of Susa and Anshan. Here a relief was carved on an outcrop of the Kuh-e Pataweh mountain c.80 meters above the Fahliyan river, which flows through the scenic Mamasani region. Its creation involved cutting deeply into the vertical side of the rock face in order to make a three-dimensional, spatial unit composed of three flights of stairs coming down from the summit of the hill onto a rectangular platform. The platform was carved to represent a basin with three small depressions and the remains of 26 fish. Sculpted on the vertical surface of the rock, above the platform, is a low-relief panel exhibiting a pious religious scene with an enthroned male divinity and his female consort. The god is seated on a throne made of a coiled serpent. In his right hand he holds a ring and rod from which two streams of flowing water emerge, arching forward toward two groups of worshipers framing the divine couple. This scene is an example of an iconic Elamite artistic formula found also on Old and Middle Elamite seals and stelae. The identification of the divine couple has been the subject of scholarly discussion, with the most recent interpretations suggesting a fusion of the main gods of the lowland (Inshushinak) and the highland (Napirisha) Elamite pantheons. Both divinities appear to combine attributes in a synthesis encompassing the primeval, life-giving aspects of flowing water (Potts 2004b).

Additional aspects of Elamite religious beliefs can be teased out of a number of Elamite texts dating to the late Old Elamite period (Ville-Royale, Level XII, c.1500 BC). These documents have no parallels in Mesopotamian literature. They identify Inshushinak as the lord of the underworld and judge in charge of ordaining the destiny of the dead, and illustrate the Elamite belief in the importance of the judgment of the deceased (Bottéro 1982: 394).

4 The Middle Elamite Period: The Golden Age (c.1500–1100)

The interval between the last *sukkalmah* and the kings of Susa and Anshan is not well documented. There is no textual or archaeological indication of a sudden rupture but later royal inscriptions employ a rhetoric of continuity suggesting dynastic links between the two periods. Whatever the true state of affairs, the geopolitical situation of the 15th century BC in Mesopotamia was severely affected by the gradual penetration and ascent to power of the Kassites (probably with links to a homeland in the central Zagros Mountains). The Middle Elamite period has been traditionally divided according to three ruling dynasties or houses: the Kidinuid house (c.1500–1400 BC), the Igihalkid house (c.1400–1200), and the Shutrukid house (c.1200–1100). This division is far from perfect, as the Igihalkids may have been related to the Shutrukids (Potts 1999: 188–258; Steve et al. 2002: 452–70).

An important synchronism has been established between Tepti-ahar and the father of the Kassite king Kurigalzu I, Kadashman-Harbe I (after a new reading for Kadashman ^{d}KUR.GAL), who ruled in the late 15th century BC (Potts 1999: 192–3; Cole and De Meyer 1999). Neither genealogical nor political kinship can be demonstrated between Tepti-ahar and the houses of Kidinu or Igihalki. Yet, Tepti-Ahar used the title "king of Susa and Anshan, servant of Kirwashir and Inshushinak," which suggests a conscious reference to the royal ancestry and legacy of Kidinu (who also used the title "king of Susa and Anshan") and to the legitimacy provided by a tradition going back to Ebarat, the last king of Shimashki. Tepti-ahar is associated with the ancient city of Kabnak (modern Haft Tepe), located in the most fertile part of the Khuzestan plain, about 10 kilometers southeast of Susa.

Haft Tepe covers an area of c.1.5 square kilometers and includes 14 major mounds, the largest of which rises about 17 meters above the plain. Only a small percentage of the site has been excavated, revealing massive architectural compounds combining two high terraces (Complexes I and II) and a funerary-temple complex. Most constructions are made of mudbrick, with baked brick used for important buildings and open areas. Gypsum was used to cover baked brick pavements and for plastering the walls and inner surfaces of roofs. Bitumen was used to line basins and water channels. Flat roofs were supported by large palm tree beams covered with reed matting. The halls and ceilings were coated with gypsum plaster painted with polychrome motifs. Terrace Complex I included a scribal school and workshops dedicated to specialized craft and artistic production. A small hall contained the skeletal remains of an elephant and exquisite, life-size, painted terracotta heads possibly representing members of the Elamite elite. Most of the small objects and craft debris recovered suggest relationships with both local and foreign lands from the Persian Gulf in the East to the kingdom of Mitanni in the west. On the other hand, most of the cylinder sealings collected display a thread of local conservatism (Álvarez-Mon 2005a, 2005b).

The funerary temple compound included a royal tomb tentatively ascribed to Tepti-Ahar. The walls of the tomb stood 3.75 meters high and the chamber itself was 3.25 × 10 meters with a massive barrel vault of baked brick. This is one of the largest and oldest standing examples of this type of monumental funerary architecture in the Near East. Parallel to and just to the west of the burial was another vaulted chamber of smaller dimensions containing a mass burial of 23 individuals. Fourteen skeletons had been carefully arranged side by side with their heads oriented to the west, with nine additional skeletons piled over them. Who these individuals were and how they died is not known (Negahban 1991).

The Kassite king Kurigalzu I may have been responsible for the destruction of Kabnak and for placing a new ruling family on the Elamite throne. The family claimed descent from Igihalki and seems to have been based at Deh-e Now (Khuzestan Survey site 120), a high, c.9.5 hectare mound about 20 kilometers

east of Haft Tepe and 7.5 kilometers north of Chogha Zanbil (see below). The males of the Igihalkid house engaged in a succession of interdynastic marriages over five generations with a number of Kassite princesses from Mesopotamia. Thus the eldest son of Igihalki, Pahir-ishshan (c.1380–1370 BC), married the eldest daughter of Kurigalzu I; their grandson Humban-numena married a Kassite princess; Humban-numena's son Untash-Napirisha (c.1340–1300 BC) married a daughter of the Kassite king Burnaburiash II; Untash-Napirisha's son Kiddin-Hutran (II) married another Kassite princess; and the founder of the Shutrukid house, Shutruk-Nahhunte (c.1190–1155 BC), married a daughter of the Kassite king Meli-Shipak. The enduring association between Elamite and Kassite royal elites illustrates an endeavor to foster international, blood-related associations amongst the elites of the Near East. This also had the unintended result of establishing an Elamite claim to the Babylonian throne, which eventually led to the downfall of the Kassite Dynasty and the sack of Babylon c.1150 BC (Pintore 1978: 24; Van Dijk 1986; Vallat 1994a, 1999a, 2006a; Goldberg 2004).

Perhaps the most important Elamite king of the Igihalkid house was Untash-Napirisha (c.1340–1300 BC), himself of Kassite heritage by ancestry and maternal lineage and, curiously enough, related by marriage to both the Egyptian pharaoh Amenhotep IV/Akhenaten and the Hittite king Shuppiluliuma. His reign witnessed an artistic golden age and, as some authors have stressed, a religious "revolution" linked to the foundation of a vast religious complex called Al Untash-Napirisha (modern Chogha Zanbil). This complex was built on a high plateau overlooking, to the northeast, the plain drained by the Ab-e Diz River and the (presumed) ancestral city of Deh-e Now. The complex includes three surrounding perimeter walls and was organized around a stepped temple platform, or *ziqqurat*, c.53 meters high dedicated to Napirisha and Inshushinak. The *ziqqurat* consisted of four levels and, unlike Mesopotamian examples, was scaled internally (and indirectly) via two staircases which were flanked at ground level by pairs of large, glazed bulls and bird-headed griffins. The façade of the high shrine (Elamite *kukunnum*) atop the *ziqqurat* was made of brightly glazed, baked bricks decorated with geometric patterns and glazed knob-plaques and nails of different colors. More than 25 temples were built at Chogha Zanbil for the worship of both highland and lowland Elamite deities with a smattering of originally Mesopotamian deities, including Nusku, the god of fire and light (Ghirshman 1968a: 84–7).

The so-called Royal Quarter in the northeastern part of the site had large building complexes arranged along open courtyards and five underground, monumental, vaulted tombs. Tomb II included the remains of eight cremated bodies; Tomb IV had two cremated bodies and a mature female skeleton. It has been suggested that these remains may have belonged to Elamite royalty, including perhaps a queen of Kassite origin. A significant and still poorly understood aspect of the planning of Chogha Zanbil pertains to the function of a sophisticated network of drainpipes, wells, and a massive basin, all part of an intricate hydraulic

installation situated at the edge of the city (Auberson 1966: 113–8; Margueron 1991; Corfù 2006; Mofidi Nasrabadi 2007).

Associated with Untash-Napirisha is a corpus of metallurgical and sculptural masterpieces revealing unprecedented levels of skill. Perhaps the most significant piece is the 1.29 meter tall headless statue of queen Napir-Asu, found in the temple of the Ninhursag at Susa. The statue weights 1750 kilograms and was cast in two parts, initially using a clay core that allowed the making of a single shell of copper by the lost-wax technique. Once the core was removed, the shell was filled with solid bronze. The head, which was never found, may have been cast separately. The molded and engraved surface of Napir-Asu's garment was probably once covered with gold and silver leaf (Meyers 2000).

It is uncertain if the Igihalkid Dynasty ended with the arrival of Shutruk-Nahhunte c.1150 BC. The cultural accomplishments of the Shutrukid Dynasty are often overshadowed by their infamous deeds in Mesopotamia. Shutruk-Nahhunte and his sons Kudur-Nahhunte (1155–1150 BC) and Shilhak-Inshushinak (1150–1120 BC) continued a foreign policy of vindication that asserted the claim of the Elamite kings over the Babylonian throne. This claim entailed numerous raids on Mesopotamian cities and eventually led to the collapse of the Kassite Dynasty in 1155 BC, the death of the last Kassite king, the "retirement" to Elam of the statues of Marduk and other deities from Babylon, and the removal to Susa of large amounts of booty. Amongst the most celebrated artifacts dedicated as votive offerings to Inshushinak on the sacred Acropole at Susa were the stele containing Hammurabi's law code from Sippar (Ch. II.37) and the victory stele of Naram-Sin (Ch. II.34). The resources accumulated during this period of Elamite imperial expansion produced a golden age of unprecedented building activity throughout Elamite territory. From Anshan to the shores of the Persian Gulf and the Susiana plain, new temples were constructed and old ones restored. Examples of monumental decorative architecture include the remains of glazed mudbrick panels depicting a royal couple from the façade of a building on the Acropole; and the remains of a molded mudbrick façade showing bull-men grasping date palms and female deities holding their breasts, from a temple located in the Apadana area. This may have represented the "sacred grove" in which the "exterior chapel" of the temple of Inshushinak built by Shilhak-Inshushinak was located.

Around 1120 BC, the Babylonian king Nebuchadnezzar I (1125–1104 BC) entered Elamite territory. He defeated Hutelutush-Inshushinak by the banks of the Ulai (Karkheh) river and the Elamite king retreated to the highlands and the eastern capital of Anshan. Effectively, this marked the end of the Shutrukid Dynasty.

The excavated remains of Anshan (Tal-e Malyan) during the Qaleh-Middle Elamite period (1600–1000 BC) hardly reflect the monumentality expected of a major Middle Elamite urban center. The only exception is a large building (EDD) with a 10×14 meter courtyard. Inside the building were tablets, sealings, and

pottery kilns suggesting administrative and storage functions. The building was decorated with glazed ceramic wall knobs, glazed tiles, and painted walls suggestive of a ceremonial role. More importantly, a new pottery tradition characterized by hand-made and wheel-made orange wares appeared at this time, best represented at the nearby sites of Tal-e Shoga, Tal-e Teimuran, and Darvazeh Tepe. Some scholars have suggested that these wares could be an indication of newly arrived Indo-European (speaking) migrant populations, the first "Iranians."

5 The Neo-Elamite Period: Elam and Persia (c.1100–550 BC)

Neo-Elamite chronology is divided into two or three phases, depending on whether one follows textual or archaeological evidence. In both cases, though, the earliest part of the period (c.1000–743 BC) is considered a "dark age" in Elamite history, represented by a gap in textual and archaeological records. This gap has been interpreted as a reflection of the breakdown of the Middle Elamite state, the collapse of urban centers, territorial fragmentation, increasing pastoralism (in line with the presumed arrival of Indo-European groups), and a general contraction of formerly urban populations into the rural highlands (Potts 1999: 259–307; Steve et al. 2002: 470–87). Whatever the virtues of this model, the Elamite Zagros highlands provide evidence of a new sociopolitical authority around the turn of the 9th century BC. This is evident in the region of Izeh/Malamir, which is nestled in a mountain valley about 100 kilometers to the east of Susa. Carved on the sides of cliffs and boulders are a total of 12 Elamite basreliefs without parallel in the artistic record of the ancient Near East. Most scholars date the reliefs from Shekaft-e Salman to between 1200–1100 BC, but of the six reliefs carved at Kul-e Farah only one (Kul-e Farah I) has been dated with certainty to the late Neo-Elamite period (Vanden Berghe 1963, 1984). One of the most important carvings is Kul-e Farah IV, a large composition extending over an area c.18 × 6 meters. The relief exhibits a "frozen-in-time" communal banquet centering on a king seated on a throne and surrounded by at least 140 participants partaking of a ritual entailing the consumption of a morsel of food, probably meat. Most participants wear their hair in long braids that are similar, but not identical, to those represented at Kurangun and Kul-e Farah III. The aesthetic choices and organization manifested by these reliefs illustrate a hierarchical order planned along the lines of social status and the existence of a political structure in which communal participation was emphasized (Álvarez-Mon in press).

The archaeological division of the Neo-Elamite period championed by Pierre de Miroschedji favors a bipartite division with a transition from Neo-Elamite I to Neo-Elamite II around 725/700 BC. The tripartite chronological division proposed by philologists relies heavily on the Assyro-Babylonian documentation for an understanding of the Neo-Elamite II period (770/743–653/647 BC),

with the year 653 BC represented by the installation by Assurbanipal (668–627 BC) of Humban-nikash II as king of Elam and Tammaritu I as king of Hidalu. The terminal date of 647 BC marks the sack and destruction of Susa by Assurbanipal. Our understanding of the last part of the Neo-Elamite period (Neo-Elamite III; sometimes divided into IIIa and IIIb) is reliant upon local Elamite texts, principally from Susa (Waters 2000). These display a language that had evolved from classic Elamite but was not yet the language of the subsequent Achaemenid period (Vallat 1996: 386). While most scholars agree that these texts post-date the collapse of the Assyrian Empire, there has been a noticeable trend in recent years to shift the date of the Susa tablets, related texts, and seals and sealings to the 6th century BC, perhaps as late as the 520s.

From a political and military standpoint, the 8th and 7th centuries BC were characterized by relentless clashes between the Assyrians and the Elamites. But the political and military history of Assyrian relations with Elam reflects more than patterns of political allegiance and the shifting loyalties of various pretenders to the Elamite throne; it reveals moments of close interaction between Elamite and Assyrian elites (Álvarez-Mon 2009a). Ten years after the campaign against Elam by Assurbanipal and his destruction of Susa in 647 BC, a rapid waning of the Assyrian Empire began, and by 609 BC it had ceased to exist. The standard, monolithic view of the late Neo-Elamite period emphasizes political and military events that led to the assumed destruction of Susa, the ensuing progressive abandonment of urban centers, political fragmentation, and the ultimate disappearance of Elam from the historical record (Miroschedji 2003). In striking contrast to these views, a new model has emerged favoring the notion that Elam played a fundamental role in the genesis of the Persian *ethnos*, the formation of a complex state in Fars and the emergence of the Achaemenid Persian empire (Álvarez-Mon and Garrison 2011a).

The archaeological picture of settlement at the end of the Neo-Elamite period is fragmentary and incomplete (Álvarez-Mon 2010). Much additional survey and archaeological work remains to be undertaken in both Khuzestan and Fars. As it stands, settlement is attested from the Luristan region along a corridor covering the Deh Luran, Susiana, and Ram Hormuz plains, ending in the Mamasani region. New evaluations of the Neo-Elamite archaeological record rely on evidence emerging from a reassessment of Susa's ceramic record, the fortuitous finds from burials in Ram Hormuz and Arjan, and the ongoing Iranian-Australian surveys and excavations in the Mamasani region at Tol-e Spid and Tol-e Nurabad (Potts and Roustaei 2006; Potts, Roustaei et al. 2006, 2009). The Susa-Ram Hormuz-Arjan corridor is characterized by fine polychrome faïence and ceramics as well as metal wares and luxury goods suggesting the existence of a cultural and, most likely, urban political *koine* during the second half of the 7th and the 6th centuries BC (Haerinck in press).

One of the most remarkable finds of recent times resulted from the accidental discovery in 1982 of a stone-walled burial at Arjan near the modern city of

Behbahan (close to the border between the provinces of Khuzestan and Fars). The funerary goods found in the Arjan tomb display considerable artistry and rare craft. A bronze bathtub-style coffin contained the skeletal remains of an adult male lying on his back. Next to the skeleton were 12 pieces of cotton textile with embroidered rosettes and dozens of gold rosettes and disks most likely sewn onto a garment worn by the deceased. These are the earliest and best preserved cotton garments found so far in the Near East. The deceased's right arm was bent in the direction of his chest, resting next to an extraordinary object of gold. This intriguing object has been described as an open "ring" with tubular shaft expanding into flaring disc-shaped finials decorated with identical repoussé and chased design: a palmette tree flanked by two rampant, antithetical, winged, lion-headed griffins. In addition, an iron dagger ornamented with precious stones and gold filigree was found. A lid engraved with registers of floral buds and lotus blossoms was placed over the coffin and secured by ropes to the handles on the sides. Outside the coffin were a number of precious items of a ceremonial and/or functional nature: a bronze bowl (43.5 centimeters in diameter, 8.5 centimeters deep) engraved with a sequence of concentric narratives scenes; a tall (75 centimeter high) bronze candelabrum, the upper part of which consisted of a spool-shaped platform held by six lions and a pedestal combining a triangular frame with three sets of three lions, bulls, and atlas figures; a bronze beaker with an upper register around the neck engraved with six identical running ostriches and a lower bulbous convex section worked in repoussé into the shape of four overlapping lion heads converging on a central rosette; a silver jar; a bronze lamp; and bronze chalices (Álvarez-Mon 2010).

Reflecting the artistic legacy of both Assyria and Elam, the Arjan material provides us with a new frame of reference with which to assess the arts and culture of the late 7th century BC. In it, earlier artistic canons were reformulated into new notions of technical and aesthetic perfection. In addition, the material bespeaks a period of strong Assyrian influence, if not political dominance, in western Elam after the destruction of Susa in 647 BC, resulting in a fertile artistic period combining Assyrian and Elamite traditions. This artistic production exhibits sophisticated intellectual notions of unity, stability and permanence: an orderly worldview which, far from being the manifestation of abrupt change or of a disintegrating culture in the midst of decline, suggests the revitalization of Elamite traditions and an historical nexus where the process of transference and continuity can actually be documented. In the last few years new views have emerged regarding the transition between Elam and Achaemenid Persia that rely on the analysis of autochthonous archaeological and textual evidence (Henkelman 2008a; Álvarez-Mon 2010). It is increasingly apparent that the ancient civilization of Elam provided key cultural accoutrements for the emergent Achaemenid Persian Empire. While we lack information on the exact processes of transmission, this Elamite political and cultural heritage provided the context out of which the House of Teispes and Cyrus I of Anshan (c.610–585 BC) emerged.

GUIDE TO FURTHER READING

For many years the pioneering studies of Cameron (1936), Hinz (1971, 1973), and Labat (1975a, 1975b) remained the standard comprehensive reference works dedicated to Elamite history. They were followed by specialized studies on Elamite art by Porada (1962) and Amiet (1966, and, to a lesser degree, 1986). In 1984, Carter and Stolper combined forces to present separate textual and archaeological accounts of Elamite history; after the Iranian Revolution in 1979, and the almost total freezing of foreign archaeological fieldwork on Iranian soil, there was a period of reassessment leading to Vallat's 1998 entry "Elam" in the *Encyclopaedia Iranica* and, principally, the in-depth, archaeologically based study of Elamite history by Potts (1999). This study is complemented by the extensive entry dedicated to Susa in the *Supplément au Dictionnaire de la Bible* (Steve et al. 2002). There has been a renewal of interest in the late Neo-Elamite period, with the transition between Elam and Persia being the subject of key studies. These concentrate on reviewing key textual evidence (Waters 2000), the religious landscape of the early Achaemenid Persians (Henkelman 2008a); the artistic landscape of later Elam (Álvarez-Mon 2010), and the general reassessment of the period in general (Álvarez-Mon and Garrison 2011a).

CHAPTER FORTY

India's Relations with Western Empires, 2300–600 BC

Gregory L. Possehl

1 Introduction

The ancient peoples of the Indian subcontinent have had interesting and important relationships with the peoples of the Iranian Plateau, Arabia, and the Near East. There seems to be a marked increase in the intensity of these contacts in the mid-3rd millennium BC. These contacts were both maritime and overland. Taken together, including contacts with Central Asia, these activities form what has been called the "Middle Asian Interaction Sphere" (MAIS) (Possehl 2002a, 2007).

2 The Indus Civilization

The story of ancient India's contacts with the Western empires begins with the Indus Civilization (2500–1900 BC). The Indus Civilization covered approximately 1,000,000 square kilometers and was the largest of the Bronze Age civilizations of Asia (Figure 40.1). There appears to have been a period of change that can be called the Early Harappan–Mature Harappan transition at c.2600–2500 BC when the distinctly urban features of the Indus Civilization seem to have been developed.

We know that the Early Harappans were familiar with the sea, since there are marine shells and the occasional marine fishbone found at Early Harappan sites.

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

Figure 40.1 Map showing the distribution of the main settlements of the Indus or Harappan civilization.

However, the Early Harappan–Mature Harappan transition saw what has been called the "Indus move to the sea." During the Early Harappan Phase (Figure 40.2A) there were few coastal settlements, but in the Mature Harappan there were many (Figure 40.2B). The Mature Harappan phase is also marked by an increase in the use of sea products (fish, shellfish, and shells) and the beginnings of maritime activity on the Arabian Sea and Persian Gulf.

Figure 40.2 Coastal settlement during the Early Harappan (A) and Mature Harappan (B) phases.

Gujarat, especially Saurashtra, had many settlements on or near the sea during Mature Harappan times. There are Early Harappan sites in Kutch; they are found along seacoast and around the *ranns* (salt marshes). It is not known if the *ranns* were open to the sea during the second half of the third millennium, or whether they were much as they are today: shallow arms of the sea during the monsoon, and salt flats during the rest of the year.

Figure 40.3 Representations of Harappan boats.

Archaeologists have discovered three representations of Indus boats (Figure 40.3). These appear to be fairly small with high prows and sterns. They all have rear steering oars. Two of them could easily have been made of reeds, however, while one (Figure 40.3 bottom) could have been made of wood. On one of them there is a suggestion of a square sail. There are also two or three terracotta models that might be of boats, one of which was found at Lothal at the head of the Gulf of Cambay (see below).

3 Maritime Contacts with Mesopotamia

There is further information about Indus maritime activity that can be gleaned from written records in Mesopotamia. During the reign of Sargon of Akkad (c.2334–2279 BC), the three great lands associated with boats are mentioned – namely Dilmun, Magan, and Meluhha. Dilmun is the island of Bahrain, Magan is principally Oman and the modern United Arab Emirates, and Meluhha is the Indus Civilization. That Indus ships reached Mesopotamia can be inferred from

this boast by Sargon: "He moored the ships of Meluhha, the ships of Magan, the ships of Dilmun at the quay of Akkad" (trans. G. Marchesi, 2007, pers. comm.).

There are at least 76 Mesopotamian cuneiform documents mentioning Meluhha (Possehl 1996). A summary of the products of trade mentioned in these records is as follows (numbers in parentheses refer to the number of times a commodity is mentioned in the sources): *stone and pearls* – carnelian (8), lapis lazuli (1, in an incantation), pearls (1); *wood and plants* – **giš-ab-ba-me-luḫ-ḫa** (12), **mesu** wood (7), fresh dates (1); *animals* – birds (8, 5 as figurines), dog (1), cat (1); *metals* – copper (2), gold (1); and *"Meluhhan-style" objects* – ships (2), furniture (3), bird figurines (5, as above under animals).

A few words on some of these materials is in order. Ancient India was famous for its carnelian, which is for the most part a manufactured, not a natural, product. The red in the stone emerges when chalcedony is heated. It can be produced through forest fires and volcanism, but this is thought to be rare. Chalcedony is a highly siliceous stone, which could go by the generic title "agate." It is associated with the Deccan trap of Gujarat and the Deccan and is still found in abundance in many of the riverbeds of Saurashtra. The stone tends to be large, and there is no doubt that the rivers of Gujarat were the sources of the stone used to make the long Indus beads. There are also modern sources of large agates at Rajpipla on the Narmada River (Possehl 1981). Agates in much smaller sizes are found in the streams and talus slopes of the Hindu Kush (Tosi 1980; Jarrige and Tosi 1981: 137), as well as in Baluchistan, specifically the Wad Valley and Pab Hills (Minchin 1907: 162). This is likely to be the material used at sites like Mundigak, but it seems an unlikely source for a place like Chanhu-daro, given the size of the beads found there.

Lapis lazuli is mentioned in one text as a product of Meluhha. Lapis lazuli, or properly lazurite (occasionally "lasurite"), is a member of the sodalite group of minerals (Dana 1949: 587–90). Its color ranges through "rich Berlin-blue or azure-blue, violet-blue, greenish blue" and it is easily worked. It comes in many grades, from the deep blue, pure stone to coarser varieties with many inclusions which generally blemish the mineral. There is a significant bibliography on the 3rd millennium trade in and sources of lapis lazuli (e.g. Herrmann 1968; Tosi 1970, 1974; Sarianidi 1971; Piperno and Tosi 1973; Chakrabarti 1978; Herrmann and Moorey 1980–3; Wyart et al. 1981; Majidzadeh 1982; Delmas and Casanova 1990; Casanova 1992, 1994). Another important blue stone was lazulite, in the phosphate group of minerals (Dana 1949: 717–18). Its color is given as "azure-blue, commonly as fine deep blue viewed along one axis, and a pale greenish blue along another."

There were four potential sources of lapis lazuli during the 3rd millennium. The one most frequently cited is in Badakhshan Province, northeastern Afghanistan, where the Sar-i Sangh mines are located (Salah et al. 1977: 281). The area has nine lapis lazuli zones, 20–300 meters long and 1–8 meter thick. There is

also lapis lazuli in the Pamir/Lake Baikal region to the east of Badakhshan (Ivanov et al. 1976). Other sources exist in the Chagai Hills of western Baluchistan (Delmas and Casanova 1990), the Pamir mountains, and the Ural mountains of Russia. It was believed for many years that all lapis lazuli in the ancient world came from Badakhshan mines, but analyses of lapis from Shahr-i Sokhta in eastern Iran indicates that the Badakhshan, Pamir, and Chagai Hills sources were all used (Delmas and Casanova 1990: 502). The Ural mountain source does not seem to have come into play. Additional analysis of lapis from Tepe Sialk (central Iran) indicates that another, as yet unidentified, source exists as well (Delmas and Casanova 1990: 502; Casanova 1992: 53).

The botanical identification of the two trees associated with Meluhha in the cuneiform texts are not known. But there are two 19th century identifications of wood from South Asian trees in Mesopotamia: teak (*Tectona grandis*) and deodar, or Indian cedar (*Cedrus deodara*). The teak was mentioned by J.E. Taylor in an 1853 report on his work at Ur and was noted by C.L. Woolley in his report on the *ziggurat*: "it should be remarked that Taylor reports finding '. . . two rough logs of wood, apparently teak, which ran across the entire breadth of the shaft' " (Woolley 1939: 133). P.R.S. Moorey (1994: 352) was justifiably skeptical of this identification and believed that the timbers might have been pine. The deodar was found by Hormuzd Rassam in the course of his excavations at Birs Nimrud (ancient Borsippa) (Kennedy 1898: 266). Once again, there is reason for some skepticism concerning this identification, since there is no evidence that a botanist ever examined the find. We know that Meluhha supplied Mesopotamia with "exotic" woods, and teak and deodar could have been among them, but these identifications remain unconfirmed.

The Meluhha bird mentioned in the texts has not been identified. It was called in Sumerian either **dar-me-luḫ-ḫa** or **dar-me-luḫ-ḫa-mušen**. There are two colorful and important birds associated with the Indus Civilization: the peafowl (*Pavo cristatus*) and the chicken (*Gallus gallus murghi*), the domesticated form of the red Indian junglefowl. They would seem to be good candidates for this identification. The texts speak of the birds themselves as well as ivory models of them. The Akkadian name of the **dar-me-luḫ-ḫa-mušen**, *su-la-mu*, suggests that the bird was black, ruling out the peafowl as a candidate. B. Landsberger (1962: 148) believed that the **dar-me-luḫ-ḫa-mušen** was a "francolin," or the Persian black partridge (*Francolinus francolinus henrici*). This largely jet black bird is found from Sindh, across the Iranian Plateau, into the Near East and Turkey (Ali and Ripley 1983: 99–100); but is also native to Mesopotamia and therefore one can wonder why it would have been called a "Meluhha" bird (see Ratnagar 1981: 69).

We do not have a matching set of products sent from Mesopotamia to India, and Mesopotamian artifacts are relatively rare in the Indus Civilization (Possehl 2002b). The two best examples of "western" material in Indus contexts are the copper/bronze toilet article from Harappa (Figure 40.4[1]) and the Persian Gulf

Figure 40.4 Some foreign objects in Mesopotamia and the Harappan world.

seal from Lothal (Figure 40.4[2]). The toilet set, comprising an earscoop, piercer, and tweezers, was found in the AB Mound, c.1 meter below the surface (Vats 1940: 390, Pl. CXXV.1), and probably dates to the late 3rd millennium BC. It has a rather precise parallel in a similar set at Ur (Woolley 1934: Pl. 159b) which dates to the Early Dynastic III period and seems to be quite at home in Mesopotamia. Eleven (or twelve?) toilet sets of this kind were reported from Kish (Mackay 1929: 169, Pl. XLIII, 1–8). The Persian Gulf seal from Lothal was a surface find (Rao 1963, 1985: 318, Pl. CLXI.B–C). A recumbent, Mesopotamian-style bull in copper/bronze (Rao 1985: Figure 117.1), clearly comparable to examples found in the Royal Cemetery at Ur (Woolley 1934: Pls. 141–143), was also found at Lothal (Figure 40.4[3]).

It is interesting that ivory is not mentioned in connection with Meluhha, although it is mentioned in connection with Dilmun. Mesopotamian products sent directly to Meluhha may have been "invisible" (Crawford 1973) – i.e., perishables such as food, cloth, wood, leather, and the like that have not survived in the archaeological record. In later trade with the Roman Empire, there is almost no Indian material in the Mediterranean because the exported Indian goods were largely "invisible" things like spices, and yet we know that there was a strong commercial relationship.

A number of Indus objects in Mesopotamia complement the written sources. There are at least 13 Indus – or Indus-type – seals in Mesopotamia (Possehl 1996: 148–50) (Figure 40.5) as well as etched carnelian beads, pottery, inlays, cubical weights, and other materials of Indus origin (Possehl 1996: 147–76). Queen Pu-abum in the Royal Cemetery at Ur had a cloak of beads, many of which were carnelian and probably Harappan.

There is some evidence that Meluhhans were resident in Mesopotamia. It has often been claimed that, in the Ur III period (2100–2000 BC), there was a Meluhhan village near Lagash (Parpola et al. 1977: 136) and that people called "son of Meluhha" or just "Meluhha" came from the Indus Valley. Care must be exercised in interpreting such names, since they could have been adopted by Mesopotamians who were in some way involved with Meluhha but were not

Figure 40.5 Harappan seals and seal impressions found in Mesopotamia and at Susa.

Meluhhans themselves, just as "Chinese Gordon" was a British officer, not a person born in China of Chinese parents. One of the most interesting finds is a cylinder seal of unknown provenance in the Louvre bearing the name of Shu-ilishu, identified as a Meluhhan translator (Possehl 2006). As W.G. Lambert noted: "Since the owner bears a typical Old Akkadian name, he was presumably Old Akkadian, and had acquired a command of the language of Meluhha" (1987: 410). As interpreters in ancient Mesopotamia generally had Mesopotamian names, I.J. Gelb felt that the job was of such importance and sensitivity that, generally, natives were picked for this profession (Gelb 1968: 103). Although this makes a great deal of sense, many foreigners in Mesopotamia adopted Sumerian and Akkadian names (Marchesi 2006: 24 n100).

The Meluhhan village and the Shu-ilishu seal make it reasonable to believe that there were Meluhhans – i.e., Harappans – living in Mesopotamia. But there is another interesting, square stamp seal from Ur (Gadd 1932: 5), not classically Indus in style, but nonetheless worth mentioning. The seal is made of grey soft-stone ("steatite") and is somewhat worn. Unfortunately, it comes from an undated context (Woolley 1928: 26). A cuneiform legend runs across the top of the seal, below which is a short-horned bull, with its head down, as seen on many

Indus seals, but without the manger often found just below the head. M. Vidale (2005) has suggested that the short-horned bull was a symbol of the Indus families engaged in the Gulf trade. G. Marchesi (2007, pers. comm.) has read the inscription as the personal name Ka-lu-lim or Ka-lu-si, which is neither Sumerian nor Akkadian and could well be Meluhhan.

Further strength is added to the notion that there were Meluhhans living in Mesopotamia by two figurines, one from Nippur and the other from Chanhu-daro (Dales 1960, 1968; Possehl 1994). Both of the figurines (c.12 centimeters tall, though fragmentary) portray pot-bellied, naked males. The legs were made with the body, but the arms were separate and attached, probably with string, via a hole that ran through the shoulders, thus resembling a puppet. The Chanhu-daro figurine was excavated during the 1934–5 season and can be attributed to the Mature Harappan occupation (2500–1900 BC) there (Mackay 1943: 166–7, Pl. LIX.2). Unlike the Nippur example, it has a bit of paint on the neck. While this is the only figurine of its kind from Chanhu-daro, similar examples have been found at Mohenjo-daro (Marshall 1931: 549, Pl. CLIII, 38; Fig. 4; Mackay 1937–8: Pl. LXXVII, Nos. 3, 12, and Pl. LXXXI, Nos. 8, 14; Figs. 5–8), Lohumjo-daro (Majumdar 1934: 48–58, Pl. XXII, 38) and Lothal (Rao 1985: 483, 485–6, Pl. CCVIa–b). None has been published from Harappa. The Nippur figurine was found on the floor of a house in the fifth level of the TB area (McCown and Haines 1967: 128–9) and dates to the Ur III period. There are two other figurines of this general type from Nippur, one from the surface and the other from another Ur III house in the TB area. G.F. Dales has observed:

> Hundreds – perhaps thousands – of clay figurines have been excavated from Mesopotamian sites. They are well enough documented so that a reasonably comprehensive classification of them – by type, style and period – has been possible. Figurines of 'foreign' origin or inspiration can be recognized with reasonable assurance. The novel type of nude male figurine under consideration here is emphatically not a characteristic Mesopotamian creation. Neither *male* nudity, male obesity, nor animation are found among Sumero-Akkadian figurines of this date. (1968: 19)

Neutron activation analyses by S. Fleming (Possehl 1994) made it clear that the Chanhu-daro figurine was made in the Indus Valley, while the Nippur figurine was in Mesopotamia, possibly even at Nippur itself. If, as is suggested here, the type is a Harappan one, then the presence of such a figurine at Nippur may be further evidence of the presence of Meluhhans in Mesopotamia or at least of contact between the two regions, as is a typical Harappan stamp seal excavated at Nippur (Gibson 1977).

4 The Land of Magan and the Site of RJ-2

The Mesopotamian "Land of Magan" was located in the area of modern Oman and the United Arab Emirates. This was a place where the Mesopotamians got

copper, and a great deal of it. They also made "black boats" that the Mesopotamians took notice of (Cleuziou and Tosi 1994).

The peoples of Meluhha sailed to Magan, as suggested by the abundance of Harappan pottery at Umm an-Nar-period sites (2700–2000 BC) like Ra's al-Hadd, Ra's al-Jins, and Bat (Figs. 16–19). V.D. Gogte undertook the x-ray diffraction (XRD) analysis of some of the ceramics from RJ-2 and Bat in the interior of Oman. Of the 76 "Harappan" sherds analyzed from Ra's al-Jins, 67 were very similar in composition to pottery from Lothal (Gogte 2002: 58–9; cf. Gogte 2000). This is strong evidence that a good portion of the Harappan pottery at Ra's al-Jins was made of clay that came from the delta of the Sabarmati River in Gujarat, possibly Lothal itself. Gogte's findings are in line with analyses of slightly later pottery from Saar on Bahrain (Dilmun) where Sorath and Late Sorath Harappan pottery (c.2000–1600 BC) was recovered in quantity (Carter 2001). These finds demonstrate that Indus trade with the Gulf region continued into the period following the abandonment of Mohenjo-daro at 1900 BC. They also underscore the fact that Gujarat was the focus of Indian maritime activity in the Arabian Sea during the Bronze Age and Lothal, in the Sabarmati delta, emerges as the key site, at least for the moment.

How did Meluhhan sailors reach these sites? During the period from October to March they would have sailed from the mouths of the Indus, westward to the vicinity of the Dasht Valley, and then south to Magan. This route is dictated by the prevailing wind and the sailing technology of the Indus peoples as we know it today. Once in Magan, these sailors could have returned to Meluhha, not by retracing their route, but by sailing directly to the east across the Arabian Sea, landing with little effort on the Indian coast in Gujarat. However, Ra's al-Hadd and Ra's al-Jins seem more like fishing villages than ports, and it is possible that fishermen visiting these places could have been traders as well (Cleuziou and Tosi 2000). The boats that were used at Ra's al-Hadd or Ra's al-Jins seem to have been pulled up on the beach and left there, since there are no docks or port facilities. Many small ports in the subcontinent and the Persian Gulf are noteworthy for not having docking facilities, the boats left to lie on their sides at low tide, or propped-up with wooden timbers when worked on for repairs.

The excavations at Ra's al-Jins 2 (RJ-2) also yielded a copper Indus seal and an ivory Indus comb. Metal seals were very rare in the Harappan world. Two copper seals are known from Chanhu-daro (Mackay 1943: 291, Pl. XLIX.8) and one from Lothal (Rao 1985: 314, Pl. CLIV.C) while two silver seals were found at Mohenjo-daro (Mackay 1937–8: 370, 385, Pls. LXXXIII.16, XCVI.520).

On the other hand, a steatite seal found at Lothal was fashioned from the lid of a rectangular steatite box with dot-and-circle decoration (Rao 1985: Pl. CLXI.D), a diagnostic artifact in the UAE and Oman during the late 3rd and early 2nd millennium BC (Cleuziou and Tosi 2000: 60, Fig.16.3; cf. Frenez and Tosi 2005: 19). This seal has a direct parallel with a seal from RJ-2 and is possibly the earliest Indian import in the land of Magan (Cleuziou and Tosi 2000: 56).

It has already been noted that cubical Indus weights have been found in Mesopotamia. These have also been found in the Persian Gulf on Bahrain (Bibby 1969), and in the northern UAE at Tell Abraq (Potts 1993b: 327) and Shimal (Vogt and Franke-Vogt 1987). The significance of the use of the Harappan weight system on Bahrain is not well understood. Bibby (1970) suggested that it was used because the Harappans were the earliest and/or the most important trading partners for the Dilmun merchants. Given the very early attestations of Dilmun in the Archaic Texts from Uruk, which can be dated to the late 4th millennium (Nissen 1986: 336–7), and early Mesopotamian presence in the Gulf (Frifelt 1975) it would seem unlikely that the Harappans preceded Mesopotamians in this area. A similar qualification would come to bear on this point if one takes the written evidence for economic activity into account. Economic intercourse with Magan and Mesopotamia itself far exceed the attestations for Meluhha. Thus, to propose that the latter as the most important trading partner is problematic.

Nevertheless, it does seem that "Meluhha" had a serious presence in Dilmun. This is documented not only by weights, but by a great deal of Indus pottery, in the form of Sorath and Late Sorath Harappan wares (c.2300–1700 BC), most strikingly at Saar (Carter 2001). The fact that clear Late Sorath Harappan pottery is there would seem to document Indus maritime trade in the Gulf for two or three centuries after the abandonment of the Indus cities as urban spaces, implying that state-level sociocultural complexity was not necessary for it to continue.

5 Indus Material in Iran

There is a scattering of Indus and Indus-related material culture on the Iranian plateau. Most of it is in the form of seals and beads. A seal from Hissar showing a bull, but not a *zebu*, or humped bull (Schmidt 1933: Pl. CXXX, Plate 7; 1937: 198–9; Chakrabarti and Moghadam 1977: 167), may not be Harappan, since it is a cylinder seal. A seal impression on the shoulder of a pot from Tepe Yahya Period IVA (2000–1800 BC) is incomplete, but the characters fit within the corpus of Harappan glyphs (Lamberg-Karlovsky and Tosi 1973: Pl. 137). Etched carnelian beads have been found at a number of sites in Iran, including Tepe Hissar IIIC – Necklaces H 3215 and H 3216 (Schmidt 1937: 229, Pl. XXXV); Tepe Hissar III – H 400 "Little Girl's Grave" (Schmidt 1933: 438, Pl. CXLIVc); Shah Tepe IIA (Arne 1945: Pl. XCII, Fig. 612, II S7, Fig. 28); Kalleh Nisar – Akkadian cist grave (Vanden Berghe 1970: 73); Susa – Akkadian grave (Mecquenem 1943: Fig. 84, 7); Tepe Yahya – one surface find, another in uncertain context, but probably later than 2000 BC (During Caspers 1972: 92); Jalalabad – three beads mid-3rd millennium BC (Chakrabarti and Moghadam 1977: 167, Fig. 10); and Marlik – late 2nd/early 1st millennium BC (Chakrabarti and Moghadam 1977: 167, Fig. 10).

Given its proximity, it is somewhat surprising that there is not more Indus material in Iran. Still, there can be little doubt that the ancient peoples of Iran and those of the Greater Indus Valley were in regular contact, but the form that this took did not leave an appreciable archaeological signature.

After about 1700 BC, Indian westward activity seems to have come to an end for many centuries. Evidence of ancient India's contacts with the West between the end of the "Meluhha trade" and the Achaemenid period is scanty; but the Assyrians knew of India and cotton, and called the fiber *sindhu* (Oppenheim 1964: 94; Talon 1986).

GUIDE TO FURTHER READING

Ratnagar (1981, 2004) provides excellent sources on the ancient sea trade between the Indus Civilization and Mesopotamia, especially for the Mesopotamian data; she also covers the lands of Dilmun and Magan. Potts (1990) and Crawford (1998) are both splendid sources on maritime activity in the Gulf. Potts covers both the prehistoric period and historical ages. Possehl (1999, 2002a) offers a general introduction to the Indus Civilization. Tosi (1991) and Cleuziou and Tosi (2007) do the same for Oman and the United Arab Emirates.

CHAPTER FORTY-TWO

Neo-Hittite and Phrygian Kingdoms of North Syria and Anatolia

Ann C. Gunter

1 Introduction

During the Late Bronze Age (LBA, c.1400–1200 BC), central and southeastern Anatolia and northern Syria belonged to the Hittite Empire, ruled by a dynasty at the capital city of Hattusha (modern Boğazköy) in north-central Turkey. This multiethnic, multilingual state consisted of the Hittite heartland, provinces administered by governors and vassal kingdoms bound in loyalty to the king of Hatti. Its inhabitants, who included speakers of Hittite (Nesite), Luwian, Hattian, and Hurrian, shared many elements of material culture, perhaps most visibly in the remarkably homogeneous ceramic repertoire now attested from west-central to southeastern Anatolia (Gates 2001: 137–8, 141; Gunter 2006; Postgate 2007: 144–5).

Following the dissolution of the Hittite Empire shortly after 1200 BC, a new political and social landscape obtained in the Anatolian and North Syrian domains formerly under its hegemony. With the empire's demise, provinces and kingdoms dissolved into smaller sociopolitical units and new population groups entered northern Syria and perhaps also west-central and southeastern Turkey. Across the southeastern reaches of the former Hittite Empire emerged smaller kingdoms or city-states today designated "Neo-Hittite" (also Late Hittite, Syro-Hittite, and Luwian-Aramaean) because they preserve Hittite features: in their monumental stone architecture and accompanying sculptural decoration, sometimes in their rulers' names, and above all in their inscriptions written in the language and

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hieroglyphic script of Anatolia known as Hieroglyphic Luwian (Ch. II.38). These states coexisted with new polities established by large numbers of Aramaeans, beginning c.1100 BC, in the formerly Hittite upper Euphrates region (Lipiński 2000: 45–50, 77–407; Sader 2000; Akkermans and Schwartz 2003: 367–8). In their inscriptions, the rulers of these Aramaean states employed a variant of Northwest Semitic (Aramaic, Phoenician), written in an alphabetic script borrowed from the Phoenicians of the eastern Mediterranean coast. Beginning in the 9th century, Assyrians increasingly moved into the area from their rapidly expanding empire to the east, creating new pressures on local kingdoms and exploiting rivalry among them. Through conquest or accommodation, the Neo-Hittite states were gradually absorbed into the Neo-Assyrian Empire as client kingdoms or provinces by about 700 BC. Written records from the Neo-Hittite kingdoms themselves consist almost exclusively of commemorative inscriptions carved in stone, most of which celebrate building activities and other royal accomplishments (Hawkins 2000: 19–22; 2003: 147–51). Assyrian cuneiform sources, chiefly accounts of military campaigns carried out against their neighbors to the west by Tiglath-pileser I (1114–1076 BC) and later kings (9th century BC onward) provide additional information on local political and economic circumstances as well as providing correlations with Mesopotamian absolute chronologies (Hawkins 2000; Collins 2007: 82–5; Giusfredi 2010: 35–63).

In west-central Anatolia, on or beyond the Hittite empire's western frontier, a Phrygian state emerged in the 10th and 9th centuries BC with its chief urban center at Gordion (modern Yassihöyük), southwest of Ankara. According to Herodotus (*Hist.* 7.73) and Strabo (*Geog.* 14.5.29), the Phrygians migrated to central Anatolia from their homeland in the Balkan region of Thrace during or after the widespread disruptions of the early 12th century BC. Inscriptions on stone, metalwork, and ceramics document their language, which was Indo-European and closely related to Greek (Brixhe and Lejeune 1984; Brixhe 2002, 2004a). Phrygian was written in an alphabetic script, perhaps adopted through contact with Phoenicians in the Cilician Plain (Brixhe 1991, 2004b; Mellink 1998). In the 7th and early 6th centuries BC, Phrygia seems to have come under the domination of Lydia, a kingdom in far western Anatolia centered on Sardis (Ch. II.48). The Achaemenid Persian conquest of Anatolia in the mid-6th century BC brought an end to the Phrygian kingdom and other independent states in central Anatolia. Written sources for the Phrygians are comparatively few, consisting chiefly of votive inscriptions on rock-cut monuments and small objects, along with graffiti on ceramic and metal vessels. Texts are short, often consisting of only a few words or a personal name (Brixhe and Lejeune 1984; Roller 1987). As a result, we rely heavily on archaeological evidence to assist in reconstructing historical developments.

Biblical, Assyriological, and Classical frameworks have shaped modern interest in and exploration of the Neo-Hittite and Phrygian states. Modern scholarly investigation began in the late 19th century when these regions formed part of

the Ottoman Empire, and was prompted by interest in the Hittites mentioned in the Bible and in newly deciphered texts from Mesopotamia and Egypt. The recovery of inscribed monuments in southeastern Anatolia and northern Syria preceded excavations begun in 1906 in the extensive ruins of Boğazköy, northeast of Ankara (Collins 2007: 1–20). Exploration of the western Anatolian plateau, the Phrygian heartland, began around 1900 with excavations at Gordion, followed by exploration at Midas City and other monuments in the Phrygian highlands near modern Eskişehir and Afyon (Körte and Körte 1904; Haspels 1971; Berndt 2002; Sams 2005; Berndt-Ersöz 2006: xxii–xxiv). Gordion's Classical past, both legendary and historical, initially guided the modern investigation of Phrygia and emphasized its ties to western Anatolia and the Greeks, among whom a memory of the Phrygians survived in the legend of King Midas and his fabulous wealth (Roller 1983). Farther east, within the former Hittite heartland, Phrygian-related material culture came to light chiefly as a by-product of research into the region's Bronze Age past. At sites such as Boğazköy, Alaça Höyük, and Alişar Höyük, Iron Age levels with Phrygian affiliations overlay cultural deposits of the Hittite Empire. Over the past few decades, exploration of Iron Age occupation in the central and west-central plateau has continued at well-established centers such as Boğazköy and Gordion, but has also expanded to many new sites, including Kaman-Kalehöyük and Kerkenes Dağ. Encouraged by a Classical framework that regarded the Phrygians as new arrivals from southeastern Europe, traditional reconstructions of Iron Age developments in both central and west-central Anatolia have emphasized the role of migrations and invasions. Current perspectives acknowledge significant continuity with LBA and even earlier traditions, and recognize greater interaction between central Anatolia and regions to the east and southeast, including the Neo-Hittite states.

Archaeological investigations of these Iron Age kingdoms, which initially targeted monumental buildings, inscriptions, and sculptures at select urban centers, have increasingly encompassed broader surveys in recent decades as well as the elaboration of ceramic sequences and the reconstruction of local and regional economies. Advances in philology and paleography, along with radiocarbon dating and dendrochronology, have contributed significantly to tighter chronological control. Key areas of ongoing research include the formation or regeneration of polities and complex society following the end of the LBA empires, the development of new urban centers and associated expressions of political and social identity, and the elaboration of regional diversity.

2 The Transition from Late Bronze to Early Iron Age: Continuity, Change, and Revival

Recent discoveries of inscriptions and the reinvestigation of long-familiar monuments and sites have shed dramatic new light on the last period of Hittite imperial

rule, a period of crucial significance for understanding subsequent Iron Age developments. As central authority in the Hittite heartland declined, the appanage kingdoms of Karkamish (in the southeast) and Tarhuntassa (in the south) gained in importance, positioning these regions to withstand the demise of control from the imperial center.

A trading center probably from the mid-3rd millennium BC onward, Karkamish acquired new prominence following the Hittite conquest of Syria and the capture of the city shortly after 1350 BC. Instead of delegating provincial administration to a local vassal ruler, the Hittite king Shuppiluliuma I established a kingdom at Karkamish and installed his son in the new office. Another son was appointed king of Aleppo, inaugurating a dynasty that administered this major center for the worship of the storm god. But, as the archives of Ugarit (Ras Shamra) and Emar (Tell Meskene) show (Hawkins 2000: 388; Bryce 2005: 187–8), the kings of Karkamish effectively governed as Hittite viceroys in Syria. This no doubt reflects the city's strategic significance from both a commercial and a security point of view. The dynasty at Karkamish lasted for at least five generations and survived the empire's dissolution, adopting the title "Great King" and founding at least one vice-kingdom at Melid (Malatya). Two kings of Malatya claimed descent from the king of Karkamish (Hawkins 1988; 2000: 73, 282–3). Throughout southeastern Anatolia and northern Syria, the subsequent success of appealing to the authority and legitimacy of the imperial Hittite past surely rested in large measure on the model and pan-regional importance of Karkamish.

South of the Hittite heartland, recent epigraphical discoveries substantiate Tarhuntassa's increased importance following the appointment of Kuruntiya as a ruler with privileges similar to those of the Karkamish viceroys. When and under what circumstances Kuruntiya claimed the title "Great King," as in his inscription at Hatip near Konya, is unclear (Singer 2000; van den Hout 2001; Bryce 2007). The kingdom features prominently in the latest inscriptions from the Hittite capital, in which Shuppiluliuma II declared the conquest and annexation of Tarhuntassa (Hawkins 1995: 61–3; cf. Melchert 2002). A trio of inscriptions composed by a "Great King" Hartapu, son of the "Great King" Murshili, at Kizildağ and Karadağ in the Konya Plain and at Burunkaya near Aksaray, attest to a dynasty that assumed the royal titles soon after the empire's dissolution and formed a kind of successor state to Tarhuntassa in the southeastern plateau (Hawkins 2000: 429, 433–42; 2002: 148; Bryce 2003: 93–7). While the date and dynastic affiliations of these rulers and the extent of their domains remain under debate, many scholars believe that an organized polity claiming descent from imperial predecessors emerged in the southeastern Anatolian plateau – the region of the later kingdom of Tabal – soon after the fall of Hattusha.

The decline of unified power in north-central Anatolia must have also allowed or encouraged the mobility of peoples along the frontiers. Within the bend of the Kizilirmak (modern Red river, classical Halys), in the Hittite heartland, new

evidence for the Early Iron Age has emerged from recent excavations at Boğazköy. Soon after the capital's abandonment and partial destruction, settlers using ceramics altogether different in manufacture and decoration, hand-made and now often painted or incised, occupied the area of the site known as Büyükkale (Genz 2004). Some of the ceramics exhibit similarities with much earlier ceramic traditions attested in central Anatolia in the Early and Middle Bronze Ages, and may suggest their continued production outside the standardized, mass-produced (and possibly centralized) Hittite ceramic industry (Genz 2005). The new arrivals may have included the Kashka, northern neighbors of the Hittites who had periodically threatened the capital and at this time moved into the interior of the plateau and the former capital.

At Gordion (Yassihöyük), near the empire's western frontier, recent stratigraphic soundings have provided new information on the LBA–Early Iron Age transition. The LBA settlement (YHSS 8), whose ceramics, metalwork, and sealings with Hieroglyphic Luwian legends confirm its generally Hittite character, was abandoned without destruction around 1100 BC. New houses were soon built above (and partly into) its ruins, documenting two phases of Early Iron Age settlement (7B and 7A, c.1100–950 BC). Both architecture and ceramics differed significantly from those of Gordion's LBA occupation. On the floors of the Phase 7B houses were hand-made, low-fired ceramic vessels, unevenly formed and suggesting household production; in the subsequent Phase 7A, a buff ware assemblage quite distinct both technically and typologically from the hand-made ware appeared alongside it. The later, wheel-made gray wares that characterize the Early Phrygian ceramic assemblage at Gordion appear to have developed directly out of the Early Iron Age buff ware tradition, suggesting that the Early Iron Age settlers should be identified as Phrygians. Gordion's excavators recognized similarities between the Early Iron Age hand-made ware and possibly related traditions from northwestern Anatolia and even farther afield in southeastern Europe (Sams 1994: 19–29; Henrickson and Voigt 1998; Voigt and Henrickson 2000a: 332–56, 2000b: 40–6). Such a link with the material culture of southeastern Europe would seem to bolster or confirm the opinion of classical authors that the Phrygians migrated to central Anatolia from Thrace. Other scholars find the parallels between the ceramics of these regions too general to support such inferences (Genz 2003: 185–6; Tsetskhladze 2007: 289–95). As noted above, hand-made pottery likewise representing a major break with Hittite ceramics and suggestive of household-level production has also been recovered in the Early Iron Age settlement at Boğazköy, where it is plausibly interpreted as a continuation of much older ceramic traditions in central Anatolia. Whenever the Phrygians arrived and whatever their geographical source, however, newcomers apparently did not altogether replace the local inhabitants. Gordion's population in later Phrygian times must have included survivals from the LBA, as indicated by continuity in some of the marks incised on ceramic vessels, for example (Roller 1987: 1, 71–3).

At some Cilician sites (including Kilise Tepe, Tarsus, and Soli Höyük) Hittite or "sub-Hittite" (post-imperial) levels were followed by a reoccupation, or a new occupation, that introduced Mycenaean/Late Helladic IIIC-style pottery in considerable quantities (Yağci 2003; Mountjoy 2005; Ünlü 2005; Postgate and Thomas 2007: 148–9, 373–8; Postgate 2008: 170–1). By contrast, at Tell Tayinat near Alalakh (Tell Atchana) in the Amuq plain, an occupation containing an assemblage with Aegean-style traits represents a new foundation, established on a mound abandoned since the Early Bronze Age (Harrison 2009b: 180–3; 2010: 87–90). Locally made Aegean-style pottery, Aegean (or Cypriot)-style cooking ware, and spool-shaped loom weights at these sites have been associated with the movements of the Philistines as part of widespread migrations from the Aegean to the Levant at the end of the LBA, via a southern coastal or perhaps an inland route through the Taurus mountains north of Cilicia.

New epigraphic finds have contributed to these discussions. In a bilingual, Phoenician-Hieroglyphic Luwian inscription carved on the base of a colossal statue found at Çineköy near Adana, Warika (Awariku), king of Adana, styles himself grandson of Muksas, king of Hiyawa, the Neo-Hittite state known in Assyrian sources as Que. Scholars have connected the name Hiyawa with Ahhiyawa, a state generally located in southwestern Anatolia that is attested in Hittite sources and associated with the Mycenaean Greeks. Muksas has been identified with Mopsos, the legendary seer from Colophon, credited in Classical and later sources with founding cities in Lycia, Pamphylia, and Cilicia (Tekoğlu and Lemaire 2000; Jasink and Marino 2007: 407–15; Hawkins 2009: 165–6). Another recent find is a relief inscribed in Hieroglyphic Luwian from the Temple of the Storm God at Aleppo (c.1100–1000 BC), which records a dedication by Taita, king of Palistin (Walistin) – i.e. Philistia (Palestine) (Hawkins 2009: 169–72; Kohlmeyer 2009: 194–200). Previously known from inscriptions found near Hama in northern Syria, Taita seems to have ruled a kingdom extending from the coast to Aleppo, with its capital perhaps at Tell Tayinat (later probably Kunulua, capital of Unqi). Together, these sources seem to support the hypothesis that in the 12th century newcomers from the Aegean (perhaps specifically the west Anatolian coast) settled in Cilicia, the Amuq region, and northern Syria, coexisting with local communities that continued many of their older traditions (Yasur-Landau 2010: 154–63, 186–93). Yet not all sites in this region have yielded comparable quantities of Aegean-style material culture, and individual site histories demonstrate regional complexity. At Kinet Höyük in eastern Cilicia, for example, a "sub-Hittite" period of occupation was followed in the 12th century BC by a settlement of newcomers, perhaps from inland Syria. Here, altered subsistence strategies favoring herding accompanied marked changes in settlement layout and the introduction of previously unattested ceramic features, including hand-made vessels and painted decoration (Ikram 2003; Gates 2010: 70–1; in press).

3 The Neo-Hittite Kingdoms

The Neo-Hittite kingdoms lay in a region extending from the southeastern Anatolian plateau across the Taurus mountains and eastwards to the Euphrates river and northern Syria. South of the Kizilirmak, on the plateau's southeastern edge, were a number of city-states collectively known to the Assyrians as Tabal. Assyrian sources demonstrate that in the 9th century Tabal's kings numbered more than 20; by the end of the 8th century the region comprised the two kingdoms of Tabal in the north (encompassing modern Kululu and Sultanhan) and Tuwana/Tyana in the south (in the vicinity of Niğde, Kemerhisar, and Bor). Although the Iron Age remains of this region have not been extensively explored archaeologically, a number of isolated inscribed monuments and rock reliefs have been recorded (Hawkins 2000: 425–33). Excavations begun in 1969 at Porsuk (Zeyve Höyük), south of Niğde, have uncovered Iron Age deposits (Dupré 1983; Crespin 1999; Beyer 2008). Across the Taurus mountains, in Hilakku (Rough Cilicia) and Que (the Cilician Plain) along the Mediterranean coast, was a similarly fragmented group of polities. At remote Azatiwataya (modern Karatepe), northeast of Adana, a lengthy bilingual Phoenician-Hieroglyphic Luwian inscription of the late 8th or early 7th century was discovered in 1946, providing the key to the decipherment of Hieroglyphic Luwian. Its citadel gate and reliefs have been extensively investigated for their subjects, date and style (Çambel 1999; Hawkins 2000: 40–1, 44–70; Çambel and Özyar 2003).

The most important of the Neo-Hittite kingdoms was Karkamish, located on the west bank of the Euphrates river at a key crossing-point, at what is now the border between Turkey and Syria. Among the first of the Neo-Hittite sites to be investigated archaeologically, its Iron Age buildings and inscribed monuments were uncovered and recorded between 1911 and 1914 (Hawkins 2000: 74, with bibliog.). A short distance to the south, on the river's opposite bank, lay Masuwari, also know as Til Barsip (modern Tell Ahmar), where excavations have yielded significant remains of architecture and sculpture (Bunnens 1990, 2006; Hawkins 2000: 224–6). On the upper Euphrates, north of the Amanus mountains, a kingdom developed around Melid (modern Malatya), whose Iron Age remains were explored at Arslantepe in the 1930s (Delaporte 1940). South of Melid lay Kummuh (classical Commagene), a region illuminated archaeologically through salvage excavations at Tille Höyük (Blaylock 1999, 2009) and Lidar Höyük (Müller 1999a, 1999b, 2003, 2005). West of Kummuh was Gurgum, with its capital at Marqas (modern Kahramanmaraş), where recent surveys have contributed substantially to understanding its Late Bronze and Iron Age history and material culture (Dodd 2003, 2005a, 2007). Sam'al (modern Zincirli), located west of Karkamish and east of the Amanus mountains separating the Cilician Plain from inland Syria, was one of the first centers to be explored in

modern times (1888–1902) and is again the focus of a new expedition launched in 2006 (Schloen and Fink 2009b; Casana and Herrmann 2010). Some of its rulers bore Luwian names, and its architecture and sculptural decoration clearly drew on Neo-Hittite practices, but its inscriptions were written in a dialect of Aramaic and its city gate reliefs primarily depict Aramaean deities (Wartke 2005). The kingdom of Unqi (Patina) occupied the northern Orontes river valley and included the site of Ain Dara, northwest of modern Aleppo, where a Late Bronze and Early Iron Age temple and settlement have been investigated (Stone and Zimansky 1999; Zimansky 2002). New excavations in Aleppo itself have yielded remains of the Temple of the Storm God and associated reliefs and inscriptions (Gonnella et al. 2005). Tell Tayinat, a large site in the Amuq plain excavated from 1933 to 1938 and under renewed investigation since 2004, is generally identified as Kunulua, capital of the kingdom of Unqi, which also included Ain Dara (Haines 1971; Harrison 2009a). The southernmost Neo-Hittite state was Hamath (modern Hama), on the Orontes in central Syria, whose Iron Age citadel and cemetery were excavated in the 1930s. Hamath controlled the land of Luhuti and its capital Hatarikka (Tell Afis) in the middle Orontes Valley (Hawkins 2000: 398–403). Excavations at Tell Afis have furnished an important sequence from the Late Bronze and Iron Ages (Cecchini and Mazzoni 1998; Mazzoni 2000; Venturi 2007).

Recent excavations have begun to elaborate foundational sequences established during the 1930s in regions such as Cilicia and the Amuq plain, and link them with newly documented ceramic chronologies in northern Syria and southeastern Anatolia (Table 42.1). In the Amuq, the appearance of red-slipped burnished ware, chiefly as shallow bowls, signaled the beginning of Phase O around 950 BC, following without stratigraphic break Phase N with its Aegean-style painted wares (Swift 1958: 124–41). The ceramic diversity apparent throughout the region in Iron I gradually contracted, and by Iron II (c.900–700 BC) red-slipped burnished bowls and kraters appeared at a number of sites in southeastern Turkey and northern Syria, including Karkamish (citadel mound and Yunus Cemetery burials) and Hama (Period IV cremation cemetery and Phase E on the citadel mound). Iron II assemblages also included hole-mouth cooking pots, Cypriot painted imported pottery, and Greek imported wares (Mazzoni 2000: 41–53; Akkermans and Schwartz 2003: 361–6).

The use of Hieroglyphic Luwian prevailed among the Neo-Hittite city-states even though their populations were certainly mixed, as evidenced by the use of Hurrian, Hattian, and Aramaean names. An Indo-European language closely related to Hittite (Nesite), Luwian was written in both cuneiform and hieroglyphic scripts in Hittite imperial times. Whereas in the Hittite empire Hieroglyphic Luwian seems to have been employed exclusively for monumental inscriptions and seals, the Iron Age kingdoms apparently used this language and writing system not only for commemorative inscriptions but also for commonplace purposes such as letters and contracts. The survival of correspondence and

Table 42.1 Comparative chronology of the Iron Age in northern Syria and southeastern Anatolia

Iron Age sequence	*Karkamish*	*Amuq*	*Tell Tayinat*	*Hama*	*Tell Afis*
IA		Phase N			Afis VII (E:9b)
1150 BC					
1100 BC	Ini-Teshub (Water Gate)			Cim. I F2	E:9a–8
IB					
1050 BC					E:7abc–6
1000 BC	Herald's Wall (Suhi II)				
IC					
950 BC	Long Wall (Katuwa)	Phase Oa (950–900 BC)		Cim. II F1 Gate 1	E:5–3 Afis VIII
900 BC	King's Gate	Phase Ob	BP I	Cim. III	E:2–1
IIA	Processional Entry	(900–800 BC)		E2	
850 BC				Bldgs. II–III	
800 BC		Phase Oc (800–725 BC)	BP II		D:7–6
IIB	(Astiruwa)			Cim. IV	
750 BC	(Yariri) Royal Buttress			E4	D:5–4
700 BC		Phase Od	BP III		G:8b–a
III		(725–550 BC)	BP IV		Afis IX D:3–1

economic transactions on lead strips suggests the possibility that other documents were written on perishable materials (Hawkins 2000: 433; Giusfredi 2010: 185–233, 236–9). The use of Hieroglyphic Luwian for everyday transactions also implies that knowledge of the language extended beyond a small elite. In addition to their urban contexts of display, Hieroglyphic Luwian inscriptions were also carved on the natural rock face, often together with figures, creating monuments that may have functioned as cult centers. Arguably one of the more stable regions following the abandonment of Hattusha, southeastern Anatolia and northern Syria may have become favored destinations for peoples migrating from collapsed centers of power, perhaps especially from the former Hittite capital (Bryce 2005: 350). Yet the use of this language and script for monumental inscriptions, accompanying architectural reliefs of a type closely associated with Hittite imperial traditions, indicates a cultural choice by rulers of these clearly

mixed populations. The predominance of Hieroglyphic Luwian may also reflect its suitability for programs of visual propaganda, as it became "a part of the monumental architectural decoration, and so was easily integrated into the new urban ideology" (Collins 2007: 87). That no hieroglyphic inscriptions have yet come to light farther west in southern Turkey, in Hilakku (later Rough Cilicia) and Lycia, despite clear evidence for the continuity of their Luwian-speaking populations, suggests that the script's adoption manifests, at least in part, a deliberate effort to create a political and cultural continuity and establish authority by appeal to imperial traditions. Rulers' self-identification with the Hittite imperial past thus reflects both continuity and choice. As territorial encroachment and political pressures by Assyrians and Aramaeans in southeastern Anatolia and northern Syria increased during the 9th century, so too did invocation of the Hittite past as a model of kingship and legitimacy (Bunnens 2000b: 17; 2006: 97–9, 104; Dodd 2005a, 2007).

Some of the Neo-Hittite states, such as Karkamish, correlate with centers and provinces of the Hittite Empire, and they must have inherited an urban layout. Similarly, centers in northern Syria such as Aleppo, itself the seat of a Hittite viceroy, and Ain Dara, whose LBA temple continued in use well into the Iron Age, were perhaps ruled by descendants of imperial times or by individuals who chose to present themselves as "Hittite" kings. Excavations at Lidar Höyük in the kingdom of Kummuh have demonstrated considerable ceramic continuity with LBA traditions (Müller 2003). Continuity with Hittite Empire-period patterns of settlement, and presumably other strategies of resource exploitation, also seems evident in Gurgum, where recent surveys in the Kahramanmaraş valley reveal that nearly all early Iron Age settlements were founded on existing LBA sites (Dodd 2003: 131–2). Other states were new foundations, or were re-founded in the Iron Age. Following the abandonment of nearby Alalakh (Tell Atchana), Tell Tayinat was resettled in the Early Iron Age and to the north, Zincirli Höyük was also re-founded. Yet whether old or new, the urban centers of these states – modern expeditions have thus far focused primarily on monumental buildings, architectural decoration, and inscriptions – exhibit many shared notions of layout, royal ideology, and elite identity.

While limited to relatively few excavations, current evidence suggests that the Neo-Hittite states consisted of sizeable urban centers that served as seats of power and economic activities, presumably sustained by an agricultural hinterland and in certain locations, as at Karkamish, surely also by trade. Their rulers typically commanded a fortified town with a citadel, or upper mound, enclosing monumental buildings such as palaces and temples, while the lower town housed domestic architecture and presumably workshops and other production areas. Common to several urban centers, including Tayinat, Karkamish, and Zincirli, is the organization of the settlement into two or three zones, individually fortified, with double walls and multiple gates (Pucci 2008: 166–72). Fortifications were an early feature of the Iron Age urban foundations at several sites, indicating the

need for security. In addition, the series of walls and gates both around and within the city at Karkamish, Zincirli, and Tayinat restricted access to particular areas and constructed boundaries demarcating ceremonial spaces and procession routes (Denel 2007; Pucci 2008: 170–1).

Along with the use of Hieroglyphic Luwian, Hittite traditions of representational art and architectural decoration, distinctly associated with imperial authority and royal ideology and luxury craft production, became the characteristic features of the Neo-Hittite states (Mellink 1974; Mazzoni 1997). Recent advances in clarifying dynastic sequences, along with detailed and comprehensive studies of style and iconography, have placed the chronology of the carved reliefs on firm ground (Mazzoni 2000: 32–52; Orthmann 2002; Bunnens 2006: 49–53). Gate figures in the form of lions guarded the city walls at Ain Dara, Malatya, and Karkamish. Orthostats, upright stone slabs placed along the lower parts of walls and left plain or carved with narrative scenes, have Middle and LBA antecedents in North Syrian and imperial Hittite architecture (Harmanşah 2007: 72–85). In the Iron Age, however, the Neo-Hittite centers richly developed "their symbolic function as bearers of images and sacred materials with no practical function" (Pucci 2008: 174). These programs of decoration closely associate individual rulers with particular deities such as the storm god and most often convey the ruler's unique access to divine realms. The Lion Gate at Malatya, for example, depicts the king pouring a libation in the presence of deities. Whereas religious subjects dominated Hittite imperial art, Neo-Hittite representations also display a rich repertoire of political and historical themes. The Long Wall of Sculptures at Karkamish, an extensive series of decorated orthostats, depicts deities followed by chariots and foot soldiers victorious over the defeated enemy, perpetuating the ruler's exclusive abilities to ensure divine protection and maintain or restore order (Denel 2007: 188–9). The widespread adoption of these features probably also suggests emulation of the model of Karkamish, which has yielded the most extensive series of orthostat reliefs, including reused blocks originally carved in Hittite imperial times (Özyar 1998). Although the city gate reliefs at Zincirli chiefly depict Aramaean deities, their iconography drew on the orthostat reliefs at Karkamish.

Other shared architectural features include palaces of the so-called *bit-hilani* type. This term refers to a columned entryway or entrance portico consisting of two or three columns, reached by a flight of stairs, which leads to one or more rectangular central rooms that presumably served as audience rooms (Aro 2003: 302–3; Pucci 2008: 176). Examples have been identified at Zincirli, Tayinat, Göllüdağ in Tabal, and perhaps Karkamish.

Comparatively few buildings devoted to religious functions have been discovered thus far, perhaps reflecting the worship of many deities in open-air sanctuaries near springs and on mountain peaks. The earliest temples, at Aleppo and Ain Dara, were founded in the Bronze Age and continuously remodeled into the Iron Age. At Aleppo, the massive Middle Bronze Age Temple of the Storm God was

continuously rebuilt. Its LBA carved orthostats depict the storm god driving his chariot and other deities, including the tutelary god Runtiya and the winged goddess Ishtar-Shaushka. In another series of reliefs, the storm god appears in a smiting pose opposite Taita, king of the land of Palistin (Palasatini) (Kohlmeyer 2009). Originally constructed in the LBA, the Ain Dara temple in its final phase (900–740 BC) consisted of a recessed porch with two columns, a wide ante-cella, a main square cella, and a surrounding corridor (ambulatory) built around the cella. On the exterior, lion and sphinx orthostats and protomes decorated the lowest parts of the ambulatory walls and flanked the doorways to the cella and ante-cella (Zimansky 2002).

The deity most frequently depicted in the Neo-Hittite centers was the Luwian storm god Tarhunza, shown holding a hammer or axe and his distinctive trident thunderbolt (Long Wall of Sculpture at Karkamish; stelae from Tell Ahmar, Maraş, and Domuztepe), and sometimes standing on a bull (Tell Ahmar, Gölpinar, and Adiyaman). In the Tabal region the storm god was associated with grapes and grain, Tarhunza of the vineyard (rock reliefs at Ivriz, stelae from Ivriz and Niğde) (Aro 2003: 317–320; Bunnens 2006: 58–9, 121–2; Bonatz 2007: 11–13). Karkamish worshiped a divine triad of the storm god, the city goddess Kubaba, and the protective deity Karhuha. The worship of Kubaba was introduced in Tabal and at Karatepe in Cilicia, along with worship of the sun and moon. In general, however, relatively few deities of the Luwian pantheon were represented. Only the orthostat reliefs at Azatiwataya (Karatepe), dating to the late 8th or early 7th century, depict the pantheon of a single city, and few of the deities can be individually identified (Çambel and Özyar 2003; Bonatz 2007: 13–14).

Burial practices, documented at several sites, suggest that extramural cremation cemeteries were the most common and continued LBA traditions in northern Syria, but that multiple modes of commemorating the deceased coexisted, reflecting social differentiation. At Hama (Riis 1948) a cremation cemetery was in use from the Iron IA through Iron IIB period (c.1100–700 BC), and cremation cemeteries of Iron II date have been excavated near Karkamish (Yunus and Merj Khamis), at Deve Höyük, and at nearby Tell Shiyukh Fawqani (Woolley 1939–40; Moorey 1980; Tenu and Bachelot 2005; Tenu et al. 2005). Their burial urns typically contained ceramic vessels and other modest grave goods. New to the Iron Age is a category of private funerary monument consisting of stone sculptures or stelae, which almost always depict the deceased seated at a funerary meal. Introduced in the 9th century, they depict both royal and non-royal figures, and males and females, individually and as couples. More than 100 such monuments have been recovered in southeastern Turkey and northern Syria, many bearing inscriptions in Hieroglyphic Luwian or Aramaic. Their imagery and emphasis on the family as a symbol of social order reflect developing notions of memory and collective identity in the Iron Age kingdoms (Bonatz 2000a, 2000b). A newly unearthed, inscribed stele from Zincirli, exceptionally found in its original context, furnishes evidence for the placement of some of these monuments in mortuary

chapels, perhaps associated with temples or the residence of the deceased (Struble and Herrmann 2009: 33–43). Unlike the more common extramural burials, the stelae and sculptures were apparently sometimes set up within the city walls, reflecting their owners' privileged status with respect to rituals of commemoration and memorialization.

The production and consumption of prestige goods, such as decorated ivory cosmetic containers and panels for furniture inlay, provide additional evidence for the material expression of elite identity and document emerging individuality among the Neo-Hittite city-states in workshop specialization and artistic styles. Many of these goods, including multicolored garments and textiles, finished ivories, and unworked tusks, are enumerated in Neo-Assyrian records of tribute collected from these centers, beginning in the 9th century BC, and some are preserved archaeologically. In particular, large quantities of furniture panels, containers, and other carved ivories have been recovered from the Assyrian imperial cities, especially the royal center Kalhu (modern Nimrud). In recent decades, scholars have extensively catalogued and analyzed these objects, with significant results for documenting types of furniture and other luxury goods, manufacturing techniques, subjects, styles of decoration, and patterns of interregional exchange (Symington 1996; Cecchini et al. 2009, with bibliog.). The production of carved ivories in the Neo-Hittite centers is generally thought to have ceased around 700 BC, when the last independent states had been incorporated into the Neo-Assyrian Empire.

4 The Kingdom of Phrygia and its Iron Age Neighbors

In addition to stories of a legendary King Midas, famous for his insatiable greed, Classical sources document more than one historical ruler of the Phrygians named Midas, the first of whose activities date to the later 8th and early 7th centuries BC (Berndt-Ersöz 2008). Neo-Assyrian texts from the reign of Sargon II (721–705 BC) refer to a figure named Mita of Mushki, ruler of a tribe the Assyrians located in northern and eastern Anatolia. Since these records were discovered, most scholars have identified Mita with the Midas of Greek tradition and the Mushki with the Phrygians. Sargon's intervention in the kingdom of Tabal led to his encounter with Mita, whom the Assyrians considered the instigator of a rebellion against their rule by several Neo-Hittite states, including Tabal, Tuwana/Tyana, Que, and Karkamish. After about a decade of organizing and aiding anti-Assyrian coalitions, as recorded in Assyrian royal inscriptions and correspondence, Mita allied himself with Assyria (Mellink 1991: 622–4; Hawkins 2000: 426–8; Vassileva 2008). Greek sources associate Midas, a dynastic name, only with the Phrygians and western Anatolia. The names *Phrygia* and *Phrygians* are not found in the cuneiform or Hieroglyphic Luwian inscriptions, and it is not known what the Phrygians called themselves.

Table 42.2 Gordion's Iron Age historical and stratigraphic sequence

Period	*YHSS Phase*	*Dates (approximate)*
Early Iron Age	7	1100–950 BC
Initial Early Phrygian	6B	950–900 BC
Early Phrygian	6A	900–800 BC
Early Phrygian Destruction		800 BC
Middle Phrygian	5	800–540 BC
Late Phrygian	4	540–330 BC

Located about 100 kilometers southwest of Ankara near the confluence of the Sakarya and Porsuk rivers, Gordion is by far the best-known Phrygian site. Today called Yassihöyük ("flat" or "flat-topped mound"), it was initially explored in 1900 by the Classicist Alfred Körte and his brother Gustav (Körte and Körte 1904). The site was identified as Gordion because its location corresponded to ancient authors' descriptions, and subsequent archaeological investigations have indeed yielded extensive remains of Iron Age date on an impressive scale, along with inscriptions in the Old Phrygian language. The University of Pennsylvania Museum of Archaeology and Anthropology has conducted excavations at Gordion over a period of more than 30 years, beginning with R.S. Young's campaigns (1950–73), which concentrated on the large habitation mound, or citadel, and tumulus burials in its vicinity (Sams 2005). A later, multifaceted series of investigations (1988–2002), directed by G.K. Sams and M.M. Voigt, has furnished crucial new evidence for Iron Age stratigraphy and chronology (Table 42.2), along with a regional survey (Voigt 2005).

Inhabited from the Early Bronze Age (c.2300 BC) onward, Gordion's Iron Age remains constituted the most impressive structures on the citadel (c.500 × 350 meters) and among the large burial mounds, or tumuli, constructed nearby. Young's excavations uncovered two major levels of monumental architecture, an old and a new fortified citadel, separated by a thick clay fill 4–5 meters deep. The Old Citadel, or Early Phrygian level (YHSS 6A), was destroyed in a great conflagration that preserved the lower parts of many buildings along with their rich contents. By contrast, the New Citadel, or Middle and Late Phrygian settlement (YHSS 5–4), had been largely robbed by later inhabitants in search of building materials in the Middle Phrygian structures. In both cases, the citadel plan consisted of a substantial defensive wall enclosing monumental buildings constructed of stone, mudbrick, and timber in three distinct areas and pierced by a monumental gate complex in the southeast. In the northeast, the palace area consisted of two large courts flanked by buildings of *megaron* plan (a rectangular structure composed of anteroom and main hall, entered on one of the short sides). In the southwest, two long buildings identical in plan faced each other across a wide

street, occupying an extensive terrace. The "Terrace Building" consists of eight parallel *megaron* units forming a total length of more than 100 meters, housing workshop units that produced food and textiles for the local elite (Burke 2005). In the northwest a multi-roomed structure occupied a third area. In addition to this walled palace area on the eastern part of the citadel mound, the recent excavations have shown that in the western part of the Middle Phrygian citadel (YHSS 5) the buildings are chiefly of a domestic character. The Middle Phrygian city also expanded to include a walled lower town south of the citadel mound and an outer town to the north (Voigt 2007: 317–32). Gordion's Iron Age economy was based primarily on agriculture and herding, while textiles were produced both as a medium of exchange and a prestige commodity.

Young associated the burned buildings of the Old Citadel with an invasion by marauding Cimmerians from the north (followed by the alleged suicide of Midas) referred to in Classical sources, and accordingly dated to c.700 BC. Until a few years ago, this century, this event and its date were chronological points firmly fixed in the site's history and, consequently, in Phrygian history and Iron Age Anatolian archaeology more broadly. A series of discoveries and analyses carried out in conjunction with the recent campaigns has convincingly challenged this chronology and interpretation. In the light of new stratigraphic observations, the evidence of independently dated artifacts, radiocarbon determinations and dendrochronology, the excavators have re-dated the Early Phrygian Destruction Level (YHSS 6A) to c.800 BC, approximately 100 years earlier than previously thought (Voigt 2005: 28–31; DeVries 2007: 79–80; 2008: 30–3; cf. Muscarella 2003b; Keenan 2004). The correlation of the Early Phrygian citadel with the Mita of Mushki, mentioned in records from the reign of Sargon II and the historical Midas of approximately contemporaneous date, can thus no longer be maintained. The "age of Midas" would belong instead to the Middle Phrygian period (YHSS 5) when Gordion attained its maximum extent and the regional population reached its peak (Voigt 2007: 331–2). While the profound and far-reaching consequences of this revised chronology are still being worked out with respect to specific categories of material, new sequences in the typological development of several groups of artifacts, including fine ceramic wares, bronze omphalos bowls, and bronze fibulae, can already be established (DeVries 2007' 2008: 34–43). A fragmentary group of porous limestone orthostats carved in low relief with figural scenes, recovered from a reused context and initially dated to before 800 BC, exhibit similarities in subject and style with orthostat sculptures from Neo-Hittite centers such as Karkamish and Zincirli (Sams 1989; 1994: 194–5). Manufacturing debris recently excavated from buildings of the Initial Phrygian Period (YHSS 6B) included similar carved blocks which could be joined with some of the examples found earlier, thus establishing their date in the first half of the 9th century, much closer in time to their Neo-Hittite models in northern Syria from the 10th and 9th centuries BC (Voigt and Henrickson 2000b: 50; Kelp 2004: 285–98).

Gray wares constitute the overwhelming majority of Gordion's Early Phrygian ceramic assemblage and continued to dominate both utilitarian and fine wares throughout the Middle and Late Phrygian periods (YHSS 5–4). Vessels were typically wheel-made, with larger containers built by hand and finished on a slow wheel or tournette. Occasionally embellished with incised or impressed decoration, the gray ware repertory of relatively standardized shapes and dimensions includes bowls, goblets, basins, jars of various sizes, and storage jars (Sams 1994: 33–6, 41–133; Henrickson 2005). A few distinct groups of painted ceramics, represented in much smaller quantities at Gordion, bear witness to more elaborately decorated styles and also help to establish correlations with Iron Age sites in central and south-central Anatolia. Alişar IV pottery, named for the site in central Turkey where it was first recognized, is chiefly found within the bend of the Kizilirmak, but Gordion's Early Phrygian settlement yielded a few imports and imitations. It features figural decoration in silhouette technique; typical are jars with stag friezes painted in brown on a light ground filled with concentric circles (Sams 1994: 163–4). A group of vessels painted with simple geometric patterns links Gordion to a wider tradition of painted ceramics of the Neo-Hittite sphere, well represented at Karkamish, Malatya, and Hama (Sams 1994: 135–6). Brown-on-buff ware, a fine class exhibiting elaborate figural and geometric decoration and highly distinctive shapes such as jugs with elongated spouts, is best known from the burial tumuli of the 9th and 8th centuries BC. Like other developments in the Early Phrygian visual idiom, such as programs of architectural sculpture, its linear animal style was indebted to Neo-Hittite models in media other than vase-painting (Sams 1974, 1994; Sievertsen 2004; Roller 2009a).

Beginning with the Körtes' explorations in 1900, about 35 of the approximately 85 burial tumuli near Gordion have been scientifically excavated. Most of the excavated tumuli date to the Phrygian period (9th and especially 8th–6th centuries BC), although some are Hellenistic. Initially, the Phrygian-period examples were inhumations placed in wooden tombs, followed in the late 7th century by the introduction of cremation burials without wooden tombs (Kohler 1980; Kohler 1995). Tumulus MM (Midas Mound), which measures more than 50 meters in height and 300 meters in diameter, is the largest and most spectacularly furnished of the burial mounds. Constructed of pine and juniper and surrounded by a massive stone wall, the tomb chamber contained a single male inhumation accompanied by quantities of elaborately carved wooden furniture and metal belts, textiles, and bronze and ceramic vessels (Young et al. 1981: 79–190). Often identified as the tomb of King Midas because of its monumental dimensions and opulent furnishings, Tumulus MM has recently been re-dated to around 740 BC on the basis of dendrochronology and artifact style, and is therefore too early for the Mita of Neo-Assyrian records and the historical Midas of the late 8th century (DeVries 2008: 33–8). The tumulus contents also provide unique evidence of media rarely preserved in Anatolia, such as the intricately decorated wooden

furniture recovered from several burials (E. Simpson 1996, 2010; Simpson and Spirydowicz 1999). Given their comparatively small number and rich furnishings, the tumuli as a group must represent the burials of a small elite, presumably Gordion's ruling dynasty. Large cemeteries for the majority of the population must be located elsewhere.

Recent investigations employing both archaeological and textual sources have considerably advanced the understanding of Phrygian religion and cult practices. The only Phrygian deity known to us, and the only one represented in anthropomorphic form, is the goddess the Phrygians called Matar, "mother," who is occasionally given the epithet *kubileya* (from which derives her classical name, Cybele). By the 8th century BC a sculptural tradition of representing this important deity had been established which clearly drew on the iconography of Kubaba, the city goddess of Karkamish (Roller 1999: 46–53; Collins 2004: 91–2). The presence at Gordion of cult objects of varying dimensions throughout the city suggests that the cult of Matar was practiced in both public and private domestic shrines from the 8th to the mid-6th centuries BC (Roller 1999: 77–9). Her sanctuaries were typically located not within urban centers, however, but on the boundaries of human and natural landscapes, near city gates (Boğazköy, Gordion, Midas City, Kerkenes Dağ) or funerary monuments (Ankara, Gordion, Arslan Tash). Phrygian cult installations, many of which were dedicated to Matar, consisted almost exclusively of rock-cut shrines and monuments, of which more than 100 examples have been documented; freestanding, built shrines are known only at Boğazköy and Kerkenes Dağ (Berndt-Ersöz 2006; Draycott and Summers 2008; Roller 2009b). Two major categories of rock-cut monuments are distinguished, which can also be differentiated chronologically and which are most abundantly represented in the Phrygian highlands near modern Afyon and Eskişehir. Step monuments, the earlier group, consist of a seat (or throne) atop several steps; most often, the seatback is topped by a semicircular block or idol. Façades and niches form a second group, ranging in size from tiny niches to representations of a building or architectural façade measuring several meters in height, where the niche represents the entrance and typically frames an image of the mother goddess (Berndt-Ersöz 2009). While the architectural façades are often understood to refer to the deity's temple, it appears increasingly likely that the reliefs depict instead the façade of a palace or elite residence in which cult ceremonies were enacted, and thus emphasize a close relationship between the cult of the mother goddess and the local ruler (Roller 2006; Roller 2009b). As a group, the rock-cut monuments seem to have originated in the vicinity of Gordion itself. Dümrek, a sanctuary located north of Gordion, houses multiple step monuments. Its predominantly Early Phrygian ceramics indicate that it was established in the 9th century BC, but it continued to be used in Middle and, in part, also in Late Phrygian times. While its proximity to Gordion suggests that it was probably established and most often visited by nearby inhabitants, the presence of ceramics from other regions of central and west central Anatolia

indicate its wider regional importance as a center of worship and place of pilgrimage (Grave et al. 2005; Berndt-Ersöz 2009).

The nature and extent of the Phrygian state ruled from Gordion are difficult to define because so few other sites of this period have been investigated in any detail and because the presence of Old Phrygian inscriptions and Phrygian-style material culture, such as ceramics or metalwork, may not necessarily reflect centralized or unified Phrygian political control. Drawing in part on the Greek tradition concerning Phrygia, earlier reconstructions tended to emphasize Phrygian hegemony and Gordion's status as its political center. Recent excavations at several sites in central Anatolia, including Boğazköy, Kaman-Kalehöyük, and Kerkenes Dağ, have furnished new information on settlement, architecture, economy, and material culture in the Middle and Late Iron Ages (Kealhofer et al. 2009; Summers 2006, 2007, 2008). The results of these investigations do not unambiguously confirm a territorially extensive Phrygian state with its capital at Gordion, although both the city and the nearby sanctuary at Dümrek were clearly of pan-regional importance. At Boğazköy, the Middle and Late Iron Age inhabitants shared elements of Phrygian material culture, including architecture, painted ceramic styles, and graffiti, with the "nuclear" Phrygian zone of west central Anatolia (Bossert 2000; Genz 2003, 2007; Kealhofer et al. 2009). Tumulus burials similar to those at Gordion, containing closely comparable Phrygian-style ceramics and metalwork, cluster in several distinct regions of central and southern Anatolia: to the northeast, at Ankara; at Kaynarca, near the Neo-Hittite kingdom of Tuwana/Tyana; and in the southwest at Bayindir, west of modern Antalya (Akkaya 1991; Börker-Klähn 2003; DeVries 2008: 42–3). A close association between a male ruler and the Phrygian goddess is attested at Gordion, Boğazköy, and Kerkenes Dağ. Some scholars interpret these settlements as Phrygian "outposts" or emporia, with Gordion as the center of a Phrygian oligarchy; others, while acknowledging Gordion's pan-regional importance, reconstruct a political landscape of multiple independent polities whose ruling elites shared certain forms of material culture and dynastic funerary practices (Wittke 2007). Whatever the precise configuration of the Iron Age states of central and west-central Anatolia, the Achaemenid Persian conquest of the mid-6th century BC brought an end to their independence.

GUIDE TO FURTHER READING

For the Neo-Hittite kingdoms, recent surveys with helpful bibliographies include Akkermans and Schwartz (2003), Bryce (2005), and Collins (2007). *Near Eastern Archaeology* 72/4 (December 2009) features accessible articles on the recent archaeological and epigraphical finds from Cilicia, the Amuq region, and Aleppo, with additional bibliography.

Hawkins (2000) is the magisterial scholarly corpus of original Hieroglyphic Luwian texts, with extensive commentary and bibliography.

A recent exhibition catalogue devoted to the Phrygians presents a number of introductory essays intended for a broad readership, treating individual sites as well as religion, language, and other topics (Sivas and Tüfekçi Sivas 2007). A collection of essays elaborating recent work at the site of Gordion and in its environs offers a more detailed introduction to multiple categories of archaeological remains, with extensive bibliography (Kealhofer 2005). Two monograph series, Gordion Excavations Final Reports and Gordion Special Studies, publish detailed scholarly studies (bibliography to date in Kealhofer 2005; cf. Dusinberre 2005a; Roller 2009a). Studies of material from Gordion and other Iron Age Anatolian sites are regularly included in the proceedings of the ongoing Anatolian Iron Ages Symposia (Çilingiroğlu and French 1994; Çilingiroğlu and Darbyshire 2005; Çilingiroğlu and Sagona 2007).

Reports on investigations at Boğazköy are published in several series, including *Boğazköy-Hattuša*, *Studien zu den Boğazköy-Texten*, and *Boğazköy-Berichte*; preliminary reports are regularly published in *Archäologischer Anzeiger* and *Istanbuler Mitteilungen*. The *Reallexikon der Assyriologie* (Berlin, 1928–), a major reference work that is updated on an ongoing basis, includes entries on many sites, regions, personal and place names.

Websites devoted to ongoing excavations and research at several key sites provide current information on each new season and additional bibliography. For some of the sites highlighted in this discussion, see: Gordion/Yassihöyük (http://sites.museum.upenn.edu/gordion/), Boğazköy (http://www.dainst.org/index.php?id=643&sessionLanguage=en), Kerkenes Dağ (http://www.kerkenes.metu.edu.tr/kerk1/index.html), Tell Tayinat (http://www.utoronto.ca/tap/), and Zincirli (http://ochre.lib.uchicago.edu/zincirli/).

CHAPTER FORTY-THREE

North Arabian Kingdoms

Arnulf Hausleiter

1 Sources

The image of the history of Northern Arabia has long been influenced by a variety of written non-autochthonous sources: mainly cuneiform texts from Mesopotamia and, to a lesser but not entirely insignificant extent, biblical texts of the Old Testament. Additionally, there are testimonies from Egypt and Classical authors. Finally, there are writings by medieval Arab historians and geographers. There is a large amount of local epigraphic evidence, mainly early northwest Arabian (Jaussen and Savignac 1909, 1914; Winnett and Reed 1970; Macdonald 2004) or Aramaic inscriptions, but these still await systematic investigation and study. Complementary to these written sources, new and significant data have emerged from a number of recent archaeological excavations and surveys in the region, considerably extending our knowledge of environmental changes, subsistence strategies, social life and political organization in 1st millennium BC northern Arabia. Compared to other regions in the Near East, excavations in the region are still limited to a small number of sites, although in the 19th century a number of travelers were already publishing informative accounts of ancient settlements.

Most of the epigraphic and archaeological sources illuminate the role of northern Arabia as a region of contacts, and cultural and economic transfer. One of the most important trade routes in the Arabian peninsula, the so-called frankincense road, crossed the western part of the Arabian peninsula from south to

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Edited by D.T. Potts.

north (Maigret 1997; Macdonald 1997; Potts 1988b). The image of northern Arabia as solely a transit region of lesser interest, therefore, is not entirely unexpected, at least with regard to mainstream ancient Near Eastern studies. However, it is by no means justified. A systematic recording of the thousands of rock inscriptions in northern Arabia may alter current ideas of ancient concepts of political and social organization. A north Arabian history exclusively considering the sources from within the region still remains to be written. Attempts to frame the historical narrative using terminology borrowed from tribal- and placenames mentioned in religious texts, such as the Bible or the Qur'an, appear outdated in this context and, by associating ancient names with certain classes of artifacts, such as pottery, also neglect more recent methodologies (cf. Chan in press).

2 General Framework

Geographically speaking, northern Arabia constitutes the bridge between the central and southern parts of the peninsula, including South Arabia, and an area reaching from Egypt in the west to the Levant and Syria in the northwest, the Syrian Desert in the north and Babylonia (and Assyria) to the northeast (the regions next to the Gulf belong to eastern Arabia). Since all these areas, with the exception of the southern parts of Egypt divided from the peninsula by the Red Sea, are connected to each other by land, there were excellent possibilities for direct contacts, both hostile and peaceful, between the different political, social, and cultural entities in the region. The existence of a land bridge between Africa and Asia was of prime importance for the history of humankind, since it is considered a factor that enabled the spread of hominids all over the world (Rose 2010; Armitage et al. 2011). Investigations in eastern Egypt, Saudi Arabia, and Ethiopia show that similarly intense cultural and economic contacts were established and maintained by maritime connections across the Red Sea.

As to the internal organization of landscape and environment, "Arabia is by no means all desert" (Macdonald 1995: 1355) and there is a great variety of different landscapes in the peninsula (Wilkinson 2003a; see Ch. I.1). Nevertheless, from a long-term perspective, the ability to easily move about and survive in this environmentally hostile region lay, without doubt, with mobile, nomadic groups rather than with representatives of foreign, mainly sedentary, societies. Therefore, efforts by foreign powers to gain permanent territorial control, as attempted in the 6th century BC by the Babylonian King Nabû-na'id (Nabonidus, 555–539 BC), did not last very long.

According to present knowledge, trade relations between Arabia and Syro-Mesopotamia may have started at the turn of the 2nd to the 1st millennium BC, and subsequently long-distance trade between South Arabia and the eastern Mediterranean developed, using camels as pack-animals for the large-scale export

of high-quality luxury goods, particularly aromatics (incense and myrrh) from South Arabia and northeast Africa. In addition, other export items, such as precious metals and stones, were traded, especially during the initial phase of trade. Consequently, the intensity of cultural and economic exchange between the Arabian peninsula and its neighbors reached a previously unparalleled degree of intensity, embedded in the general economic growth of the early Iron Age.

On the other hand, it must not be overlooked that there is also growing evidence of international contacts with this region during earlier periods. To what extent was northern Arabia touched by the achievements of the sedentary civilizations of the 3rd millennium BC such as Egypt, Syro-Mesopotamia, the South Arabian highlands, the Oman peninsula, or the Gulf (Edens et al. 2000)? There are in fact, a number of archaeological indications of a common cultural background, at least in the western part of the peninsula (Schiettecatte 2010), which suggest that the northwest Arabian oases may have played a leading role in the development of the South Semitic alphabet (Robin 2008).

It seems clear that the political and economic organization of northern Arabia was divided between a number of powerful oases, situated at a considerable distance from each other. These were characterized by their sedentary lifestyle and regionally active, mobile groups, mainly involved in camel-breeding and the provisioning of meat to the oases as well as safeguarding the trade, while, at the same time, benefiting from it. There is now a consensus about these two economic units cooperating with each other. Outside the large oases, water was available at many watering holes in the desert area, many of them not yet recognized or systematically investigated, but all important in providing this life-giving resource for nomadic groups and their animals. Large-scale, systematic investigation of water resources would probably lead to changes in scholarly perceptions of land use, as was the case in the 1980s and 1990s in the north Syrian and Iraqi Jazirah (Bernbeck 1993; Wilkinson and Tucker 1995).

As a form of sociopolitical organization, kingdoms in this region are normally thought to have been territorially less extensive than those in contemporary northern Mesopotamia, Babylonia, or Egypt, areas with largely sedentary societies that were both more densely populated and located in climatically more favorable parts of the Near East. Interactions between sedentary and mobile groups, many of them organized as tribes, may not have been dominated by sedentarist norms of behavior. This is relevant to the perception of the role of a king or queen as *primus inter pares* in the hierarchical organization of groups or societies headed by tribal leaders or *sheikhs* (Macdonald 1995: 1364). From an Assyrian perspective, Qedar was the most influential tribe, at least in the reign of the 7th century BC Assyrian king Assurbanipal (668–627 BC), and one also involved in the aromatics trade. Before this time, the Aramaean tribes of southern Syria were essential for establishing contacts between the inhabitants of northern Arabia and the populations of Syro-Mesopotamia (Retsö 2003). Other politically and economically active north Arabian tribes were the Nebayot and Massa (probably located

between the northwestern and northern parts of Arabia), and for over two centuries the Assyrian records illuminate the changing alliances of tribes, in search of good relationships with their powerful Mesopotamian neighbors.

Apart from this general outline, several important aspects remain to be discussed in detail, once additional evidence is available. These relate particularly to the establishment, development, survival, and decline of the north Arabian kingdoms and, to a lesser extent, the dynamics of power – i.e., the implementation of rule, also in terms of territory and political space. The 8th and 7th century BC Assyrian sources mainly provide insights into one foreign power's (Assyria's) dealings with the regional political players and thus offer a one-sided perspective, which is nevertheless of importance for an understanding of the situation. Sources from the later 1st millennium BC are more heterogeneous and reflect increasingly multi-layered historical traditions.

In the 1st millennium BC, three north Arabian oases can be identified on the basis of both epigraphic and archaeological evidence as outstandingly powerful political centers: Duma (mod. Dumat al-Jandal), Dedan (mod. al-Khuraybah), and Tema (mod. Tayma). Numerous other oases are known as well, but at present it appears as if their importance was restricted to a local or sub-regional level, except for Yathrib (mod. Medina), a major oasis located at a southern bifurcation of the so-called "frankincense road."

As to the indigenous image of rulers, there is some information on royal representation during the last centuries of the 1st millennium BC, but little is known about the earlier periods. Apart from city walls, public building activities by royal decree, resulting in secular architecture, seems virtually absent, interestingly also from the texts. Recent excavations have not provided any evidence for residences or seats of rulers, kings or queens. Unless these remains have been overlooked by excavators, it seems that different types of royal residences, probably including those of a temporary nature, such as tents, must be taken in consideration. On the other hand, buildings with a religious character are recorded epigraphically and archaeologically, in some cases with parts of their inventory still in place.

3 Settlement Before the 1st Millennium BC

According to recent geoarchaeological studies in the oasis of Tayma (see below), it seems probable that mid-Holocene climatic changes forced mobile groups to become sedentary during the 4th millennium BC, when different strategies for water control had to be adopted because of an aridization process which resulted in the disappearance of a number of ancient lakes. Based on this model, a number of oases, located in the most favorable zones of an increasingly hostile environment, were established in northern Arabia (Ch. I.25; Drechsler 2009).

Little is known about the history of the centuries predating the 1st millennium BC, but this by no means implies that the oases were not occupied. On the

contrary, there is growing evidence of substantial 2nd millennium BC occupation in some of them, such as Qurayyah, Tayma, and al-Khuraybah, although no large-scale excavations of relevant occupational remains have been carried out yet. At least at Tayma, certain parts of the c.10 kilometer long city wall were constructed of mudbrick during the 2nd millennium BC (i.e., before the Early Iron Age, 12th–9th century BC), implying the social and political need for such a construction, not to speak of the organizational skill and manpower necessary. P.J. Parr (1988) suggested a foreign, Egyptian impetus for the foundation of some of these oasis settlements, but this has not been accepted unanimously. Whether the presence of Late Early Bronze/Early Middle Bronze Age bronze weapons, including a fenestrated axe and a ribbed dagger (information kindly provided by M. al-Hajjari, 2003), in Middle Iron Age graves indicates the presence of such objects at Tayma already in the early 2nd millennium BC, as in Syria and the Levant ("warrior graves"), cannot yet be said with certainty.

New light has recently been shed on the relationship between north Arabia and Egypt. A number of Egyptian and Egyptianizing objects (Sperveslage in press a) have been recovered together with prestige goods of Syro-Levantine type from an apparently isolated structure at Tayma, and a recently discovered cartouche of Pharaoh Ramesses III in the vicinity of Tayma may indicate a stronger political connection between Egypt and northwest Arabia than previously assumed. Slightly earlier, the presence of Qurayyah painted ware (Parr, Harding and Dayton 1970) already strongly indicated links between northwestern Arabia and the Levant during the Late Bronze Age, thus underlining the northwestern orientation of cultural contacts. Although evidence is scarce, it appears plausible that some time after the reign of the Assyrian king Tiglath-pileser I (1114–1076 BC), commercial contacts with Mesopotamia began, as indicated by Assyrian cuneiform sources (Bagg in press). These contacts endured throughout the remainder of the 1st millennium BC. Thus, by the end of the 2nd millennium BC, the Arabian peninsula started to make its appearance on the mental, political, and economic maps of the neighboring Near Eastern powers.

4 The Neo-Assyrian Empire and North Arabia: 8th–7th Centuries BC

Assyrian interest in aromatics in Arabia (*māt aribi*) features in the cuneiform sources from the 9th century BC onwards. Camels, the only suitable means for crossing desert areas (probably apart from donkeys), were mentioned amongst the booty collected by the Assyrian king Tukulti-Ninurta II (890–884 BC) from tribes along the Euphrates; Arabs (in the person of a certain Gindibu) were mentioned for the first time by Shalmaneser III (858–824 BC) as members of a coalition of Syrian cities against the Assyrian army in 853 BC (Eph'al 1982; Retsö 2003; Bagg in press).

More detailed information on political organization in Northern Arabia appeared a century later, during the reign of Tiglath-pileser III (744–727 BC). Before that time, a text from Sur Jar'a (Iraq), written by Ninurta-kudurri-usur, governor of the land Suhu and Mari, sheds light on the perils faced by caravans traveling between Assyria and Arabia (Cavigneaux and Khalil Ismail 1990; Macdonald 1997: 339–40). In 738 BC, Tiglath-pileser III collected tribute from queen Zabibe – the first time that Arabs paid tribute to an Assyrian king – and also from Damascus and Palestinian cities. Subsequently, he defeated queen Samsi from the Arab land at Mount Shaqurri (location uncertain) and collected, among other things, 30,000 camels from her. Samsi is presently the best known of a number of 8th–7th century BC female rulers or princesses in northern Arabia (all of them called "queens" by the Assyrians, using the Akkadian term *šarratu*; in the case of male rulers, the term "king," *šarru*, was used). She is probably also depicted on one of Tiglath-pileser III's sculptures at Nimrud. After her defeat and the conquest of Gaza, Tiglath-pileser III installed an Arab official who controlled the trade route toward Egypt (Macdonald 1995: 1365). In the context of the conflict between Assyria and the Arabs, a number of tribes, including Massa, Tema, and Saba'a, are said to have paid tribute to the Assyrian king, probably because they may have been worried about safeguarding their own commercial interests (Retsö 2003: 135–6). The mention of "Sabaeans" by Tiglath-pileser III in connection with tribes in the area of Dedan has been interpreted as evidence of the aromatics trade in the 8th century BC, even though aromatics are not mentioned in the textual sources of this period.

In the last two centuries of Assyrian rule a number of Arabian queens were mentioned in Assyrian royal documents, such as Zabibe (Tiglath-pileser III); Samsi (Tiglath-pileser III and Sargon II); Yathi'e and Te'elhunu (Sennacherib); Apkallatu, Baslu, Yapa', and Tabu'a (Esarhaddon); and Atiya (Assurbanipal). Apart from the remarkable presence of female rulers, as late as the reign of Sargon II (721–705 BC) the Arabs were described as having no leaders and having paid no tribute to any king (Bagg in press). Sargon II took several steps in the region between Lebanon, Palestine, Egypt, and north Arabia in order to guarantee the functioning of commerce (in particular the opening of a harbor and the establishment of a mercantile settlement composed of Egyptians and Assyrians), and he "receives gifts, which he describes as tribute" (Macdonald 1995: 1365) from the king of Egypt, Samsi, and It'amra of Saba'a, each of whom was interested in maintaining trade relations. Some Arabs even successfully conducted raids in the northern parts of the Syro-Arabian desert and were apparently involved in commercial activities not much liked by the ruling Assyrians. During the reign of Sargon II, Arabs may have settled in northwestern Iran (for the purpose of camel breeding?), Assyria, and Syria (Retsö 2003: 150–2).

Assyrian rulers entered the Arabian peninsula on only two occasions. Otherwise deeply involved in Babylonian affairs, in which Arab tribes sided with the Babylonians, Sennacherib (704–681 BC) successfully attacked Haza'il, king of Qedar,

and queen Te'elhunu and chased them to the city of Adummatu. There he captured a number of statues of local gods which he transported to the Assyrian capital Nineveh. Sennacherib also collected thousands of camels from Te'elhunu. He named one of the city gates of Nineveh "the gifts of the people of Sumu'il and Tema enter here," indicating perhaps the end of hostilities between Assyria and Arabia. There is good evidence that Assyro-Arabian commerce continued (as evidenced, e.g., by the delivery of gifts from the people of Tema to Nineveh and from Karib'il of Saba to Assur).

In the reign of Sennacherib relations between Arabia and Babylonia were quite close. Textual evidence and individual artifacts of Arabian origin attest to the presence of Arabians in Babylonia and the existence of settlements that probably functioned as trading posts. Settlements with an Arabian population appear to have existed in Babylonia until the Achaemenid period (Retsö 2003).

The main site of Assyrian concern, Adummatu, was described as the "fortress of the Arabs" by Sennacherib's successor, Esarhaddon (680–669 BC), who, on his way to eastern Arabia and the land of *Bazu*, conquered six fortified cities (Leichty 2011). During this campaign, six kings and two queens were defeated and killed. Since one of the Arab queens' names was reportedly (according to Esarhaddon) *Apkallātu* (Leichty 2011: 341 with references), they may have fulfilled priestly functions (cf. Akkadian *apkallu*, "priest"). Upon receiving a request from Haza'il, Esarhaddon returned to the Arabs the divine statues of Atarsamayin, Daya, Nuhaya, Rulda'u, Abir'ilu, and Atarquruma that had been seized by Sennacherib during his conquest of Adummatu. Esarhaddon installed the Arab princess Tabu'a, educated at Nineveh, as queen, and after the death of Haza'il, he made his son Yautha' king. A local attempt to replace the latter was thwarted by Assyrian intervention. Eventually, when Yautha' rebelled, the divine images were deported for a second time to Nineveh. The king fled from Adummatu, and not until the reign of Assurbanipal were the divine images, at least that of Atarsamayin, returned to Adummatu.

Along the southwestern flank of the Assyrian empire, the king fully depended on the cooperation of the local Arab tribes for the supply of resources, such as camels and water, when traveling to Egypt. "The Arabs of this region thus acquired a dual importance to the rulers of Mesopotamia, the smooth passage of the incense trade to its Mediterranean and Egyptian outlets, but they held the key to any invasion to Egypt" (Macdonald 1995: 1366; cf. Retsö 2003: 159).

Like Esarhaddon before him, Assurbanipal initially faced problems with the local ruler Yautha', King of Qidru (Qedar), resulting in the latter's defeat and his removal to Nineveh. Yautha' was replaced by a puppet king, Abiyate. The textual evidence (Retsö 2003) further reports on the dynamics of conflicts between Assyrians and Arabs at this time (including the participation of Arabs in the revolt of Assurbanipal's brother, Shamash-shum-ukin, in Babylonia in 651 BC), culminating in the second war against the Arab tribes between 641 and 638

BC and the defeat of the Qedarites and a number of their leaders (according to Retsö 2003 the Qedarites and Arabs may not necessarily be identical). In this conflict, the Assyrians were backed by the Nebayaot who clearly benefited from this alliance.

Apart from the hostile relationship between Assyria and Arabia, there is evidence of a mutual interest in maintaining commercial relations (Eph'al 1982; Macdonald 1997), especially after the conquest of Damascus by Tiglath-pileser III in 733 BC. However, since no Assyrian trading itineraries survive, only a few placenames can be identified, such as Tayma (Tema), Duma (Adummatu), and Kaf (Kapannu). Although little is known about traded goods, the Sur Jar'a text gives us an idea of what an 8th century BC camel caravan consisted of: namely, camels, purple-dyed wool and other textiles, stones, metal, etc.

As mentioned above, trade between Arabia and Assyria may have begun as early as the late 2nd millennium BC. Assyrian kings list the import of goods originating from the Arabian peninsula in the area of Hindanu (Bagg in press; Liverani 1992: 113–14; Maigret 1999) which may have had an important role in their distribution (Edens and Bawden 1989). However, in the reign of Tiglath-pileser I, Hindanu was part of Suhu and apparently did not yet provide any foreign trade goods (Bagg in press).

5 Babylon and the Achaemenids: North Arabia in the 6th–4th Centuries BC

In 601 BC, Nebuchadnezzar II (604–562 BC) conducted raids against nomads in the Syrian steppe, probably as a preamble to his attacks on Judah, Ammon, Moab, Edom, Sidon, Tyre, and the Arabs in the subsequent year. These campaigns were probably sparked by his strategic and economic interests in the region and yielded considerable booty. At this time, Edom may have become "the bastion of Babylonia in Arabia" (Retsö 2003: 182). It was probably the geographical proximity of Arabia to Babylonia that led the last Babylonian king, Nabonidus, to adopt a strategy different from that of the Assyrians in dealing with northern and especially northwestern Arabia. Nabonidus was the first Mesopotamian ruler to gain territorial control of large areas in the Hijaz in order to establish de facto control of the trading network of the Arabian peninsula. He came and went between the most important oases of the region, including Tema (Tayma), Dadanu (Dedan), Padakku (al-Huwayit?), Hibra (Khaybar), and Iadihu (al-Hayit?) and reached Iatribu (Medina), essential for controlling both the northwestern and northeastern branches of the frankincense road. The decision to establish his residence at Tayma clearly reflects its importance. Sickness, mentioned by the king himself (Beaulieu 1995), and the fall of Edom may have influenced his decision to remain in Arabia (Retsö 2003). Nabonidus' powerful intervention, at least according to his own writings, prompted a number of his

neighbors, including the kings of Egypt, Media, and the Arabs of the Syrian desert, to pay him tribute and seek to cooperate with him (Macdonald 1995: 1367). In addition to the religious conflicts he faced in his hometown Babylon, however, a glance at the map supports the hypothesis that it was the king's manifest economic interests that led him to stay for 10 years in Arabia, away from his capital, forcing him to neglect his religious duties as king of Babylon.

In his inscriptions, Nabonidus mentions his stay in northwest Arabia, but it is the propagandistic Verse Account, a text compiled during the Achaemenid period – i.e., after the death of Nabonidus – that explicitly mentions a king (*malku*) of Tema, whom Nabonidus killed, along with the cattle and flocks of its inhabitants. It also claims that Nabonidus built a palace "as in Babylon" (Schaudig 2001). Although, the "large Neo-Babylonian style building, that is likely to be Nabonidus' palace" (Beaulieu 1995: 974) still awaits confirmation by archaeological excavations, the discovery of a Babylonian stele with a royal inscription in cuneiform mentioning Nabonidus on a possible pedestal for the stele (Hausleiter and Schaudig 2010a, 2010b) are clear signs of a Babylonian presence at Tayma. A number of Taymanite graffiti on rock formations around the site also mention Nabonidus (al-Said 2009; Müller and al-Said 2002), a thus far unparalleled phenomenon in the history of northern Arabia, giving important clues to the contemporary perception of the Babylonian occupation by parts of the local population. Although its chronological relationship with the Late Babylonian period is not entirely clear, the important oasis of Dedan was at this time a place of undoubted significance ("kingdom"), since it was mentioned by Nabonidus.

While the political situation in northern Arabia during the early Achaemenid period (reigns of Cyrus and Cambyses) is poorly documented in written sources (Graf 1990; Knauf 1990; Retsö 2003; Stein in press), important monuments from Tayma, among them the "Tayma Stone," date to this period, and indicate the influence of Near Eastern textual tradition and iconography on northwestern Arabia (Hausleiter 2010a: 220; Jacobs and Macdonald 2009; Potts 1991b). An Achaemenid governor, probably responsible for the Hijaz region (Graf 1990), is mentioned at Dedan (Anderson 2010: 450) but the alleged presence of one at Tayma (Retsö 2003: 239) is a phantom.

Achaemenid domination, partly described by Herodotus (Macdonald 1995: 1367), apparently allowed for the subsequent development of regional powers, at least in northwest Arabia, such as the Lihyanite dynasty at Dedan. Political changes (Retsö 2003: 275–7) led to the decline of Sabaean influence over the aromatics trade c.400 BC. They were replaced by the kingdom of Qataban and the Minaeans. The latter established a merchant colony at Dedan, and it was probably at this time that Achaemenid influence in northern Arabia ended (Ch. II.51). An Arabian kingdom between Egypt and Palestine, centered on the Qedar tribe, lasted until the time of Alexander the Great, who conquered the port of Gaza in 332 BC (Retsö 2003).

6 The Lihyanite Dynasty of Dedan: 5th–1st Centuries BC

Following the kingdom of Dedan (al-Said in press), the Lihyanite dynasty may have ruled the Hijaz between the 5th and 1st centuries BC. Historical reconstructions of this dynasty began with the first exhaustive report on Dedan (al-Khuraybah) by A. Jaussen and R. Savignac (1909, 1914). The name Lihyan is taken from that of a tribe in the Hijaz (Abu al-Hassan 2010) and the Lihyanite script is one of several so-called North Arabian Oasis Scripts (Macdonald 2004). The absolute dates of this dynasty are still under discussion, and, recently, new epigraphic evidence from Khuraybah and Tayma has provided additional information on the Lihyanite king list (Stein in press; Farès-Drappeau 2005; Abu al-Hassan 2010). The Lihyanite dynasty ruled for more than 200 years at Khuraybah, following, for the most part, a dynastic principle of passing on rule to the following generation.

Based on inscriptions from Tayma (see below), it appears that Dedan controlled Tayma for several generations and installed a governor there, probably putting an end to the long-lasting rivalry between these oases, reflected, e.g., in Taymanite rock inscriptions mentioning a war between them. According to a recently proposed chronology of Lihyanite inscriptions at Tayma (Stein in press), a new king has to be added to the existing list of at least 14 kings. In addition, the transition from Achaemenid rule to the dynasty of Lihyan can now be traced, at least at Tayma. Contrary to the so-called Tayma Stone, which should be dated, most probably, to c.380 BC, in the reign of Artaxerxes II (404–359/8 BC), no Persian date appears on the al-Hamra stele, which would have to postdate the former monument. Rather, the al-Hamra stele mentions, for the first time, a certain PSGW of Lihyan, without title. On a newly discovered fragment of a sphinx, PSGW's son is called "king of Lihyan," thus probably indicating the dynastic rise of the PSGW family at Tayma and Dedan. Other Lihyanite rulers at Tayma included 'Ulaym/Gulaym Shahru; Lawdhan (I), in charge of the Lihyanite governor Natir-Il at Tayma; and Tulmay, son of Han-'Aws, mentioned in four inscriptions (years 4, 20, 30, and 40) from the temple of Tayma. References to regnal years spanning five decades (except for the second decade, years 11–20), may indicate that the Lihyanite king repeatedly and regularly visited Tayma to commemorate his rule, but there is no evidence that a Lihyanite king resided at Tayma itself. There were at least three, over-lifesize, royal statues in the temple at Tayma. These may have served to remind the population of the king during his absence. Together with their counterparts at Dedan, they attest to the emergence of a standardized, regional style in the representation of rulers in connection with certain architectonic structures (Hausleiter 2010d, 2010e; al-Said 2010), thus suggesting the leading role of Dedan as a regional power.

Interestingly, contemporary foreign sources, from the Seleucid and Parthian empires, offer no details on internal political affairs in northern Arabia.

Apparently, the fringes of the peninsula were more important than the interior. The increasing significance of maritime trade in the 1st century BC may have been one contributing factor in the shrinking importance of the overland trade for the export of South Arabian aromatics to other parts of the world. Although the end date of the Lihyanite dynasty is uncertain, the growth of Nabataean influence in the region may have been assisted by a weakened Lihyanite dynasty.

7 Archaeological Data From Significant Oases

There are three major oases with 1st millennium BC occupational remains and rich epigraphic references in north Arabia: Duma, Dedan, and Tema. In most of them, recent fieldwork and study of inscribed material has provided new evidence, allowing for a better reconstruction of the history of the north Arabian kingdoms.

Duma (Dumat al-Jandal) can be considered one of the "gateways" of Mesopotamia/Babylonia leading toward Arabia. Located at the eastern end of the Wadi Sirhan, where routes leading toward Syria and the Levant in the west and Assyria to the north intersected, Duma must have played an important role in the trading activities and contacts between these regions and the north and northwest of the Arabian peninsula. Most probably identical with *Adummatu* of the Assyrian sources (see above), the oasis was known from the Neo-Assyrian period onward, and for many years the Assyrians tried to obtain control over it and the tribes in the area. Nabonidus, on the other hand, did not mention Duma in describing his attempted conquest of northwest Arabia. Although "in order to reach Mesopotamia it was necessary to go north and then east to Dumâ, modern al-Jawf" (Macdonald 1997: 335), an undated rock relief of Nabonidus at the Jordanian site of Sela' (Dalley and Goguel 1997) may indicate that the king preferred a westerly route to enter Arabia.

Information on the political and religious significance of Duma for both the region and its tribes, the most important of which was Qedar, is provided by Assyrian sources. In the reign of Assurbanipal, the Qedarite tribes were part of the confederation of Atarsamayin, the equivalent of Ishtar/Astarte/Athtar and chief god of Duma which remained the religious center of the tribes for centuries. The close ties between Babylonia and the Duma region in the 1st millennium BC have been explained by their geographical proximity.

When Duma was investigated archaeologically in the 1980s the architectural remains recovered were mainly attributed to the Nabataean or later periods (al-Muaikel 1994). Recently, a Saudi-Italian and French cooperative project has resumed work at the site, one of the aims of which is to examine the site's development in the earlier 1st millennium BC.

Located in the Wadi al-Qura in modern al-'Ula, the site of al-Khuraybah has been identified with the seat of the kingdom of Dedan and the later Lihyanite

dynasty. Dedan/Dadanu was mentioned by Nabonidus on the Harran Stele. Although it is not entirely clear whether the king actually visited there (Schaudig 2001), it has been suggested from the context that he may have defeated its king (Macdonald 1997: 335; Retsö 2003). A number of sites around al-Khuraybah reflect the importance of the settlement at Dedan (Abu al-Hassan 2010; al-Said 2010), although a systematic archaeological and epigraphic reconnaissance has yet to be conducted in the area. Favorable hydrological conditions led to the construction of an elaborate system of water management and irrigation, but it is often difficult to date the elements of it with any degree of chronological precision (Nasif 1988).

The importance of Dedan is reflected in biblical sources indicating, according to some authors, the existence of a "well-organized state" there before the mid-1st millennium BC (al-Said 2010). Like Tayma, Dedan is mentioned together with Saba, but more often it is connected with Qedar. At the very least one can speak of a kingdom of Dedan during the reign of Nabonidus (Macdonald 1995). A king of Dedan, called Kabar'il son of Mati''il, is known from a funerary inscription at the site. A governor 'Abd may date to the Neo-Babylonian period. Apart from some pottery at Tell el-Katheeb (al-Zahrani 2007) similar to Middle Iron Age painted pottery at Tayma, archaeological evidence dating to this period is still absent at al-Khuraybah.

Dedan was well connected to the Levant, the eastern Mediterranean (including the Greek islands, e.g. Delos), and Syria, as well as to South Arabia. A colony of Minaean merchants was established at Dedan from the time of the Dedanite rule until the Lihyanite dynasty and a number of rock-cut Minaean tombs, some of them decorated with lion sculptures and bearing inscriptions, are located around the site. Edomite sources refer to Dedan as the southernmost part of their kingdom, and the name of the Edomite god Qos appears as a theophoric element in one of the Lihyanite king's names. The marriage lists of Qarnaw (ancient Ma'in, in Yemen) listing Dedanite women to be married to merchants [?] from Ma'in, attest to strong ties between Dedan and South Arabia. Better known than the Dedanite kings are the representatives of the dynasty of Lihyan who ruled Dedan in the late 1st millennium BC.

Since 2004, archaeological excavations by the King Saud University (Riyadh, Saudi Arabia) have revealed architectural remains, interpreted as temples or shrines on the basis of their plans and contents, at al-Khuraybah, Tell al-Katheeb, Jabal Umm Daraj, and Danan (Abu al-Hassan 2010). Located next to a famous monolithic water basin in the central part of the site, the most significant building is a temple. It was equipped with a number of over-lifesize human statues, which may have been either royal figures (one of them bears the inscription MLK LYHN, "king of Liyhan") or gods (al-Said 2010).

The main god of Lihyanite Dedan was Dhu Ghabat. In addition, numerous deities from neighboring regions, including Han-'Uzza (morning star), Han-'Aktab (equivalent of Nabu), Qos (chief god of Edom), Ba'al Shamin (southern

Syria), and Wadd (chief god of the Minaeans), belonged to a "cosmopolitan pantheon" (Macdonald 1995: 1362).

As at Tayma, ceramic evidence indicates settlement at Khuraybah began in the 2nd millennium BC (al-Said 2010) and some 13th–12th century BC Qurayyah painted ware sherds have been identified at nearby Tell al-Katheeb, immediately north of al-Khuraybah (al-Zahrani 2007: 184, nos. 77–79, 186, no. 82), where a temple of the goddess al-Kutba was uncovered. At al-Khuraybah, there was a local painted pottery tradition (al-'Ula painted ware; Parr et al. 1970) which probably developed out of the Qurayyah painted ware, although distinctively different from it. The former has been dated to the 6th–1st centuries BC, roughly corresponding to the period of the Lihyanite rule at Dedan.

Tayma is a c.950 hectare oasis located south of an extended former lake (playa, Arab. *sabkha*) which forms the deepest point of a large hydrological catchment area. The presence of groundwater there allowed for irrigation agriculture, and numerous wells and other irrigation installations have been identified. New archaeological excavations have provided substantial evidence of occupation predating the mid-1st millennium, and settlement may have begun as early as the 4th millennium BC, when mid-Holocene climatic changes caused increasing aridity in northern Arabia (Engel et al., in press). Tayma is mainly known as a 1st millennium BC site on the easternmost branch of the incense road, and, especially, as the residence of Nabonidus. It often appears together with Saba in Mesopotamian and biblical sources, a reflection of either specifically South Arabian or generally southerly contacts.

Active at the site since 2004, a Saudi-German cooperative project (Eichmann et al. 2006, 2010, in press a, in press b; cf. Bawden et al. 1980) has defined six occupational periods on the basis of stratigraphic excavations (Hausleiter 2010a). The overwhelming majority of the archaeological remains date to the Early Iron Age (12th–9th century BC), Middle and Late Iron Ages, Late Antiquity/Pre-Islamic period (2nd century BC to 4th century AD) and Islamic period (9th–10th centuries AD).

Apart from two bronze weapons of late 3rd/early 2nd millennium BC Syro-Levantine type found in secondary contexts, only the large city wall dates to the 2nd millennium BC. Other public buildings associated with the probable administrative or religious center of the early to mid-2nd millennium BC have not yet been found. However, sherds of Late Bronze Age Qurayyah painted ware occur in secondary contexts throughout the site.

Early Iron Age contexts occur in scattered locations in the oasis. An isolated but almost complete building complex, surrounded by a c.2 meter thick enclosure of considerable size (c.35 × 38 meters), between the inner and outer walls of the central part of the settlement, contained a number of prestige goods such as faience figurines, painted bowls with representations of lotus flowers, and a scaraboid (Sperveslage in press b) pointing to substantial Egyptian connections, while a faience mask pendant, incised gaming pieces of stone and ivory, and bone

combs indicated Syro-Levantine connections at the turn of the 1st millennium BC. Painted pottery with representations of birds and geometric patterns is characteristic of the Early Iron Age at Tayma. It bears only a general similarity to the abovementioned 13th–12th century BC Qurayyah painted ware (Hausleiter 2010b). It remains unclear whether this complex is related to the events leading to the engraving of Pharaoh Ramesses III's cartouche in the vicinity of Tayma. The occurrence of large amounts of small, standardized ceramic beakers may indicate the repeated consumption of liquids, probably in connection with rituals. The presence of faience figurines of Egyptian gods and goddesses, together with the separation of the complex from its surroundings, may point to the religious use of the building, which was destroyed by fire. The area was reused as graveyard at the time of the Lihyanite dynasty. Further traces of limited Early Iron Age occupational remains have been found along the outer wall of Tayma but, so far, not in the (later) center of the settlement. This spatially discrete evidence raises questions about the internal organization of the settlement during the Early Iron Age, although sherds of Early Iron Age pottery with birds have now been found at many other locations of the site in secondary contexts.

The period between the Early Iron Age and Late Iron Age occupations is bridged by the cemetery of Tal'a located southeast of Tayma (outside the walls), from which a series of 9th–5th century BC radiocarbon dates have been obtained (Eichmann 2009; Lora et al. 2010). Since there are large quantities of painted pottery in these graves, some of it still in situ, a similar date has been given to this group of pottery, otherwise known as Sana'iye ceramics (Hausleiter 2010c), which differs from the Early Iron Age painted pottery in both technology and a total lack of figural representation. Based on this data, occupational remains with Sana'iye pottery have been assigned to the Middle Iron Age or even later. Sherds of Sana'iye pottery have been recognized at Tell al-Katheeb (al-Zahrani 2007: 224–5) and in Palestine (Hausleiter 2010a: 233). Middle Iron Age layers have been identified on the outer city wall. However, extensive architectural evidence from the Neo-Assyrian and Late Babylonian periods is still lacking. Nonetheless, the discovery of several monumental, cuneiform-inscribed monuments, chief among them a stele attributed to Nabonidus, as well as further ceramic evidence of the Middle Iron Age period, indicate that this picture may change in the future.

The temple shrine of Qasr al-Hamra (Abu Duruk 1988; Hausleiter in press) and probable remains of one or two of its precursors in the northeastern-central part of the site (Building E-b1) are most probably of Achaemenid date (6th–4th century BC). The same goes for the al-Hamra stele and the "Tayma Stone." A recently discovered funerary stele was used in different periods by three females, each indicated, respectively, by an Imperial Aramaic, a Taymanite Aramaic, and a Nabataean inscription. The texts are written beneath a presentation or drinking scene similar to one seen on a fragment discovered by C. Huber and J. Euting in the late 19th century (Potts 1991b) which can be dated to the 5th–4th centuries BC.

Most of the available information on religion at Tayma dates to this period. The main gods of Tayma were SLM (Salm), Ashima, and Shingalla, all thought to be of Syro-Aramaic origin (Maraqten 1996; Hausleiter in press). Although positive evidence is still lacking, it can be hypothesized that Salm Mahram was venerated in Qasr al-Hamra and Salm HGM in the predecessor of the Hellenistic temple E-b1 (Hausleiter in press).

Substantial occupational remains are only attested in the center of the site after the 4th century BC. The two sanctuaries continued in use during the period of Lihyanite rule. Statues of the type found at Dedan and the Aramaic inscriptions of four Lihyanite kings were found in and around the temple E-b1. Two Imperial Aramaic inscriptions mention governors of Tayma. One of them, dated to the reign of Lawdhan (I), provides evidence of the actual organization of power at Tayma in the late 1st millennium BC. The governor was apparently entrusted with construction works near the inner city wall. Since this reduced the former size of the central area of Tayma (until then c.20 hectares), it could be suggested that this shrinkage may have been a consequence of the shift of regional power toward Dedan. Public royal or administrative buildings of this period have not been identified.

Several funerary stelae, with a stylized representation of a face and a short Aramaic inscription, from a cemetery of the Lihyanite period seem to reflect south Arabian traditions. Based on new archaeological evidence, it has recently been argued, against diffusionist models explaining the origin of southern Arabian cultures, that there was a common, western Arabian cultural background facilitating contacts and exchange between north and south (Schiettecatte 2010).

Nabataean building elements and an inscription of Aretas IV (8 BC–AD 40) have been found in temple E-b1. Additionally, some inscribed sherds and a number of coins have been found in a residential quarter of Nabataean date. A Nabataean inscription on a funerary stele (see above) mentions the 24th year of Aretas IV's reign. The role of the site as part of the Nabataean empire with its regional capital at Mada'in Salih are illuminated by two *strategoi*-inscriptions from the vicinity of Tayma (Nehmé 2009).

8 Conclusions

During the 1st millennium BC, northern Arabia was well connected with its neighbors from Egypt in the west to Mesopotamia in the east. Rather than having a ruling elite concentrated in one capital that functioned as both a political and a religious center (as in Assyria and Babylonia), the political organization and control of the vast and environmentally often hostile territory was distributed amongst a number of powerful oases. These served as economic, religious, and, to a lesser extent, political reference points for mobile nomadic groups possessing the essential means of transport – i.e., the camel – as well as a deep

knowledge of the territory, its dangers, and the location of water sources, all essential for survival. This rather decentralized or multicentric model of settlement and local power, combined with the possibility of very flexible reactions, another consequence of the complex geography of the region, severely limited the success of potential foreign conquerors right up until the time of the Ottoman Empire and the establishment of the Kingdom of Saudi Arabia. On the other hand, as a result of the immense demands of the Mesopotamian and Mediterranean elites for luxury goods (particularly aromatics), the populations of northern Arabia and their male and female leaders were able to thrive and develop their interests against the foreign powers, benefiting economically from trade. Even during the Nabataean period, the cooperative way of life forged by sedentary, agriculturally active, oasis populations and nomadic, camel-breeding groups was a sufficient and stable model, apparently never exceeding a regional concentration of power. Dispersed oases, even 150 kilometers apart from each other, were not isolated entities and there were several attempts at broadening the scale of territorial/economic control at a sub-regional scale, as the cases of Dedan and Tayma show.

Since the general outline of the political behavior of the northern Arabian kingdoms during the 1st millennium BC toward foreign powers seems clear, it is hoped that future research will lead to more insight into the inner workings of the region – e.g., on the resolution of social and political conflicts and economic crises, demographic developments, and religion in this ancient contact zone.

GUIDE TO FURTHER READING

A concise historical summary of 1st millennium BC northern Arabia was published by M.C.A. Macdonald (1995), with reference to original textual sources; the same author has written an excellent overview of ancient northwest Arabian languages and scripts (2004). Fundamental studies on the history and culture of the Arabs include Eph'al (1982) and Retsö (2003), the latter exhaustively discussing the available textual evidence up to the Umayyad period. Avanzini (1997) unites important contributions on trade and trade relations in the Arabian peninsula, mostly with reference to textual sources. Archaeological survey and excavation reports from northern Arabia have been published in the Saudi Arabian journal *Atlal* since 1977. Many relevant studies can also be found in the journal *Arabian Archaeology and Epigraphy*. The monumental exhibition catalogue *Roads of Arabia* (al-Ghabban et al. 2010) summarizes the current state of archaeological research in Saudi Arabia. Excavation reports and studies on rock inscriptions have been published as monographs (in Arabic) by the Antiquities Sector of the Saudi Commission for Tourism and Antiquities. Several brief reports have also been published in the *PSAS*. Based on their investigations at Tayma in 1979, Edens and Bawden (1989) discussed the history and trade relations of the Hijaz as well as the pottery chronology of Tayma (Bawden and

Edens 1988), mainly contrasting the views of P.J. Parr (1988). The publication of the north Arabian survey by Parr et al. (1970, 1972) in the late 1960s is still essential for an understanding of regional aspects of material culture, especially pottery. As to the history of research and the first publication of inscriptions, the studies of Jaussen and Savignac (1909, 1914), Euting (1914), and Winnett and Reed (1970) are among the most significant contributions concerning 1st millennium BC inscriptions from the region.

CHAPTER FORTY-FOUR

Egypt and the Near East

Thomas Hikade

1 Egypt and the Near East in Prehistoric Times

At the onset of the Lower Pleistocene, *Homo erectus* evolved in Africa and was well adapted to migrate through changing vegetational zones. The mobile and highly adaptable *Homo erectus* radiated out of Africa more than 1,000,000 years ago, one possible route leading via the Sahara toward the west into Europe and a second eastern movement via northeast Africa into Asia (Fagan 2007: 71–8). At this time, we also see the first use of stone as a raw material to manufacture tools. Finds from Ubeidiya (Israel), dated to around 1.4 million years ago (mya), are some of the few finds of this early radiation into southwest Asia (Bar-Yosef 1999). Given the distribution of the hand-axe, the multipurpose tool most closely linked with *Homo erectus*, from England in the west to the India–Bangladesh border in the east, and throughout Africa, including Egypt, it seems obvious that the mobile hunter-gatherers of the Lower Paleolithic may have moved back and forth from Egypt into the Near East. Such movements also occurred during the Middle Paleolithic, which saw the widespread use of the so-called Levallois technique, from Europe to southwest Asia and northern Africa. This method, associated with Neanderthals, archaic and modern humans, allowed for the production of predetermined stone flakes, blades, and even stone spearheads. Then another migration wave brought people from Africa to the Near East. Using mitochondrial DNA to trace maternal ancestry, it has been shown that modern humans moved into the Levant from Africa around 100,000 years ago (Rose and Petraglia

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

2009: 9, with refs), thus confirming the out-of-Africa model proposed by Lewin (1987).

Later, during the Epipaleolthic, hunter-gatherers crossed, apparently back and forth, from the Sinai to the Nile Valley, where they stayed in seasonal camps. Several of these campsites were discovered in the 19th century at Helwan, just south of modern Cairo (Schmidt 1996). The type-fossils of the toolkit used by these hunter-gatherers were the "Helwan lunate" and the notched "Helwan point," which show similarities with stone tool traditions of the Sinai. One similar arrowhead was also discovered in Layer I at the Neolithic site of Merimde-Benisalâme in the western Nile Delta (Eiwanger 1984: Pl. 57.I.1106). Pottery from the same layer also seems to have affinities with material from southwest Asia and might be an indication of contact or migration between this region and the Nile Delta (Eiwanger 1984: 59–63).

The important site of Maadi, near Cairo, gives us a good insight into Egypt's place in the wider trading network of the Near East and northern Africa in the early 4th millennium BC. Commodities that reached Maadi ranged from asphalt and resin, cedar wood and ceramics, to tabular flint scrapers, large "Canaanean blades" used as harvesting tools, copper objects, and copper ore (Rizkana and Seeher 1987, 1988, 1989, 1990). Analyses of copper objects and ore suggest that they possibly originated at Timna and Feinan in the Wadi Arabah (Pernicka and Hauptmann 1989). Specialized metallurgical sites just north of Aqaba in Jordan may have supplied copper objects and ore to Maadi as well (Khalil and Schmidt 2009). It has even been suggested that some of the stone tools from Aqaba were Egyptian and are an indication of a possible Egyptian presence there (Hikade 2009). At the same time, underground dwellings have been linked to immigrants coming to Egypt from the southern Levant to settle at Maadi (Hartung 2004), a situation similar to that found at Buto in the western Nile Delta (Faltings 2002). It has been suggested that these immigrants brought with them the Near Eastern technique of building with mudbrick (Wilkinson 2010) as well as the idea of writing (Wilkinson 2003). This hypothesis requires additional archaeological evidence, however, as there are very early hieroglyphs at Abydos in Upper Egypt (Dreyer 1998).

Various Egyptian finds also point to the adoption and adaptation of Mesopotamian motifs in artwork. On an ivory knife handle, said to be from Gebel el-Arak in Upper Egypt, we see on one side a man depicted between two lions (Asselberghs 1961: Pl. 39). In clear Mesopotamian fashion the bearded man wears a cap and a long skirt. In the Painted Tomb 100 at Hierakonpolis, we see a similar figure amongst other scenes of combat (Quibell and Green 1902: Pl. 76). There, however, the execution of the painting is rather simplistic and, while the lions are easy to identify, the man is not shown wearing the garment seen on the Gebel el-Arak knife. The so-called "lion tamer" or "master of the animals" seems to be the classic iconography of humans controlling the wilderness – i.e., a *topos* of "order vs chaos" and obviously an idea shared by the elites of Egypt and the

Near East (Boehmer 1974). Further shared motifs highlighting the transfer of ideas between Mesopotamia and Egypt include the rosette, intertwined snakes, and the griffin. However, contacts between Egypt and Mesopotamia remained small scale and were most likely effected via the northern Levant through sites like Byblos, and from there onward by sea or overland by caravan.

Later, during the Levantine Early Bronze Age Ia, when interregional trade picked up pace, foreigners from the Levant, probably merchants, stayed for some time at Maadi making use of underground dwellings (Hartung 2004). At this time Levantine pottery also appeared at other sites in the Delta such as Tell el-Farkha (Mączyńska 2004: Fig. 10) and more and more sites in Egypt had copper, turquoise, and lapis lazuli (Hartung 2001: Figs. 54–55; Hendrickx and Bavay 2002). Cylinder seals and seal impressions were initially imports or copies of seals from Mesopotamia and Susa in Iran (Boehmer 1975; Hill 2004). The appearance of lapis lazuli in Egypt highlights the fact that Egypt was an active partner in a long-distance trade network that extended as far east as Afghanistan, where the major source of lapis lazuli used in the Near East is located.

One of the major finds documenting the long-distance trade and exchange of luxury goods is tomb U-j, in Predynastic Cemetery U at Abydos in Upper Egypt, dated to c.3300 BC. Not only did it contain a large obsidian bowl, manufactured in an Egyptian style (Dreyer 1992), and some of the earliest hieroglyphs (Dreyer 1998), but it also yielded about 360 imported vessels (Hartung 2001, 2002). These once held wine and, with a volume of 6–7 liters each, this represents about 4,500 liters of wine for the afterlife. Based on archaeological and chemical analyses, the containers came from a wide area in greater Palestine (Hartung 2001: 53–66) and represent a perfect example of long-distance trade between Egypt and the Levant. Finds of "spiral reserved slip" pottery at Buto provide further evidence that this contact also extended to northern Syria, where this pottery originated (Köhler 1998: 37–9, Pls. 68, 74).

The relationship between Egypt and the southern Levant was characterized by a variety of interactions (Braun 2004, 2009). There were sites in the southern Levant that were only populated by Egyptians and appear to have been permanent way stations. At some sites large quantities of Egyptian pottery and stone tools indicate an Egyptian presence, while at others a few Egyptian finds indicate that these places were hardly in contact with Egyptians at all. The absence of Egyptian finds at places in the hill country suggests that it was beyond the Egyptian sphere of interest.

2 Egypt and the Near East from the Early Dynastic to the End of the First Intermediate Period (c.3100–2055 BC)

Egypt emerged as a unified state at the end of the 4th millennium BC and was governed in the Early Dynastic period by kings of the 1st and 2nd Dynasties,

c.3100–2686 BC (Bard 2000). It was clearly the demand for cedar that led the Egyptian kings to focus on the important harbor site of Byblos in Lebanon. By the end of the 2nd Dynasty, Byblos had become so important that the Egyptian king Khasekhemwy sent a diorite vessel with his name on it to the ruler of Byblos (Dunand 1937: Pl. 39, no. 1115; 1939: 26). Other foreign products, such as oil and wine, were also imported. Ceramic containers for these Levantine commodities have been found at several sites in Egypt, including the Royal Tombs of the 1st Dynasty at Abydos (Braun 2009: 27–8). Stone vessel fragments inscribed with the names of Old Kingdom Egyptian kings (c.2680–2160 BC) show that this type of gift exchange continued throughout the 3rd millennium BC (Dunand 1928: 68–75; 1937: Pls. 36–38; 1939: 27).

King Sneferu of the 4th Dynasty mentioned in an inscription on the Palermo Stone that he commissioned the building of c.50 meter long ships made of cedar (Breasted 2001: 66). The remains of one such cedar ship belonging to his son and successor Khufu (Cheops) have survived, as the boat was disassembled and buried next to the king's pyramid (Jenkins 1980). One expedition returning from the Levant during the early 5th Dynasty with people from that region, including sailors and their families, often referred to as Asiatics in Egyptological literature, was depicted in the pyramid complex of King Sahure at Abusir (Borchardt 1913: Pls. 12–13) and a similar scene can be found in the causeway of the pyramid of King Unas at Saqqara from the end of the 5th Dynasty (Bietak 1998: 36). The Asiatic men are shown with long hair, sometimes with a hairband, wearing either short kilts or long cloaks. Interestingly, the commanding officers in both cases were Egyptian, while the crew consisted of people from the Levant (Bietak 1998). Some of the Asiatics obviously settled permanently in Egypt. This is indicated by the fact that non-Egyptian, bent-axis, and broad-room temples were established at sites such as Tell Ibrahim Awad in the eastern Nile Delta (Bietak 2003a).

Sources from tombs and literature, however, also hint at a hostile relationship between Egypt and the Levant. Two scenes in Egyptian tombs depict the Egyptian siege of a fortified town somewhere in the Levant (Schulz 2002). In both instances the Levantine men are again shown in a stereotypical fashion similar to that seen on the royal monuments. The women also have long hair and wear a long overcoat. In the tomb of Inti at Deshasheh they are even shown joining in the fight. In the autobiography of Weni, a high official during the 6th Dynasty, we hear of a raid against the Levant with his troops sent by land and by sea (Lichtheim 1975: 20). Slightly closer to home, the Egyptian kings began, during the 3rd Dynasty under King Sekhemkhet, to send out expeditions to the turquoise mines in the western Sinai Peninsula (Gardiner et al. 1952, 1955; Eichler 1993).

At the end of the Old Kingdom, Egypt became a fragmented country with no supreme ruler governing the land, a time that is commonly known as the First Intermediate Period (c.2160–2055 BC). The so-called "Instruction addressed to King Merikare" (Lichtheim 1975: 9–109), a text set in the First Intermediate

Period but only preserved on papyri from the New Kingdom, hints at an ambivalent relationship between Egypt and the Levant at that time. The text mentions the import of cedar wood, seemingly confirming a long-standing, peaceful trading tradition. On the other hand, Asiatics are also described as having infiltrated Egypt and having had to be pushed out. No matter how historical this text is, the fractured political nature of the Egyptian state would not have allowed for intense and wide-ranging economic and diplomatic exchanges between Egypt and her neighbors to the northeast and the south during the First Intermediate Period.

Looking further afield, while various contacts with the Levant and Syria are clearly in evidence from Early Dynastic times and onward throughout the Old Kingdom, it seems that there were no direct contacts between Egypt and Mesopotamia during the 3rd millennium BC.

3 Egypt and the Near East During Middle Kingdom and the Second Intermediate Period (c.2055–1550 BC)

Around 2055 BC, one of the regional rulers of the First Intermediate Period, Mentuhotep II of Thebes, succeeded in once again uniting the country, becoming the first king of the 11th Dynasty (c.2055–1985 BC) and founding father of the Middle Kingdom (c.2055–1650 BC). This dynasty was followed by the very stable government of the 12th Dynasty (c.1985–1795 BC). Although evidence for contacts between Egypt and the Levant during the Middle Kingdom comes from various Egyptian texts, wall paintings, and temple reliefs, as well as from the archaeological record of Egyptian finds in the Levant and Syro-Palestinian objects in Egypt, the relationship between Egypt and her northeastern neighbors and the history of this period remain enigmatic (Redford 1992: 71–97; Cohen 2001).

The experiences of an Egyptian actually living in the Levant are described in the *Tale of Sinuhe* (Lichtheim 1975: 222–35), a story set in the reign of King Senwosret (Sesostris) I. It tells how Sinuhe, a middle-ranking courtier, fled to Byblos after the assassination of Amenemhet I. He ended up in Upper Retenu, in modern Lebanon, where he was welcomed by the benevolent ruler Ammunenshi, whose court hosted other Egyptians too. Sinuhe moved throughout the southern Levant with his tribes, fighting other tribes and plundering their food and livestock (cattle, sheep, and goats). He spent many years living in this way, as a kind of Bedouin *sheikh*, before finally returning to Egypt. His story gives us a window onto the tribal, semi-nomadic societies of the Levant during the Middle Bronze Age.

People from the Levant, on the other hand, participated as small contingents in Egyptian expeditions to the mining regions in the western Sinai Peninsula led by Khebded, brother of the ruler of Retenu (Bietak 1996: 10–21, Figs. 13–15;

Hikade 2007: 12–18). During the early Middle Kingdom, Asiatic men were still shown with yellow skin, long hair, and beards, similar to those of the Old Kingdom. During the later 12th Dynasty, however, depictions of Asiatics show a change to a "mushroom" hairstyle. In the tomb of the mayor Khnumhotep at Beni Hasan in Middle Egypt, we see a small caravan of eight Asiatic men together with four women and three children approaching the tomb owner and handing him galena (lead sulfide, PbS) from the eastern desert (Newberry 1893: Pl. 31). The Asiatics are dressed in multicolored, woolen dresses, knee-length kilts, and sometimes an overcoat. Some of the men wear sandals, while the women and one boy wear shoe-like coverings on their feet. The women have long hair, with a hairband, and wear long, colored, woolen dresses, exposing one shoulder. The men bear a variety of arms, including spears, bows, and axes. In this case, the accompanying text speaks of 37 *aamu*, meaning Asiatics. Highlighting the ambivalent feelings that ancient Egyptians had toward foreigners, the determinative glyph for Asiatics takes the form of a bound captive. Asiatics, however, were also employed as normal workers by the Egyptians, given Egyptian names and apparently assimilated into Egyptian society during the Middle Kingdom (T. Schneider 2003).

At the beginning of the 2nd millennium BC, Egypt's 12th Dynasty kings initiated an aggressive policy toward the regions beyond Egypt's borders. To the south they erected a string of fortresses to ward off the rising power of Kerma in the Third Cataract Region, while to the north fortifications were built along the Way of Horus, a route that led from the eastern Nile Delta to the Levant (Vogel 2004, 2008, 2010) which was mostly home to semi-nomadic pastoralists. Yet some sites in the Levant, especially Byblos, were again of particular interest to the Egyptian crown.

The general attitude toward foreigners becomes quite clear in some of the texts that we have from ancient Egypt. In one case, King Amenemhet I expressed his distaste by making Asiatics do the "dog walk" (Lichtheim 1975: 135–9). This submissive tone was also picked up by Khnumhotep, who served under Amenemhet I, in the autobiography in his tomb at Beni Hasan where he states that Asiatics were defeated (Breasted 2001: section 465). A similar attitude is evident in the so-called "Execration Texts" from the late 12th Dynasty (Posener 1940). These texts were written in hieratic (cursive) script on figurines and pots that were smashed in order to magically destroy those named. They list the names of places and regions in the Levant, as well as tribes, like those living around Ullaza and Byblos. Interestingly, the fact that the ruler of Byblos is never named in the Execration Texts indicates Egypt's appreciation of and continued good relations with the city. Other texts, however, confirm a generally hostile attitude toward the Levant and Cyprus. A text of Amememet II mentions aggressive, targeted attacks against Cyprus, Ura in southeastern Anatolia, a site near Ugarit (Altenmüller and Moussa 1991), and later Shechem, as documented on the stele of Khu-Sobek, a soldier who served under Senwosret III (Raedler 2008). In the

first text, the number of prisoners is given as 1,554 Asiatics. As the text mentions c.150 kilograms of silver booty, one might link the famous "Tod Treasure," discovered in a temple in Upper Egypt, with this event. The treasure, in fact a ritual temple deposit, contained four bronze chests bearing the name of Amenemhet II (Bisson de la Roque 1937). These were filled with more than 100 silver objects (ingots, chains, and small bowls, flattened and folded in order to reduce their volume) weighing almost 10 kilograms. In addition, cylinder seals and several thousand beads of lapis lazuli provide evidence of the wider trade and diplomatic networks linking Egypt and the Near East at this time (Pierrat-Bonnefois 1999).

In spite of this seeming hostility, Egypt also helped to ease tension amongst the city-states of Syria-Palestine. For instance, a conflict between Byblos and Ullaza was resolved under Senwosret III with Egypt's involvement (Allen 2009).

Egypt's influence on and contacts with Byblos were manifold and relatively well documented. The rulers of Byblos actually took on the Egyptian title of mayor or count (*h3ty-c*), as did the rulers of Kumidi (modern Kamid el-Loz; Ch. II.41) (Edel 1983), as well as the title of hereditary prince (*iry-pct*) (Montet 1928: 155–61). One of the rulers of Byblos, Ip-shemu-abi, son of Abi-Shemu, who was buried in Tomb II in the Royal Cemetery at Byblos, even wrote his name in an Egyptian cartouche on a pendant made of gold and semi-precious stones (Montet 1928, 1929: 165–6, Pl. 97). This "prince of Byblos" also possessed a sickle-sword featuring hieroglyphics and Egyptian uraei (Montet 1928; 1929: 174–7, Pl. 99), the stylized, upright, spitting cobra. Antin, one of the rulers of Byblos, even took on the title "ruler of rulers" according to an Egyptian text found at Byblos (Dunand 1937: Pl. 30). Furthermore, the ruling elite at Byblos developed a pseudo-hieroglyphic script (Dunand 1978; Hoch 1995). The close connection and cultural interplay between Egypt and Byblos is also visible in the so-called "Temple of the Obelisks" at Byblos and its deposits (Dunand 1950, 1954, 1958). The temple is so named because of its many standing stones with a pyramid-shaped top resembling Egyptian obelisks. For many years priests buried votive offerings in jars under the floor of the temple after removing them from their original place in the temple. The most prominent group of offerings consists of a large number of copper or bronze figurines, c.40 centimeters tall and gilded, in the form of a standing male with a tall, conical cap (Dunand 1950: Pl. 115). Both their posture and headgear bear a clear resemblance to the striding figures of Egyptian kings wearing the White Crown of Upper Egypt, and are evidence of Egyptian influence. Yet they were mass-produced at Byblos and are not simply efforts to copy an Egyptian style, but rather to incorporate it into a local tradition (Hansen 1969). This blending of Levantine and Egyptian style marks the beginning of a synthesis of artistic modes that ultimately resulted in an "international style" across the Near East, Egypt, and the eastern Mediterranean. A second notable group of votive offerings was made up of hundreds of locally made, faïence figurines with obvious parallels in Middle Kingdom Egypt

(Dunand 1950: Pls. 96–108). Finally, the famous Montet Jar contained many Egyptianizing objects such as seals, amulets, and figures of animals that were worshipped in Egypt, such as the ibis and baboon (Montet 1928: 111–25 and Pls. 61–64, 68; Tufnell and Ward 1966).

The Egyptian kings of the Middle Kingdom clearly had contact with the rulers of Levantine coastal centers such as Ugarit, Beruta (Beirut), and Byblos. These contacts were embedded in a system of diplomatic gift exchange among ruling elites. Some of these gifts have actually been found during excavation, although their archaeological context is not always clear and some might have found their way into the Levant and Syria after the Middle Kingdom. Finds from intact tombs in the Royal Cemetery at Byblos include an obsidian jar (Tomb III) and a golden pectoral (Tomb I) with the name of Amenemhet III, as well as a box (Tomb II) inscribed with the name of Amenemhet IV (Montet 1928: nos. 610, 611, 614), confirming gift exchange during the late 12th Dynasty. Other precious finds include an Egyptian-made mace of silver, gold, ivory, and marble that was sent by the 13th Dynasty Egyptian king Hetepibre to Immeya, a king of the Syrian city of Ebla, in whose tomb it was found, along with an Egyptian golden ring inlaid with a scarab (Scandone Matthiae 1988: 71–3).

Egyptian scarabs also appeared in the southern Levant during the Middle Kingdom. They became so popular that many were later locally produced and, while used as seals of administration in the Egyptian context, they often functioned as funerary amulets in the Levant (Ben-Tor 2007). Finally, a very fragmentary text from the Papyrus Lythgoe mentions a merchant loading his ship for a journey to Byblos (Simpson 1960). As the inscription of a "scribe of the army" found at Byblos indicates (Dunand 1937: Pl. 129, no. 3594), such trips may have served to transport military personnel between Egypt and Byblos.

At the beginning of the 18th century BC, the 13th Dynasty (c.1795–1650 BC) initially continued the foreign policies of its predecessor. Growing internal political divisions, however, again created a fragmented country with a volatile ruling house (Quirke 1990). More and more people from the Levant entered the Nile Delta where they increasingly gained political and economic control. This process is best illustrated at Tell el-Dab'a (ancient Avaris), one of the most important excavations in Egypt of the past few decades (Bietak 1996, 2001, 2008). Founded in the early Middle Kingdom and completely resettled by Canaanites in the 12th Dynasty, Avaris grew into an administrative center and developed over time into a large, cosmopolitan trading city and harbor with a mixed population made up of Egyptians, partially Egyptianized people from the Levant, and people from the Aegean. Based on the analysis of pottery from Tell el-Dab'a, it has been shown that an initial trading interest in the southern Levant shifted northward to the area around Byblos and Syria. Imported pottery at Tell el-Dab'a, including Levantine painted ware, mostly jugs with red-banded zones for serving wine and luxurious bichrome jugs (Bagh 2003), first appeared in the reign of Amenemhet II. Later, this was increasingly replaced by so-called Syro-Cilician pottery that

originated further north and may be taken as a sign of increasing political and economical interest in the region. It is very likely that many of the foreign residents of Tell el-Dab‘a originated there.

During the 12th Dynasty it seems that the Asiatics in Egypt were predominantly male, working as soldiers for the Egyptian administration. Around half of their tombs contained weapons such as javelins, battle axes, and daggers (Schiestl 2008, 2009). Of particular interest is the fenestrated, so-called “duckbill axe” that was used throughout the Middle Bronze Age by warriors in the Levant (Schiestl 2008: Fig. 1). A fine example with a golden blade and shaft comes from the Temple of the Obelisks at Byblos (Dunand 1950: Pl. 134). One of the tombs at Tell el-Dab‘a also contained the broken statue of an Asiatic with a typical, mushroom-shaped hairstyle (Bietak 1996: Pl. 4), resembling what we see depicted in the tomb of the mayor Khnumhotep at Beni Hasan, noted above.

At the beginning of the 13th Dynasty a large palace was built at Tell el-Dab‘a which was inhabited by Asiatic governors (Bietak 1996: 21–30, Figs. 18–19). A hematite cylinder seal found in its northern wing has the earliest depiction of the Syrian weather-god Baal Zephon portrayed as protector of sailors and overlord of the sea (Porada 1984). The seal displays Syrian glyptic traits but was cut in Egypt under Egyptian influence. Thee foreign governors were buried in a small cemetery right next to the palace. These were built in Egyptian mudbrick style, but the funerary rituals were un-Egyptian. One clearly Asiatic burial custom was the interment of a pair of donkeys and sheep/goat in an adjacent burial pit (Bietak 1996: Figs. 20–21, Pls. 9–10). By this time the town had widespread contacts not only with the Levant but also the Aegean, as finds of Kamares ware and an Aegean gold pendant from the palace reveal (Bietak 1996: Pl. 1).

By the 13th Dynasty the Asiatics also had their own sacred precinct at Tell el-Dab‘a (Bietak 1996: 36–48, Figs. 30–32). Remains of acorn point to a kind of tree cult, and the “absence of pig bones in the offerings suggests that the consumption of pork was taboo. In one cemetery surrounding Temple III the tomb of a deputy treasurer named ‘Amu (lit. “the Asiatic”) was found. His grave goods consisted of eapons of late Middle Bronze Age IIA type, some Egyptian pottery, early Tell el-Yahudiya ware, a scarab, and six sacrificed donkeys (Bietak 1996: 41, Fig. 35). Tell el-Yahudiya is thought to have originated near Byblos, eventually becoming so popular that it was mass-produced in pottery workshops in the Levant, Cyprus, and Egypt (Bietak 1996: 5–59, Figs. 46–49). The Tell el-Yahudiya ware at Tell el-Dab‘a consists of small, ovoid, or piriform jugs with handles, polished surface, and impressed decoration, often in triangles, and bands covering almost all the body of the vessel. The jugs were possibly for oil and, along with so-called Canaanite amphorae, used for wine and olive oil, are among the most recognizable pottery forms of this genre. Their vast quantity highlights the substantial scale of trade in these commodities (Bietak 1996: Fig. 50).

A short-lived 14th Dynasty in the eastern Nile Delta was followed by the Hyksos rulers (15th Dynasty) who had their capital at Avaris. Hyksos, the Greek

form of the Egyptian *heqa-khasut*, essentially meaning "foreign ruler," were, however, neither invaders nor a people, but they rose to power from the Asiatic elite and warrior class that had probably lived at Avaris for generations. They adopted the royal Egyptian titulary, including the title *heqa-khasut* (Bietak 1996: Fig. 52). We may also assume that they wore all the other royal regalia of an Egyptian king. Their rule, however, did not encompass the entirety of Egypt. At Thebes, in the south, another line of Egyptian kings known as the 17th Dynasty reigned. After initially cooperating with the Hyksos rulers, the Theban kings Seqenenra and Kamose rose up against them. As we learn from the autobiography of the military officer Ahmose in his tomb (Lichtheim 1976: 12–15), it was King Ahmose, founder of the 18th Dynasty, who ultimately marched and sailed north with his troops, besieged the Hyksos capital Avaris, and finally drove out the Hyksos rulers and their supporters. Yet, parts of the Asiatic population in Egypt remained in the country and continued to live within Egyptian society.

4 Egypt and the Near East During the New Kingdom (c.1550–1069 BC)

After the violent expulsion of the Hyksos, we see the rise of the Late Bronze Age New Kingdom (Bryan 2000). This empire extended its power far beyond Egypt's borders and controlled the Levant. Its armies marched to the Euphrates, and up the Nile to the 4th Cataract, almost 1,000 kilometers south of the traditional Egyptian border at the 1st Cataract, near modern Aswan. Egyptian texts on papyri, stelae, and temple walls, as well as autobiographies of military leaders found in Egyptian tombs, are a major source for the history of the New Kingdom and its relations with the Near East.

The 18th Dynasty (1550–1295 BC) undertook a series of aggressive campaigns of conquest in order to gain economic and political control over the Levant and southern Syria. At the same time, Egyptian armies sailed south to gain control over Nubia. This aggressive expansion of Egypt beyond its borders, in a manner of pay-back, was most likely triggered by the traumatic experience of rule by the Hyksos and the attack of the Kushites from Nubia at the end of the Second Intermediate Period.

Egypt's major competitors in the Near East around 1500 BC were Babylon (then ruled by the Kassites), the Hittites in Anatolia, and the Hurrian-speaking kingdom of Mitanni in the northern Levant, Syria, and Assyria. According to Egyptian sources, the first king to mount a large-scale and wide-ranging campaign northward was Thutmose I (c.1504–1492 BC) (Redford 1992: 153–5). His troops reached the Euphrates in an area the Egyptians called Nahrin and on the way back the king indulged in hunting Syrian elephants in Niya (Ch. II.41), probably along the Orontes River. In the absence of any archaeological material from the Levant and Syria to confirm such a military show of force, it is possible

that the impact of the campaign was not very great. However, during the 15th century BC Thutmose III (c.1479–1425 BC) campaigned relentlessly in the Levant to gain Egyptian control (Redford 2003, 2005). According to Egyptian sources, this militaristic strategy faced its first major crisis in the first year of Thutmose III's sole reign, just after the death of his co-regent Queen Hatshepsut, at the famous battle of Megiddo, an account of which is inscribed on the temple walls at Karnak and was recounted decades later on a stele erected in Nubia (Redford 2003: 7–34; Spalinger 2005: 83–100). At Megiddo, the king of Qadesh had gathered a coalition of hundreds of city-states. Intent on meeting this challenge to his regional control, the pharaoh mustered his troops, marching quickly north from Egypt along the coast road. In a surprising and bold move, Thutmose III led his troops trough the narrow Aruna Pass and caught the enemy off guard. The ensuing battle was won and, after a seven-month siege, the defeated enemies had to swear an oath of allegiance to the Egyptian king. Yet Thutmose III's major opponent, the king of Qadesh, managed to escape.

A good insight into how the nobility of the Levant and Syria, and thus Thutmose III's enemies, were dressed when they were not in combat is provided by the wall painting in western Thebes of the Vizier Rehkmire, who served under Thutmose III and his successor and co-regent Amenhotep II. In this tomb, men from the Levant and Syria bring various precious objects as tribute, such as a chariot, metal vessels, and copper ingots, as well as horses, a bear, and a Syrian elephant (Davies 1944: Pls. 21–23). Some of the men have long hair, others short hair, and most are bearded. They wear long cloaks with tassels in front. The women wear a cape over a folded, tri-partite dress which is tightened around the waist, and several are accompanied by children.

A more humorous insight comes from the Ramesside tale of the taking of the city of ancient Joppe, near modern Tel Aviv, set in the time of Thutmose III. In this tale the Egyptians tricked the locals by having 200 Egyptian soldiers, under the command of General Djehuti, enter the town hidden in sacks on the backs of donkeys, in a kind of Ali Baba and the 40 thieves motif, to take the town (Petrie 1895).

The climax of Thutmose III's campaigns was his attack on the kingdom of Mitanni. Once again his army reached the Euphrates (c.1472 BC). The account of this victory can be found in the annals of Thutmose III and, with Mitanni's defeat, Egypt's empire extended further into the Near East than ever before (Redford 2003: 220–32). Thutmose III had established Egypt as a major international power in the Near East, an achievement soon acknowledged by Babylon, Assyria, and the Hittites. Yet Mitanni later regained its power and Amenhotep II (c.1427–1400 BC) ended hostilities by signing a peace treaty with the kingdom of Mitanni (Redford 1992: 163–6).

During the long reign of Amenhotep III (c.1390–1352 BC) and his successor Amenhotep IV (c.1352–1336 BC), Egyptian military and diplomatic activities are well documented in the correspondence known as the Amarna letters, found in

the capital of Amenhotep IV, modern Tell el-Amarna in Middle Egypt (Cohen and Westbrook 2000; Moran 1992). The archive comprises around 350 cuneiform tablets inscribed in Akkadian, the *lingua franca* of the age, and spans roughly four decades during the latter part of the reign of Amenhotep III, the reign of Amenhotep IV (Akhenaten), and the early years of the reign of Tutankhamun (c.1336–1327 BC). About 50 of the tablets deal with diplomatic ties between the Great Powers, a "band of brothers" of the time: Babylon, Assyria, the Hittites, Cyprus, and Egypt. This corpus deals mainly with imperial concerns including dynastic succession, interdynastic marriage, gift exchange, and matters of allegiance. We read, for instance, of princesses from Mitanni and Babylon taken by the Egyptian kings as wives while, surprisingly, Egypt refused to send any princesses away, deeming it apparently inappropriate (Meier 2000). The bulk of the archive consists of letters sent to the Egyptian court by Egypt's vassal states in the Levant (Na'aman 2000). Imperial documents of this sort provide insight into the quarrels between the city-states in the Levant. They also touch upon tribute and economics and clearly reveal the attempts of the local Levantine rulers to balance their alliances within Egypt's empire there.

Egypt's Near Eastern domains were organized in three provinces. Closest to Egypt was the region of Canaan with its capital at Gaza. Then came the province of Upe around Damascus and the Beqaa valley with its center at Kumidi (modern Kamid el-Loz). Finally, to the north lay the province of Amurru, including Byblos, with its Egyptian headquarters at Sumur. Each of the territories was governed by an official titled *rabisu* which might be the equivalent of the Egyptian title "overseer of the northern foreign countries," who had to liaise with the local rulers. The tone of the vassals' letters is very subservient and the local rulers stress at length that they will obey Egypt's rule through a special controller of the north, and always be on guard for Egypt. Amongst the many letters from Egyptian vassals the correspondence from Byblos assumes a prominent position. Suffering a barrage of attacks and plots instigated by its northern neighbor Amurru under its king Abdi-Ashirta, Rib-Addu of Byblos, a true and loyal ally of Egypt, sent dozens of letters to Egypt requesting support. Egypt stepped in, Abdi-Ashirta was executed, and his son Aziru replaced him, swearing allegiance to Egypt (Moran 1992: 137–225).

Archaeologically, the cosmopolitan flair, as well as the scale and variety of economic and diplomatic exchanges between Africa, the Near East, and the Aegean in the Late Bronze Age (Liverani 1990) is perfectly illustrated at Uluburun, off the southern coast of Anatolia, where a ship sank at the end of the 14th century BC (Pulak 2001, 2008). The armed merchants and crew were most likely Canaanites, while two men came from the Mycenaean elite and a third individual from the northern Balkans (Pulak 1998: 216–18). The ship was carrying 10 tons of copper ingots from Cyprus, more than one ton of tin (possibly from Central Asia), blue and turquoise glass ingots from the Near East and Egypt, ebony from tropical Africa, half a ton of resin (possibly from the area around the Sea of

Galilee), and many other sorts of herbs, spices, nuts, and fruits. Oil was traded in large storage jars from Cyprus. A most astonishing find from Egypt is a small gold scarab with the name of Queen Nefertiti on it found among the scrap gold and silver jewelry (Weinstein 1989).

From an Egyptian point of view, the cultural symbiosis with the Near East is best exemplified in the person of a man called Aper-al, who was Asiatic by origin, yet rose to the Egyptian office of vizier under the pharaohs Amenhotep III and IV (Zivie 1990).

After the long period of relative diplomatic and military calm enjoyed by Egypt during the 14th century BC, the picture changed dramatically during the 19th Dynasty (c.1295–1186 BC) with the appearance of the Hittite empire as a major power in Anatolia, parts of Syria, and the northern Levant. Seti I (c.1294–1279 BC) had to intervene to maintain Egyptian control and influence in the Levant and Syria (Spalinger 2005: 187–208), but it was his son Ramesses II (c.1279–1213 BC) who faced the Hittite army in the famous battle at Qadesh (Spalinger 2005: 209–34). This encounter is described and illustrated on many temple walls in Egypt, and it seems that it was as crucial for Ramesses II's reign as the battle of Megiddo had been for Thutmose III. In his fifth regnal year, Ramesses II mustered four divisions and marched north. With only his first division, called Amun, he set up his camp west of Qadesh. Due to a lack of intelligence, the second division, Ra, was ambushed by the Hittite chariotry and almost completely destroyed. The Hittite chariotry then attacked Ramesses II's camp, but the Egyptian Pharaoh and his troops were saved by auxiliary troops who entered the battle at the rear of the Hittite chariots. Surprisingly, the Hittite king Muwattalli never deployed his large force of infantry to win the day and so the battle ended at best in a stalemate. Ramesses II had to withdraw and a peace treaty was reached between the pharaoh and the Hittite king Hatushilli 16 years later, strengthened by the marriage of a Hittite princess to Ramesses II.

The late 13th and 12th centuries BC brought about dramatic changes in the eastern Mediterranean and the Near East. Attacks by the so-called "Sea Peoples" against countries and people in Anatolia, the Levant, and ultimately Egypt were characterized by urban destruction and the displacement of people (Sandars 1985; Oren 2000). From the so-called Israel Stele and inscriptions at Heliopolis and Karnak, we learn that Egypt already faced an enemy, said to come from the sea, under Pharaoh Merenptah (c.1213–1203 BC), son and successor of Ramesses II (Spalinger 2005: 235–48; O'Connor 2000). The Sea Peoples comprised the Akywash, Lukki, Sherden, Shekelesh, and Teresh. Later, in the reign of Ramesses III (c.1184–113 BC), these groups were joined by the Danuna, Peleset, and Washosh (O'Connor 2000; Spalinger 2005: 249–63). According to Egyptian sources, the Sea Peoples were ultimately defeated in a land and a sea battle, and at least one group of them, the Peleset or Philistines, settled in the southern Levant in a territory known in the Bible as the Pentapolis (Oren 1973; Bietak 1991; Redford 1992: 289–297; Dothan 1995; Barako 2006).

Ramesses III maintained some control over Palestine and southern Syria and had some strongholds such as Beth Shean (Mazar 2003). The Egyptian crown also continued to send out expeditions to the area around Timna in the Wadi Arabah to procure copper ore, but after Ramesses III these missions began to be phased out (Hikade 1998; 2001: 24–30). Despite Ramesses III's relatively successful foreign policy, he nevertheless faced major economic problems at home. In a drastic economic downturn (Janssen 1975), the pharaoh was apparently not even able to feed and supply the very workforce that built his tomb in the Valley of the Kings. Tomb robbery in the main cemeteries at Thebes also became rampant, as did corruption at all levels of society, eloquently revealed in court documents (Peet 1930). By the end of the 12th century BC, Egypt's political control over the Levant had evaporated and Egypt had to withdraw completely from the region (Bietak 1991).

With Ramesses XI (c.1099–1069 BC), the last king of the Ramesside era and the 20th Dynasty, we see a domestic breakdown of the empire. The north was nominally ruled by the pharaoh, residing at Tanis in the eastern Nile Delta, while the south was governed by the general and high priest of Amun, Herihor, who also claimed to be King of Egypt (Thjis 2005). The impact on foreign affairs is most vividly described in the *Story of Wenamun*, a priest of Amun at Thebes (Lichtheim 1976: 224–30). He was supposed to sail to Byblos in order to acquire cedar wood in the 19th year of Ramesses XI, a time which already saw a new ruler called Smendes I, founder of the 21st Dynasty (1069–945 BC), in control of the north. Wenamun was not only robbed on his way, but later received a rather hostile reception at his final destination when Zaker-Baal, king of Byblos, denied him a free supply of cedar wood and instead demanded payment for the logs. Wenamun had to send a message back to Smendes asking for the payment. This clearly reveals the waning power and influence of the Egyptian crown in the Levant. Wenamun finally left for Egypt, but the ship encountered a storm and he ended up on Cyprus, where he was almost killed by the locals. Unfortunately, the end of the story is lost. Although a fictional history, the text describes the domestic division in Egypt and the fading influence of Egypt over the rulers of the Levant and southern Syria (Egberts 2001; Schipper 2005).

5 Egypt and the Near East During the Third Intermediate Period and the Late Period (1069–332 BC)

At the onset of the 1st millennium BC Egypt witnessed the growing power and influence of the Philistines on the coastal plains of the southern Levant. At the same time, the Aramaeans, a West Semitic group already present in the Late Bronze Age, increased their influence in southern Syria and the mountains of Palestine, while farther to the north the Neo-Hittite kingdoms (Ch. II.42) emerged in northern Syria (Redford 1992: 297–9). Several Libyan tribes infil-

trated the Nile Valley and the Delta and reigned as the 21st to 24th Dynasties from the mid-11th to the late 8th century BC, at times controlling only parts of the Nile Delta or Middle Egypt (Taylor 2000; Broekman et al. 2009).

According to the Bible, however, bonds between 21st Dynasty Egypt and the newly founded state of Israel were strengthened when, in the 10th century BC, King Solomon made a marriage alliance with Egypt by taking one of the pharaoh's daughters to his court in Jerusalem (1 Kings 3:1, 7:8, 9:16, 24). If this alliance between Israel and the 21st Dynasty was indeed forged, it was not long-lasting. As soon as the united monarchy of Israel broke apart, the Egyptian king Shishak marched against Jerusalem and the Kingdom of Judah with 1,200 chariots and 60,000 horsemen (1 Kings 14:25–26; 2 Chronicles 12:2–3). King Rehoboam of Judah surrendered and Shishak took away all the treasures from the temple at Jerusalem, including the Ark of the Covenant (2 Chronicles 12:9). As there is evidence from the temple at Karnak of a military campaign led by Sheshonq I, founder of the 22nd Dynasty (945–715 BC), it is possible that Shishak was Sheshonq I and a campaign against Judah may have taken place around 925 BC (Kitchen 1996: 293–302, 432–47; Redford 1992: 312–15). The inscription of Sheshonq I at Karnak contains a list of 154 towns in the Levant, essentially an itinerary of warfare, that were all destroyed by Egyptian forces. Although there is no mention of Israel or Judah, a military expansion and revival of the Egyptian empire may be inferred from this text. Given that parts of the inscription have been destroyed, a march against the kingdom of Judah under Sheshonq I is possible. Contacts with Byblos were certainly restored, as evidenced by votive statues with the names of Sheshonq I, Osorkon I, and Osorkon II that were found at Byblos, where they had been dedicated to the god Ba'alat (Montet 1928: 49–57, Figs. 17–18, Pls. 36–38). Apart from the obvious cedar that the Egyptians wanted, it seems that oils were also traded from the Levant to Egypt (Hosea 12:1). It is also possible that people in the Levant were well aware of the unstable political situation in Egypt, as the Bible speaks of turmoil in Egypt and uncertainty in the capital of Tanis over how to govern the country (Isaiah 19:1–15). The Bible makes it clear that in the 8th century BC the Kingdom of Judah aspired to being a major political player in the Levant alongside Egypt and Assyria (cf. Isaiah 19:21).

The might of Assyria was already evident a century earlier when Shalmaneser III (858–824 BC) marched into northern Syria, where he met a coalition of local city-states and Egyptian forces under King Osorkon II in battle at Qarqar on the Orontes River in around 853 BC (Pritchard 1969: 278–9). However, all resistance to Assyria was crushed by Tiglath-pileser III (744–727 BC), who subdued the entirety of Syria and the Levant during the second half of the 8th century BC (Pritchard 1969: 282–3). As this danger appeared on Egypt's northeast horizon, her southern neighbor, Kush, witnessed the rise of a new dynasty that would ultimately conquer Egypt and rule as the 25th Dynasty (747–656 BC) (Welsby and Anderson 2004). Thus, at a time when Egypt suffered a political vacuum,

two predatory foreign powers vied for her control. The first move was made by Kush invading Egypt in 711 BC (Redford 1985) before moving north to take on the Assyrian forces under Sennacherib (704–681 BC) on the plains of Eltekeh in 701 BC, where the Assyrian king had just laid siege to the city of Ekron (Pritchard 1969: 287). This battle ended inconclusively, as the Assyrian troops did not continue onward toward Egypt's borders when the Egyptian army was apparently in retreat. Later, the Kushite king Taharqa opted for a more active Egyptian role in the Levant, and we learn of friendly relations, for instance, between Egypt and the city-states of Tyre and Sidon (Pritchard 1969: 290). It was this kind of cordial interaction and alliance between Egypt and cities in the Levant that later caused Esarhaddon of Assyria (680–669 BC) to campaign against Egypt's allies (Pritchard 1969: 290, 302) and finally triggered the complete Assyrian conquest of the Levant (Pritchard 1969: 291). Although the first Assyrian attempt to conquer Egypt in 674 BC was unsuccessful (Pritchard 1969: 303), Assyrian troops entered Egypt and ultimately conquered it three years later (Pritchard 1969: 292–3). This assault came as such a surprise to the Kushite king Taharqa that he at first struggled to muster his troops and later, when Memphis fell, he fled, leaving his queen and family to be captured by the Assyrians. Yet Taharqa fought back and one year later regained control over Egypt. This was short-lived, however, and when Assurbanipal (668–627 BC) returned to Egypt, he drove out Taharqa. The Assyrian campaign ended with the defeat of Taharqa's successor, Tanwentamun (664–656 BC), and the sacking of Thebes in 663 BC (Pritchard 1969: 295). The Assyrians chose one of the Libyan leaders in the Delta, Psametik I (664–610 BC) of Sais, as the new Egyptian pharaoh (Lloyd 2000: 364–74). With the help of Carian and Ionian soldiers, he defeated his rivals and consolidated his authority over all of Egypt. Psametik I then took advantage of Assyria's preoccupation with the Babylonians and Medes, and succeeded in making Egypt independent once more around 650 BC. The weakness of Assyria even led Psametik I to campaign further afield in the Near East than his predecessors Thutmose I and Thutmose III had done during the 18th Dynasty. Psametik I's successor, Nekau II (610–595 BC), defeated Josiah of Judah at Megiddo and even fought the Chaldaeans east of the Euphrates as an ally of the late Assyrian king Assur-uballit II. However, in 604 BC he suffered a major defeat at the hands of the Babylonian king Nebuchadnezzar II (604–562 BC) at Karkamish. Hostilities with Babylon over the control of the Levant continued until Pharaoh Amasis (570–526 BC) ultimately became an ally of Nabonidus of Babylon (555–539 BC) and Croesus of Lydia (560–546 BC) in 547 BC against the rising empire of the Persians. Yet this was all in vain, as Psametik III of Egypt was defeated by the Persian troops under Cambyses (529–522 BC) at the battle of Pelusion in 525 BC.

For the next 120 years Egypt was a satrapy of the Persian Empire (Lloyd 2000: 374–7). Persian garrisons were established, but the local administration continued to function. Cambyses defined himself in Egypt as a pharaoh, showed respect for Egyptian religion and promoting Egyptians in his administration. After a brief

uprising in Egypt following the death of Cambyses, a similar policy was continued by Darius I (521–486 BC). At several sites, such as the Kharga Oasis and Saqqara, Darius either began the construction of temples or continued existing works. An Egyptian-made statue of Darius of greywacke was found in 1972 in the royal palace at Susa (Kervran et al. 1972; Razmjou 2002). The statue is missing its upper part and head, but, including its base, would have originally stood to a height of c.3.5 meters. It is an interesting hybrid of Egyptian sculptural canon, inscription, and royal symbols, and Near Eastern writing and royal iconography. While the striding posture of the king is typically Egyptian, the royal dress and shoes of Darius are Persian, and he carries the so-called Elamite dagger. The sides of the statue base name 24 countries under Persian rule, among them Arabia, India, Nubia, Libya, and, of course, Egypt. Carved Egyptian fecundity figures symbolically unify the country by binding a lotus and papyrus representing Upper and Lower Egypt. The quadrilingual inscription on the statue basis and royal robe is written in Egyptian hieroglyphs, Old Persian, Elamite, and Babylonian cuneiform. It records that Darius conquered Egypt and refers also to the Egyptian god Atum of Heliopolis, probably the original home of the statue. In Iran itself a blending of artistic and iconographic traditions is exemplified by several buildings at Persepolis which display certain Egyptian traits.

By around 404 BC, Persian troops had left Egypt and the last independent native dynasties, the 28th–30th (404–343 BC), governed the country under constant threat from Persia. The break-up of the Persian Empire gave Pharaoh Teos (362–360 BC) a last chance to conquer the Levant. After several unsuccessful Persian counter-attacks on Egypt, the Persian king Artaxerxes III (358–338 BC) reconquered the land along the Nile in 343 BC. Little more than a decade later, however, the conquest of Egypt by Alexander the Great in 332 BC brought about the definitive end of the long line of native Egyptian kings extending back almost 3,000 years.

GUIDE TO FURTHER READING

An essential study of the foreign contacts of ancient Egypt from prehistoric times to the 1st millennium BC was published by Redford (1992). Van den Brink and Levy (2002) brings together the expertise of various scholars discussing the 4th and early 3rd millennium BC. A wealth of illustrations with short chapters of archaeological sites of the 2nd millennium BC and various aspects of contacts can be found in Aruz et al. 2008. Foreign contacts during the Middle Kingdom are discussed in Cohen (2001) while Bietak's publications on Avaris (1996, 2008) give an insightful discussion of the following Second Intermediate Period when the Asiatic Hyksos ruled large parts of Egypt from their capital in the Eastern Nile Delta. For 2nd millennium chronology and its implications in the eastern Mediterranean and Egypt, see Bietak and Czerny (2006) and Bietak (2003a). International relations during the Late Bronze Age are discussed in a broader frame in

Liverani (1990). Thutmose III was constantly on military campaigns in Nubia and the Levant and the detailed study by Redford (2003) concentrates on the wars of this king in Syria. Moran (1992) presents in translation the invaluable corpus of the Amarna letters, the correspondence of the Egyptian crown with its vassal states in the Levant and the large empires of the Near East during the middle to end of the 14th century BC, while Cohen and Westbrook (2000) offers a series of papers that look into the similarities and differences between modern diplomacy and that of the Late Bronze Age, as evidenced in the Amarna letters. The intriguing history of the Sea Peoples and their impact on the ancient Near East were the topics of Sandars 1985 and the conference papers edited by Oren (2000). An overview of history of Egypt during the Third Intermediate Period was published by Kitchen (1996), while Lloyd (2000) provides a very good summary for the Late Period.

CHAPTER FORTY-FIVE

The Assyrian Heartland

Friedhelm Pedde

1 Introduction

The Assyrian heartland extends along the river Tigris, from the region of the modern town of Eski Mosul and the site of Khorsabad (ancient Dur-Sharrukin) in the north to the Lesser Zab river and the site of Assur in the south. The border in the east may be drawn somewhere around the modern town of Erbil, whereas there is no clear boundary in the steppe to the west. Today the center of this ancient landscape is Mosul. Because of its geographical position and favorable climate, with sufficient rainfall for rain-fed agriculture, large parts of Assyria consist of rich farmland. Other parts are covered with grass and offer good conditions for breeding livestock. In antiquity the hills were covered with trees. These favorable conditions explain why Assyria was settled from the Neolithic period onwards, as the evidence from Nineveh clearly shows. Assur was already occupied by the mid-3rd millennium BC (Early Dynastic III period) when a temple of the goddess Ishtar is attested. During the Akkadian period in the late 3rd millennium BC, the name of the settlement Assur is recorded for the first time. The ancestors of the Assyrians were nomads who came from the steppe in the west and settled first at Assur. It is unclear when this happened, but in the early 2nd millennium BC Assur was the home of Assyrian-speaking merchants who developed a network of business establishments extending from Babylonia and the Iranian mountains to northern Syria and central Anatolia, trading in metals and textiles. Assur's

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location enabled the town to control the trade routes in all directions, and the fertile plains in the north and east supplied its inhabitants with their basic needs.

It was not until the Middle Assyrian period, in the 14th century BC, that the heartland of Assyria became a united realm with its capital at Assur. Apart from the reign of Tukulti-Ninurta I (1243–1207 BC), who tried to establish a new residence at Kar-Tukulti-Ninurta (modern Tulul al-'Aqir), Assur remained the capital of Assyria until the 9th century BC. Assurnasirpal II (883–859 BC) built new palaces at Assur, Nineveh, and several other cities, but moved to Nimrud, where a new, much larger residence was erected. Still, Assur remained the seat of the national god Assur, visited on occasion by all Assyrian kings. The palace at Nimrud was the king's domicile until Sargon II (721–705 BC) decided to build a palace at Dur-Sharrukin (modern Khorsabad). After his violent death his son Sennacherib (704–681 BC) moved to Nineveh and built his own "palace without rival." In these centuries the Assyrians controlled the Fertile Crescent – the Levantine coast, northern Syria, the southern regions of the Anatolian mountains – as well as the western regions of the Iranian highlands and Mesopotamia. In the 7th century BC even Egypt was conquered (Ch. II.44).

The Assyrian heartland was poor in mineral resources. Material and labor shortages in Assyria were the main motivations for the many military campaigns of the Assyrian kings in all directions. These constant campaigns and their cruelties against the inhabitants of the subjugated countries were part of a military strategy and the basis of the Assyrian economic system, which functioned for as long as resources in the surrounding countries could be exploited. This system of war and tribute is the main topic of the pictorial representations on the Assyrian reliefs, obelisks, wall paintings, and decorated gates. The second main topic is the king as hunter. In all cases the political intention was to demonstrate the power of the Assyrian king.

All Assyrian capitals were located in the Assyrian heartland. For military and economic reasons, the Assyrian towns in the heartland were well connected by roads. The towns were surrounded by a network of smaller towns and villages and it is assumed that many settlements must have existed – e.g., around the little modern town of Mahmur in the hinterland of Assur and Kar-Tukulti-Ninurta. Though there have been some archaeological surveys and excavations in different regions – e.g., around Makhmur and in the Eski-Mosul district – the extent of Middle and Neo-Assyrian settlement has never been fully investigated. Furthermore, distortions in our understanding of Assyrian settlement have been introduced with respect to excavated as opposed to unexcavated areas at Assyrian sites. In the Assyrian capitals, those areas with official buildings have been examined to a much greater extent than those with residential quarters, and comparing capitals with smaller settlements is difficult because the latter have barely been investigated.

Nineveh remained the capital until 612 BC when, after endless revolts, the empire was destroyed by a coalition of Medes and Babylonians. Traces of destruc-

tion are found not only in the capitals, but also at smaller sites in Assyria. However, in most cases there are signs of continuity over the subsequent few generations. The immediately post-Assyrian period is the subject of ongoing investigations.

2 Assur

Assur (Aššur/Ashur, modern Qalat Sherqat), the first capital of the Assyrian empire, is situated on the west bank of the Tigris, about 110 kilometers south of Mosul. Brief excavations were conducted in 1847 and 1850 by A.H. Layard and H. Rassam, who did not realize that Qalat Sherqat was ancient Assur. Systematic excavations were carried out by a German expedition under W. Andrae (in 1903–14) and later by R. Dittmann (in 1988–9), B. Hrouda (in 1990) and P.A. Miglus (in 2000–1). In addition, the Department of Antiquities of Iraq has worked there intermittently since 1979.

Andrae was able to open large areas, especially in the northern part of the site, exposing the temples of Anu and Adad, Sin and Shamash, and Ishtar and Nabu, as well as the Old Palace, the Assur/Enlil *ziggurat* (stepped temple tower), and the Assur temple. Living quarters were found to the northwest and south of the temple area (Miglus 1996), as well as a double city wall with bastions and gates. In contrast to the separated, official areas of the later capitals in Assyria, there were no fortifications dividing domestic from public quarters at Assur.

Deep soundings in the Ishtar temple and the Old Palace reached layers of the Early Dynastic (2900–2350 BC), Akkadian (2350–2150 BC), and Ur III (2100–2000 BC) periods. In the Old Assyrian period Assur became the capital of the Assyrian state and the religious center with the temple of the "national" god Assur. The town is characterized by large structures: the "*Schotterhofbau*" (lit. "gravel courtyard building") under the Old Palace seems to have been a prestigious building (Miglus 1989; Pedde and Lundström 2008: 28–9), probably of the ruler Erishum I (1974–1935 BC). Later, the "*Ur-Plan*" (Pedde and Lundström 2008: 29–30) was laid out on this location: a large system of foundation trenches filled with mudbricks, probably the remains of the palace of Shamshi-Adad I (1813–1781 BC), who also built the Assur temple and the Enlil *ziggurat*. Because of the limited deep soundings, not very much is known about the living quarters, most of which were small houses with incomplete ground plans. Exceptions are two large buildings, one from the Akkadian and one from the Ur III period. Graves and tombs were found, some of which had rich finds (Hockmann 2010).

In the 16th century BC the systematic construction of the city's fortification wall (Miglus 2010) was a sign of political independence. At the end of the century Assur-nirari I built the temple of Sin and Shamash (Werner 2009) and the Old Palace. After a period of Mitanni rule, the Middle Assyrian king Assur-nadin-ahhe

II (1400–1391 BC) rebuilt the palace. This and the fact that he received gold from the Egyptian pharaoh shows that Assur had regained its power. Between c.1400 and 1200 BC the Middle Assyrian kings conquered vast regions in northern Mesopotamia and northern Syria and Assur was one of the most important capitals in the Near East. The Old Palace was later renovated (Pedde and Lundström 2008: 32–7), especially under Adad-nirari I (1305–1274 BC). Tukulti-Ninurta I built his own palace (the New Palace) on a terrace in the northwestern part of the site and rebuilt the Ishtar temple. Tiglath-pileser I (1114–1076 BC) erected the temple of Anu and Adad with a double *ziggurat*.

An unusual find consisted of two rows with stelae – an Assyrian calendar system – mentioning the names of the Assyrian kings and officials of the Assyrian state, beginning in the Middle Assyrian period with Eriba-Adad I (1390–1364 BC) and ending in the Neo-Assyrian period with the wife of Assurbanipal (668–627 BC). At least one king, Assur-bel-kala (1073–1056 BC), was buried in a tomb under the Old Palace. It is not known, however, where all the other kings from the earlier periods were entombed (Lundström 2009).

In the Neo-Assyrian period Tukulti-Ninurta II (890–884 BC) decorated the Old Palace with glazed and painted brick orthostats, obviously the predecessors of the stone reliefs that are so typical of the later capitals. His son, Assurnasirpal II, moved to his new residence in Nimrud, and also completely renovated the Old Palace in Assur (Pedde and Lundström 2008: 37–58, 179–81), as well as building or renovating palaces throughout the country – e.g., at Nineveh and Imgur-Enlil (modern Balawat). He did not decorate the Old Palace with stone reliefs as he did at Nimrud, but clay hands and knob tiles were found in situ in the walls. The room layout seems to have been the model for all later Assyrian palaces, with an official part (Akkadian *bābanu*) and a more private part (Akk. *bītanu*) separated by a wing, with the throne room and one or two rooms behind.

Though no longer the center of the realm, the city of Assur remained the religious center of Assyria until the fall of the empire because it housed the temple of the god Assur, and some of the Neo-Assyrian kings, including Assurnasirpal, Shamshi-Adad V (823–811 BC) and Esarhaddon (680–669 BC), were buried underneath the Old Palace (Lundström 2009). As the town expanded to the southeast alongside the Tigris, a new city wall beyond the old one was erected in this period, first following the old city wall before turning to the south. South of the Assur temple, Assurnasirpal's son Shalmaneser III (858–824 BC) built a new palace, the East Palace. He renovated Assur's official buildings and fortifications, as did Sennacherib, Esarhaddon, and Assurbanipal after him. Sennacherib erected a building for the New Year's celebration outside the city wall toward the northwest and a Prince's Palace for his son Assur-ili-bullit-su toward the southeast, near the river.

In 614 BC Assur was conquered by the Medes under king Cyaxares (625–585 BC). Official buildings were demolished and the tombs of the kings systematically destroyed. Some of the surviving inhabitants still lived in the ruins for one or

two more generations, leaving behind only a few traces. Because of the collapse of Assyrian infrastructure, the town never recovered. In the following centuries Assur seems to have been an unimportant village, though it was mentioned by Cyrus the Great (559–530 BC), founder of the Persian empire. Apart from some pottery and Achaemenid and Seleucid coins, there is little trace of post-Assyrian occupation, although new excavations could change this.

Not until the Parthian era (c.250 BC–AD 224) did the town experience a period of new period of prosperity (Andrae and Lenzen 1933). Six hundred years after the fall of Assyria, a new temple for Assur-Sherua was built in the traditional religious precinct in the northeastern part of the site, along with several other temples and official buildings. Assur became the seat of a governor, whose large palace was situated in the south. Destroyed by the Sasanians under Shapur I (241–272 AD), Assur was resettled in the 12th century AD, when it was called al-'Aqr.

In the 11 years of Andrae's work, 44,000 objects were registered. After the end of the excavation, the finds were divided between the Ottoman Empire and Germany and taken to the Vorderasiatisches (Pergamon) Museum in Berlin and the Eski Sark Müzesi in Istanbul. Though the architecture and a remarkable number of texts were published in the following years, few of the objects were examined. More recently, the Assur Projects in Berlin and Heidelberg have been studying and publishing the finds, texts, and architecture in a series published by the Deutsche Orient-Gesellschaft (German Oriental Society). These volumes cover cuneiform inscriptions on clay (Pedersén 1985, 1986; Faist 2005, 2007; Freydank and Feller 2004, 2005, 2008; Freydank 2006; Frahm 2009; Maul and Heeßel 2010) and stone (Pedersén 1997); the architecture of the palaces and temples (Pedde and Lundström 2008; Werner 2009, Schmitt in press); tombs and graves (Lundström 2009; Hockmann 2010; Pedde 2010, in press a); and objects, like pottery (Hausleiter 2010f), obelisk fragments (Orlamünde 2011), orthostats (Orlamünde and Lundström 2011), doorkeeper figures, knob tiles (Nunn 2006), alabaster vessels (Onasch 2010), objects of ivory and bone (Wicke 2010), mace heads (Muhle in press), terracotta and lead, and seals and sealings.

3 Kar-Tukulti-Ninurta (Tulul al-'Aqar)

Kar-Tukulti-Ninurta lies 3 kilometers north of Assur, on the east bank of the Tigris. Excavations were conducted in 1913–14 by W. Bachmann, a member of the Assur expedition. Although Bachmann never published his results in full, the results of the old excavations have been summarized (see Eickhoff 1985). Renewed excavations took place under R. Dittmann in 1986 and 1989 (Dittmann et al. 1988, 1989–90; Dittmann 1992).

Kar-Tukulti-Ninurta was founded by the Middle Assyrian king Tukulti-Ninurta I as his new residence, but abandoned shortly after his violent death. The city

consisted of different quarters. The official, fortified part was divided by a wall into an eastern and a western section. Two modern villages cover the eastern quarter, which remains largely uninvestigated as a result. In the western section several public buildings were found. In the northern area, close to the city wall and the river, parts of a large building, called the "North Palace" and "South Palace," were excavated. The North Palace is an entrance complex of three main rooms, each one behind the other, and some more rooms. The gate of the main outer room is flanked by bastions, while the inner room leads to a courtyard. The walls of this building stood 7–8 meters high. This seems to be part of the "South Palace" on a high terrace with large rooms. Both complexes had plaster decorated with colored geometric, vegetal, and figural motifs. Inscribed bricks identify this building as the palace of Tukulti-Ninurta I. A temple of Assur with a *ziggurat* is situated to the southeast of the terrace. The *ziggurat* was erected first and the temple was added on its northeastern (front) side. The cella was built directly adjacent to the *ziggurat* and its niche even projects into it. Several niches in the large room at the front were interpreted as places of worship for other gods. Dittmann excavated a small temple north of the North Palace (Tell O), but the identity of the god worshipped there remains unknown. Cuneiform texts, pottery, and clay hands indicate that the site was resettled in the Neo-Assyrian period.

4 Nimrud (Kalhu, Biblical Calah)

In the 9th and 8th centuries BC, Nimrud was the capital of the Assyrian empire. Located 35 kilometers south of Mosul, on the east bank of the Tigris close to the Greater Zab, it sits halfway between Assur and Nineveh. Nimrud was visited in 1820 by C.J. Rich, and the first excavations were carried out there in 1845–7 and 1849–51 by A.H. Layard and H. Rassam, who thought they had found Nineveh (Layard 1849a, 1849b). They excavated in several palaces (the Northwest, Southwest, Southeast and Central Palaces) as well as in the temples of Sharrat-niphi and Ninurta. In 1854–5 W.K. Loftus reinvestigated most of these palaces, along with the Burnt Palace and the Nabu temple. Between 1877 and 1879 Rassam again investigated the Southeast Palace, the Central Palace and the Nabu temple (Rassam 1897). These early excavations all recovered spectacular finds, including stone slabs (orthostats) with reliefs and over-lifesize, standing winged bulls, some of which can be seen in the British Museum. Moreover, Layard, Rassam, and Loftus all wrote popular books for the public about their work. Layard's *Nineveh and Its Remains* became an international bestseller and was translated into many languages, sparking interest in the general public in the Ancient Near East. On the other hand, the excavators did not document their results very well, from today's point of view.

Some 70 years later a British team began systematic excavations (1949–63) under the direction of M.E.L. Mallowan, D. Oates, and J. Orchard (Mallowan

1966). Later excavations were undertaken by a Polish team under J. Meuszynski (1974–6), an Italian team under P. Fiorina (1987–9) and again by a British team under J. Curtis and D. Collon (1989). The Department of Antiquities of Iraq has also worked at Nimrud since 1956 (Oates 2001).

Although traces of prehistoric settlement dating to the Halaf period and Middle Assyrian construction by Shalmaneser I (1273–1244 BC) are attested, it was not until Assurnasirpal II moved his residence from Assur to Nimrud that the site became one of the most important capitals in the ancient Near East. Assurnasirpal II ordered work on a new city wall, about 8 kilometers long, as well as a new palace (the Northwest Palace) on the citadel mound of the old settlement. This was inaugurated in 864 BC, only a few years before the king died. The arrangement of the courtyards and rooms resembles the Old Palace at Assur and both palaces were the prototypes of many of the later Assyrian palaces.

The Northwest Palace consists of three parts. The first part is a large courtyard (c.90 × 60 m) with a row of rooms in the north. The main gate in the east, the court itself and the western side have been destroyed by erosion. The throne room is located on the south side, beyond which comes the second part of the palace. In the center of this part lies a courtyard, surrounded by official rooms and chambers. The doorways of the large rooms were flanked by pairs of *lamassus*, human-headed winged figures with the body of a lion or a bull. The throne room, the courtyard, and all the state apartments were decorated inside and outside with many hundreds of large, originally colored relief orthostats depicting the king, his attendants, winged genii, and scenes of war and hunting. Most of the reliefs are inscribed in the center with the so-called "standard inscription" mentioning the king's titles and achievements (Meuszynski 1981; Paley and Sobolewski 1987, 1992). South of this official area lies the private domestic quarter, excavated by British and later Iraqi archaeologists. There Mallowan found the grave of a royal woman and the Iraqi team discovered three partly reused tombs containing a further 16 individuals and very rich grave goods (Damerji 1999). As some of the inscribed finds reveal, four Neo-Assyrian queens – the wives of Assurnasirpal II, Tiglath-pileser III (744–727 BC), Shalmaneser V (726–722 BC) and Sargon II – were buried here. All these burials were hidden under the floors of unpretentious-looking rooms.

The Northwest Palace continued in use during the reigns of Shalmaneser III and Shamshi-Adad V. Later, when Adad-nirari III (810–783 BC) and Tiglath-pileser III built their own palaces at Nimrud, and even after Sargon II moved his residence to Khorsabad, the Northwest Palace continued to be a very important building, as the royal burials demonstrate. Sargon filled its storerooms with tribute and treasure, and from there he prepared his removal to Khorsabad. Under Sennacherib and his successors, the palace lost its importance; Esarhaddon took away some of its orthostats to decorate his own new palace, the Southwest Palace. But the palace remained in use until 612 BC, when Nimrud was sacked and, afterwards, parts of it were inhabited by squatters.

In addition to the Northwest Palace, Assurnasirpal II founded and renovated several temples. In the northwestern corner of the citadel he and his son Shalmaneser III (858–824 BC) erected a *ziggurat*, and between this and the palace he built a temple for Ninurta. This suggests that the *ziggurat* was dedicated to Ninurta as well. The entrances of the temple were flanked by a pair of 5 meter high *lamassus*, comparable in size only to those at the main entrance to the Northwest Palace. A magazine with rows of large jars was discovered, as well as a vaulted, blocked corridor containing hundreds of beads and many cylinder seals which had been deposited under the floor and date to the middle of the 2nd millennium BC. East of the Ninurta temple a temple for the goddess Ishtar was rebuilt by Assurnasirpal. Its entrance was flanked by two lions and its interior was decorated with glazed knob tiles.

Another building erected by Assurnasirpal II – probably a temple – was the so-called Central Building, excavated in the 19th century. Some relief slabs and parts of four doorkeeper figures were found, but only a small part of the building was documented. South of this, a statue and two obelisks were discovered: the Black Obelisk of Shalmaneser III and fragments of an obelisk of Assurnasirpal II known as the Rassam Obelisk.

Situated in the southeastern part of the site, the Burnt Palace has a trapezoidal ground plan. Built in the Middle Assyrian period, it was completely renovated under Assurnasirpal or Shalmaneser, rebuilt again by Adad-nirari III, and later used by Sargon II. In the reign of Adad-nirari III, mudbrick boxes containing small, protective figures were deposited under the doors and at the corners of the building. A great number of high-quality ivory objects were found here, predating the destruction in 612 BC.

The wing of another palace of Shalmaneser III, the Southeast Palace, was preserved in the southeastern corner of the citadel. Two large rooms and some adjacent chambers represent a further throne room module, comparable to that found in the Northwest Palace and in the Old Palace in Assur. Another vast, unusual structure built by Shalmaneser and later renovated by Esarhaddon lies at the southeastern edge of the outer town. It is an arsenal incorporating a palace, and was called "Fort Shalmaneser" by the British team that began work there in 1957 (Mallowan 1966). Because no orthostats were found at Fort Shalmaneser, the building was of no interest to 19th century excavators and later archaeologists were therefore fortunate in discovering untouched structures and a great number of objects. The building was something like a military headquarters with an empty space in the north and the west, which may have been a training ground for troops. Fort Shalmaneser consists of three large courtyards, separated by a double row of rooms, including residential suites, workshops for chariots and many other objects, and storage magazines. In the southeastern corner a royal palace was erected with the standard large throne room suite plus two additional courtyards. The throne base in the throne room deserves particular mention. It consists of two slabs of limestone, the sides of which are decorated in relief, showing Shal-

maneser three times. The front relief presents a unique gesture: Shalmaneser (right) "shakes" the hand of the Babylonian king Marduk-zakir-shumi (left). The text above the relief reports that Shalmaneser restored the Babylonian king to the throne after a revolt. On the left and right side of the throne base, Shalmaneser is shown receiving tribute from a Syrian ruler and from Chaldaean tribes. These scenes are best compared with the reliefs on the Assyrian obelisks and the Balawat gates. The wing behind the audience room consists of three large reception rooms and might have been the prototype of similar arrangements in Sargon's palace at Khorsabad. West of the state apartments was a residential quarter, consisting of several courtyards surrounded by a single or double row of rooms, recalling the Northwest Palace and the Old Palace at Assur.

Adad-nirari III built a palace very close to the walls of the southern edge of the Northwest Palace. In 1993 this was discovered by an Iraqi team under the direction of Muzahim Mahmud Hussein in the area where Layard had found a structure decorated with elaborated frescoes called the "Upper Chambers." Although these chambers cannot be located today, they were probably part of Adad-nirari's palace. North of the Burnt Palace, a large, partly excavated building called the Governor's Palace might have been built by the same king. It consists of an almost square courtyard, surrounded by a double row of rooms decorated with frescoes. This building may have been an important administrative office or residence. To the south of it and east of the Burnt Palace lies the temple of the scribal god Nabu, originally erected in the 9th century, but completely rebuilt under Adad-nirari.

The largest building in the southeastern part of the citadel mound was excavated by Loftus and Rassam and later investigated by the British and Iraqi teams. The entrance on the northern side is called the Fish Gate because of the flanking fishmen figures. The courtyard behind the gate leads to a building on the right for the king. Behind the entrance to this complex lies a smaller court with access to a throne room and some chambers in the usual pattern, as well as two rooms which seem to be a smaller version of the sanctuaries reserved for the king. Carved ivories of extraordinary quality were found here. These had decorated the throne room, the throne itself, and other furniture. Some show tribute scenes comparable to those on the orthostats and obelisks. The main court has another gate in the south, flanked by 4 meter high attendants, leading to a second court of the same size and a double sanctuary for the god Nabu and his wife Tashmetum (?) with antechambers and slightly raised, stepped podiums. In one of the rooms on the eastern side of the court a library, as well as indications that cuneiform tablets were written there, were found. The library contained literary texts and royal inscriptions, including the so-called "vassal" treaties of Esarhaddon.

Tiglath-pileser III built a palace in the central part of the citadel, the so-called Central Palace (Barnett and Falkner 1962). It is likely that the older buildings here, like the Central Building, were pulled down at this time. According to the king's own inscriptions, this palace must have been huge, but little of it remains.

Originally it had been decorated with relief slabs, but about 50 years after it was built Esarhaddon, building his own palace at the time, began to remove not only the orthostats from the Northwest and Central Palaces – Layard found about 100 orthostats stacked up and ready for transportation – but even the pavement

Esarhaddon's palace was erected on the southwest corner of the mound and is therefore known as the Southwest Palace. Although planned on a grand scale, it was never completed. The only parts preserved are traces of a large courtyard and a huge complex of state apartments on the southern side of the court, consisting of two large halls with rooms on the short sides. The three main entrances were flanked by *lamassus*, facing north. The use of a pair of crouching sphinxes as column bases in two of the doorways is unique. In addition, pairs of round column bases stood on the short sides.

Another official building, named "Town Wall Palace of Assurbanipal," was excavated between the citadel and Fort Shalmaneser. It consists of a typical reception suite with adjacent rooms, and a probable domestic wing in which an inscription with Assurbanipal's name was found.

Traces of destruction everywhere in the town show that Nimrud was attacked once and, before repair work could be completed, a second time. This probably occurred in 614 and 612 BC when the Assyrian empire was destroyed.

5 Balawat (Imgur-Enlil)

Balawat is located 15 kilometers northeast of Nimrud and 27 kilometers southeast of Nineveh on the road between Kirkuk and Nineveh. It was excavated by H. Rassam in 1878, M.E.L. Mallowan in 1956, and J. Curtis in 1989. The site is enclosed by a fortification wall 800 meters on a side. Excavations took place on the citadel mound (c.250 × 150 meters) in the northern part of the site. Surface sherds suggest the area was settled in the Ubaid and Northern Uruk periods, and perhaps again in the Middle Assyrian period. The main occupation dates to the Neo-Assyrian period, when Assurnasirpal II and his son Shalmaneser III (859–824 BC) erected small palaces and a temple. As the pottery and cuneiform tablets show, Balawat seems to have been inhabited until the end of the Assyrian empire in 614/612 BC with traces of reoccupation in the Hellenistic period.

At the southwestern edge of the citadel, Rassam found parts of a palace. Although the area could not be excavated thoroughly, Rassam discovered two gates decorated with embossed bronze bands built by Assurnasirpal II (Gate A) (Curtis and Tallis 2008: 23–46, Figs. 5–43) and Shalmaneser III (Gate C) (Schachner 2007) Another prominent building in the northeastern part of the site was the temple of Mamu, the god of dreams, built by Assurnasirpal. This consisted of a row of rooms with a courtyard in the center. At the gate leading from the court to the antechamber (Gate B), Mallowan excavated another pair of

bronze bands (Curtis and Tallis 2008: 47–71, Figs. 46–90). Decorative bronze bands are also attested in Assurnasirpal II's Northwest Palace at Nimrud (earlier than Balawat); the Anu Adad temple at Assur (Shalmaneser III); the temples of Adad, Nabu, and Shamash at Khorsabad (Sargon); and the Nergal temple at Tell Hadad/Hamrin (Assurbanipal). The Balawat bronze bands, however, are by far the best preserved. The three Balawat gates were all decorated with eight bands on each door showing scenes of hunting, war, and tribute, comparable to scenes on Assyrian reliefs and obelisks. The bands of the two palace gates are exhibited in the British Museum, whereas the bands of the Mamu temple, in the Mosul Museum, were partially looted in 2003.

6 Khorsabad (Dur-Sharrukin)

Located 20 kilometers northeast of Nineveh, Khorsabad was the new capital of Sargon II. The first excavations there were conducted by the French consul in Mosul, P.É. Botta (1843–4), who thought he had discovered Nineveh. The recovery of large stone orthostats decorated with Assyrian reliefs, their exhibition in the Louvre beginning in 1847, and the publication of the stone slabs and architecture by Botta and his draftsman E. Flandin (Botta and Flandin 1849–50; Albenda 1986) marked the beginnings of European interest in ancient Assyrian antiquities, and the French and British search for artifacts in that area. Botta's work was continued in 1852–4 by his successor as French consul, V. Place, who also found a large number of reliefs and statues. Fortunately these were drawn by the draftsman F. Thomas and photographed by G. Tranchard, for, in 1855, as the finds were being transported on rafts down the Tigris for eventual shipment to Paris, local Bedouin launched a raid during a sandstorm, the rafts sank, and all the slabs were lost. It took more than 70 years before new excavations were started. From 1929 to 1935 the Oriental Institute of Chicago, mainly under the direction of G. Loud, investigated three areas in the palace (Loud et al. 1936; Loud and Altman 1938). After 1957, shorter campaigns were conducted by the Iraqi Department of Antiquities under B. Abu al-Soof.

It is not known why Sargon II decided to build a new residence. In the fifth year of his reign (717 BC), after choosing the location and compensating the local inhabitants, Sargon began construction. The work was carried out by the Assyrian army and civilians, as well as by prisoners-of-war and deportees who were afterwards forced to settle in the new city (Blocher 1997). Though the city still was under construction, Dur-Sharrukin was inaugurated in 706 BC.

A massive city wall of mudbrick on stone foundations c.12 meters high, 14 meters thick, and equipped with seven gates enclosed a rectangular area measuring 1,750 × 1,683 meters. On top of the wall two palaces were erected, one in the northwest and one in the southwest. The Northwest Palace is the kings's palace. It was built on a 12 meter high, irregularly shaped, trapezoidal terrace

protruding beyond both sides of the wall and accessed by a ramp. The palace is a complex building measuring 290 meters on a side with two very large courtyards, a couple of smaller courtyards, and 207 rooms. The large courtyard XV is situated directly behind the main gate with one main and two minor entrances and some small apartments placed around it. In the southwest a small entrance leads to a complex of six temples (interpreted as a harem by Place) of the gods Sin, Shamash, Ningal, Ninurta, Ea, and Adad. Fragments of bronze bands with narrative scenes, comparable to those of the Balawat Gates, were found here. A narrow corridor led to a platform with a *ziggurat* (interpreted by Place as an observatory). On the northeast side of courtyard XV are four entrances to a large complex with many courtyards and rooms. In court XVIII and in the adjacent rooms 126–9 stone rings were fixed in the floor, perhaps for tying up horses. If this were the case, then the entire wing may have been stables and the other rooms storage magazines. On the northwest side, a gate with a double room led to the next large courtyard VIII. On its northeastern side, a single doorway led to a building which was originally planned as a temple but later changed to a wine cellar. At the front (southwest side) of courtyard VIII a triple entrance to the throne room was located, consisting of two minor doors and a main entrance, flanked by two enormous towers and decorated with *lamassus*, winged bulls with human faces that functioned as doorkeeper figures. The throne room measured 47 × 10.5 meters and the throne stood on a monolithic stone base (4 × 4.6 meters) on one of the short sides. Behind the throne room was a parallel room, followed by the square courtyard VI, which was flanked by a system of double rooms on each side. As in the Northwest Palace of Nimrud, these rooms have an official character and only those in the southeast seem to represent private quarters. Between this official part and the main courtyard XV lies a large complex of private rooms, probably the king's residential apartments, whereas on the opposite side in the northwest another official building with remarkable large rooms is located, surrounded by a huge terrace. These rooms were used for audiences and festivities. West of this large building complex stood a separate, badly preserved building with column bases. Most of the stone orthostats and statues found by the French archaeologists came from the official areas in the northern part of the terrace. The narrative scenes of the reliefs differ from wing to wing, depending on the function of the room. Mainly, they show scenes of war and tribute, a few feasts and hunting scenes and the transport of timber on a river.

On the inner side of the city wall, beneath the terrace, were several very large buildings (H–M) separated from the town by an enclosing wall with two gates flanked by *lamassu* figures. This area has the same level as the area outside the wall, but was called a "citadel" by the excavators. The buildings in question were the residences of Assyrian notables. Between these buildings a temple for the god Nabu was erected on a separate terrace, accessible from the palace terrace by a bridge. This was the most important temple complex built by Sargon.

The second building on the city wall, so-called "Palace F," was only partly excavated. It was believed to be the crown prince's palace, but has also been

interpreted as an arsenal. Like Sargon's palace, the building stands on a terrace protruding beyond the inner and outer sides of the city wall. A large, central court is surrounded by different wings. A triple entrance with a gate in the center flanked by towers led to a throne room of similar size to that in the Northwest Palace. The throne room is integrated in a wing with two rows of parallel rooms. Close to the western corner of the Central Court, a gate led to a pillared portico, opening onto a large terrace (140×63 meters). Here a building with four banquet halls was erected. Its main entrance, also flanked by towers, corresponds with a similar entrance to the room behind the throne room. At the corners of this wing are two separate apartments, one of which has the same kind of triple entrance as the throne room and might be the king's private living quarters.

Only a few buildings in the city have been discovered. This may be because only limited excavations has been conducted outside the main palaces, or perhaps because only a small number of houses were ever built there in antiquity, because Sargon II's died while on military campaign shortly after the inauguration of the city. Although Sargon's son Sennacherib abandoned his father's ambitious building program and moved to Nineveh, Dur-Sharrukin remained a provincial capital until the end of the Assyrian empire.

7 Nineveh

In the 7th century BC Nineveh was the capital of the Neo-Assyrian empire. Situated on the east bank of the Tigris across from Mosul, knowledge of Nineveh's existence lived on in Europe thanks to the Bible. The first known Western visitor there was Benjamin of Tudela, who wrote an account of it in 1178, though this was not published until 1543 in Constantinople. One of the many later travelers to mention Nineveh was Ibn Battuta (1327). The travels of C.J. Rich in 1820, published only in 1836, were a prelude to French and British excavations. P.E. Botta began work there in 1842, and between 1846 and 1852 the British Museum excavated under the direction of A.H. Layard and H. Rassam. They were succeeded by W.K. Loftus, and later, in 1931 and 1932, by R. Campbell Thompson and M.E.L. Mallowan, who resumed work there. In the 1960s the Iraqi Department of Antiquities excavated at Nineveh, while in the 1980s a team from the University of California (Berkeley) worked there briefly (Scott and Macginnis 1990; Matthiae 1998). Most of the excavations at Nineveh have taken place on the mound of Küyünjik. The smaller mound of Nebi Yunus contains the *ziggurat* and Esarhaddon's arsenal, but has not been extensively investigated because, according to Islamic tradition, this is the site of the tomb of the prophet Jonah.

Mallowan's excavations reached virgin soil. The pre-Assyrian levels were called Ninevite 1 (6th millennium BC, Hassuna period) to 5 (early 3rd millennium BC). Campbell Thompson and Hutchinson worked in the temple of the goddess Ishtar (Campbell Thompson and Hutchinson 1932), where they discovered an

inscription of the Old Assyrian king Shamshi-Adad I, who not only renovated the temple, but identified the Akkadian king Manishtushu (2269–2255 BC) as its founder. Though no architecture of the Akkadian period was identified, the bronze head of an Akkadian king, perhaps Naram-Sin (2254–2218 BC), was found. Later, the Middle Assyrian kings Assur-uballit I (1363–1328 BC), Shalmaneser I, and Assur-resh-ishi I (1132–1115 BC) rebuilt the temple as well as the *ziggurat*. In the Neo-Assyrian period, the temple was rebuilt by Assurnasirpal II and Assurbanipal. In the area of the Ishtar temple, Rassam found two obelisks: the Broken Obelisk, dated to the reign of Assur-bel-kala, and the White Obelisk, showing scenes of war and tribute and ascribed to Assurnasirpal I or II.

Campbell Thompson and Hutchinson excavated a small palace in the center of Küyünjik on the citadel mound. Because inscriptions of Assurnasirpal II were discovered everywhere in the palace, the building was assigned to his reign (Campbell Thompson and Hutchinson 1931). The architecture was badly preserved. The walls were made of baked brick, with painted decoration showing rosettes, figures, and the king. Fragments of two obelisks with tribute scenes were found, as well as many painted terracotta orthostats, probably the precursors of marble orthostats. These show scenes of war and tribute and the king with mural crown (representing a city wall). This was likely one of the palaces where Assurnasirpal lived before his palace at Assur was renovated and long before he moved to Nimrud in the 19th year of reign. The building was restored by his successors Shalmaneser III, Shamshi-Adad V, and Adad-nirari III.

The Nabu temple was founded by Adad-nirari III (Campbell Thompson 1929). The architecture of the Ishtar and Nabu temples is poorly documented. The latter stood on a high terrace and had the shape of an irregular quadrangle. It was extended and rebuilt by Sargon II and Assurbanipal. Until the reign of Sennacherib these two temples were the most important buildings on the citadel.

After Sennacherib moved to Nineveh from his father's capital Khorsabad, he began a major building program. The circuit of the city wall was extended from 5 to 12 kilometers, 15 gates were built or renovated, and the city was given new infrastructure in the form of new roads, a canal system, and a park. Besides a palace in the eastern part of the citadel, the most important building was the large new palace, the so-called Southwest Palace covering the southern part of the citadel. According to Sennacherib himself, the building measured 503 × 242 meters and was the largest palace in Assyrian history. Named in Assyrian the "Palace without Rival" (Russell 1991), it was inaugurated in 694 BC. To date, however, the northern and northwestern areas of the palace are completely unknown. The architecture is reminiscent of Sargon's palace at Khorsabad, but there is a new element of symmetry and visual permeability. The throne room lies in the northeast and the courtyards are surrounded by state apartments, in a double or triple row of rooms. The outer walls on the southwestern and south-

eastern sides seem to have disappeared. A second large gate was found in the southwestern side, but the access route from there to the center of the palace is unclear. The wing in the northwest has gone, but there are indications of at least one further courtyard. The excavated architecture of the palace belongs to the official part, whereas the domestic quarters were not found.

The gates of the state apartments were flanked by *lamassus* and the rooms were decorated with relief stone slabs of extraordinary quality, showing narrative scenes, mainly of war, now in the British Museum (Barnett et al. 1998; Nadali 2006). The orthostats are systematically arranged. In the throne room and the adjacent courts and rooms, Sennacherib's first military operations to the east, west, and south (Babylonia) are shown. These are repeated in detail in the wings beyond. Early in his reign, Sennacherib's grandson Assurbanipal lived in this palace. Half of his library, found in rooms XL and XLI, was probably originally stored in the floor above.

Another important complex built by Sennacherib was the arsenal on the east side of Nebi Yunus. Because of the presence of a later Islamic cemetery, this building complex has not been excavated and its plan is unknown, but, according to Sennacherib's reports, the arsenal consisted of one palace built in Assyrian style and another in Syrian style. Like Fort Shalmaneser at Nimrud, the complex was used as a military headquarters. It was extended by Sennacherib's son, Esarhaddon, whose own palace may be identified with a building about 100 meters east of the arsenal.

Another large building complex at Nineveh is the so-called North Palace of Assurbanipal, excavated by Rassam and Loftus (Barnett 1976; Nadali 2006). Here they found a great number of excellent wall reliefs as well as the second half of Assurbanipal's library, altogether more than 25,000 cuneiform tablets, but the architecture is poorly preserved and the northeastern area is effectively unknown. The outer wall of the palace, the throne room with courtyard and some state apartments behind it, and a long corridor leading to a gate in the western corner are all preserved. This gate seems to be an entrance to a park, which is mentioned in several texts. The gates were not flanked by human headed winged colossi, the *lamassu*, and, although the palace is large, the size of the state apartments seems to be more modest than in the palaces of Assurbanipal's forefathers. On the other hand, the orthostats found here are amongst the best surviving works of art from the ancient Near East. The slabs in the throne room and the state apartments depict vivid scenes of war against the Egyptians, Elamites, Babylonians, and Arabs. The rooms beyond are decorated with orthostats showing the king in the park with servants and musicians, and in a series of scenes the king is shown hunting lions, gazelles, and onager. It is probable that these hunts took place in the park to the west of the palace. In 612 BC Nineveh was conquered by a coalition of Medes and Babylonians. This marked the end of the Assyrian empire, but the site was reoccupied in the Hellenistic, Arsacid, and Roman periods.

8 Other Assyrian Sites in the Heartland

Besides the Assyrian capitals and the other large, well-known Assyrian sites, there are many other settlements containing Middle and Neo-Assyrian material (Green 1999; Altaweel 2008; Hausleiter 2010f: 183–7, 192–201). Most of these are small and excavations have been limited, so that only a few preliminary findings have been published. These include sites like Tell as-Sidr (Shakir 2005–6), Kaula Kandal (El Amin and Mallowan 1949, 1950), Qasr Shamamuk (Anastasio 2005), Khirbet Khatuniya (Curtis and Green 1997), Qasrij Cliff and Khirbet Qasrij (Curtis 1989b), Khirbet Hatara (Fiorina 1997), Tell Jigan (Fujii 1987), and Tell Rijm (Green 1999: 97–9). Northwest of Tell Rijim are some sites along the western bank of the Tigris with Assyrian material like Khirbet Karhasan, Tell Abu Dhahir, and Khirbet Shireena, and west of the Assyrian heartland Tell Taya and Tell al-Rimah have evidence of Neo-Assyrian occupation as well. Toward the eastern border of Assyria the town of Erbil (ancient Arbela), where a Neo-Assyrian tomb was found, must be noted. A Neo-Assyrian tomb dating to the 7th century BC (Hausleiter 2010f: 192–3), with a rich inventory of pottery and bronze vessels, was also found c.25 kilometers northwest of Nineveh on the west bank of the Tigris (Ibrahim and Amin Agha 1983).

GUIDE TO FURTHER READING

For an overview of 11 years of constant excavations (1903–14) at Assur, see Andrae (1977[1938]). The catalogue of a major exhibition on Assur at the Vorderasiatisches Museum (Pergamon) Berlin also provides a good overview of the work at Assur (Marzahn and Salje 2003). For a detailed overview of the German excavations in Kar-Tukulti-Ninurta, see Eickhoff (1985). Mallowan (1966) presents the most important results of the British excavations at Nimrud, and for a survey of 150 years of work at the site, see Oates and Oates (2001). The well-known bronze bands of the Balawat palace gates of Shalmaneser III are described systematically in Schachner (2007). Curtis and Tallis (2008) fills a gap, because there the bronze bands of a palace and a temple at Balawat, erected by Assurnasirpal II, are published the first time in detail with excellent drawings. Albenda (1986) investigates the relief slabs of Sargon's palace in Khorsabad, in particular their placement at the walls and the different topics of the scenes. The book includes many of the original drawings of Botta and Flandin. Caubet (1995) is a collection of interesting studies on the French investigations at Khorsabad. Matthiae (1998) is a very good résumé of the history of the Assyrian capitals with a focus on Nineveh, describing all the important buildings, with many good plans and photographs. Russell (1991) is a detailed study of Sennacherib's "Palace without Rival" at Nineveh.

CHAPTER FORTY-SIX

The Assyrians Abroad

Bradley J. Parker

1 Introduction

The Assyrian state that emerged from northern Iraq during the Mesopotamian Iron Age was indeed of imperial proportions. At the height of their power, the Assyrians claimed dominion over almost the entire Middle East, from the Persian Gulf to the Taurus mountains and from the Zagros mountains to the Mediterranean Sea. For a short period during the 7th century BC, the Assyrians even captured Egypt. In almost any textbook, one can read that the Neo-Assyrian Empire was the largest and most complex polity in Mesopotamian history up to this point. It was a large, expansionist state that extended its control over less powerful polities through conquest, coercion, and/or diplomacy (Parker 2001: 12; Sinopoli 2001b: 444; Wilkinson et al. 2005: 24). In doing so, it formed incorporative political and economic systems that transcended local political, social, and ethnic boundaries, thus claiming hegemony over a large and culturally diverse area. However, the success of Neo-Assyrian imperialism was not dependent solely upon Assyria's ability to expand but, more importantly, upon its ability to incorporate conquered regions into the imperial superstructure. In spite of the fact that there is a vast body of textual and archaeological evidence pertaining to the Neo-Assyrian imperial period (c.900–600 BC), evaluating how the Assyrians expanded, consolidated, and maintained their vast empire is still a difficult proposition.

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This chapter will begin to address this issue by examining a number of topics pertinent to the construction and maintenance of the Assyrian imperial power outside Assyrian's core area in what is today Iraqi Kurdistan. Obviously, the specifics of where, when, and why the Assyrian imperial infrastructure was constructed and maintained varied dramatically over the period in question. In many cases, states that began as autonomous neighbors became vassals of the empire only to be eventually annexed as provinces; provinces or vassal states occasionally threw off the Assyrian yoke; and some areas that were overrun by the Assyrian military were never successfully brought into the Assyrian administrative system. The following pages are not meant to document the ebb and flow of this history. Instead, they should be seen as a starting point for understanding some of the larger trends underlying Assyrian imperialism. The goal of this chapter is, therefore, to present an overview of the topic by creating a synthesis that allows a generalized understanding of various ways in which the Assyrians acquired and controlled territory outside the their own heartland.

2 Modes of Expansion

A fairly complete picture of Neo-Assyrian military history can be reconstructed by combining the annals of the Assyrian kings with Assyrian and Babylonian chronographic texts (e.g., Grayson 1982, 1991b). Further information about the administration of the Assyrian provinces can be gained from the corpus of Neo-Assyrian letters (Parpola 1981). What is less often discussed is how these documents combined with archaeological data reflect Assyrian military strategy and the implementation of Assyrian imperialism. Viewing the data in this light, a number of general observations are immediately apparent. First, military force was used both to defeat Assyria's enemies and to maximize Assyria's opportunities for expansion through coercive diplomacy. And, second, military action did not create a territorially contiguous political unit. Instead, the degree of control exercised by the empire outside the imperial heartland varied greatly.

The use of military force was the primary means of expanding Assyria's imperial domain. Since virtually all the young men in the empire could be called up for military service if need be, the full complement of the Assyrian military could be exceedingly large. Assyriologists have long argued that some Assyrian provinces were able to raise large contingents of cavalry and thousands of infantry. Relief carvings from the Assyrian palaces also show that Assyrian military officials effectively incorporated contingents of foreign soldiers into their own military (Dalley 1985). Although the full potential of the Assyrian army was rarely, if ever, gathered together for a single campaign, the army was, nevertheless, an extremely large and very well-organized fighting force. It also employed the latest military technology, including state-of-the-art weaponry such as siege machines, battering rams, and war chariots, and had considerable logistical support in the form of

corps of engineers, a complement of priests and diviners, and a vast network of spies (Dubovský 2006; and see below).

Military expansion began with an ideologically charged military campaign. Such campaigns were, at least in theory, led by the king and were recorded by the royal chroniclers in the Assyrian annals. Data contained in the Assyrian annals suggest that royal campaigns were aimed at specific targets which are said to have committed some sort of affront against the empire, such as failure to recognize Assyrian authority, an offense against a god or gods, or an attack on an Assyrian ally. Whatever the offense was, it provided the ideological justification for an initial military expedition and paved the way for imperial expansion into peripheral regions. A key characteristic of military expansion was that royal campaigns involved the use of overwhelming force. Specific targets were chosen for attack, while the interceding towns and villages in a given area were often left unscathed. Thus, the purpose of initial forays into peripheral regions was not to conquer contiguous tracts of territory; instead, these campaigns were meant to neutralize the centers of opposition, while leaving most of the surrounding area and its inhabitants available for incorporation and exploitation (Parker 2001).

Not all military gains were followed by an attempt to consolidate those gains. However, in areas where annexation was the goal, Assyrian campaigns were only the first step in the larger process of imperial expansion (Sinopoli 1994). The initial step toward the consolidation of conquered areas was the establishment of a centrally or strategically located administrative and military center. The Assyrians usually chose a previously existing settlement to fill this role. We learn from the textual record that soon after an initial conquest, sites chosen to serve as administrative and military centers in a newly conquered region were the object of large construction projects (e.g., Grayson 1991a: 202). Labor and materials for such construction projects were gathered from all over the empire. A letter concerning the construction of a remote fort on the Assyrian frontier, for example, shows that laborers from at least four cities participated in the construction (B.J. Parker 1997). Such projects often included the construction of fortification walls, fortified citadels, and sophisticated water systems. There is also evidence that provincial centers contained factories and storage facilities where military hardware and luxury goods were manufactured and where the more mundane produce of the land, such as wool and grain, were processed and stored.

Once Assyrian military and administrative centers were established in newly conquered regions, the area around and between these centers was colonized either through land grants to Assyrian officials or through Assyria's policy of deportation and resettlement. A high official named Nabu-sharru-usur, for example, owned more than 1,700 hectares of land in at least seven locations throughout the empire (Kataja and Whiting 1995: no. 27). Granting estates to high officials in various parts of the empire worked both to limit the power of provincial authorities, since it "established a network of interlocking economic interests," and, at the same time, to tie the personal interests of the Assyrian elite

to the well being of the empire (Mattila 2000: 141). Other areas were colonized by persons deported from various parts of the empire (Oded 1979). Although the purpose of deportation was first and foremost to break up nationalistic tendencies among rebellious populations, it also acted as a means to incorporate such groups into Assyrian provincial society (Parker 2001). This policy is vividly recorded in the Old Testament. When standing at the gates of Jerusalem, an Assyrian general promised the inhabitants of the city that if they surrendered peacefully they would live in "a land of grain and wine, a land of bread and vineyards" (Isaiah 36:17; cf. Fales 2008; Machinist 1983). Assyrian sources augment this picture by showing, first, that families were not split up when deported but, rather, family groups were allowed to stay together and settle in the same area. Second, provincial officials were obliged to provide provisions and equipment to deportees traveling through their area. Third, upon arriving at their destination, deportees were given land, which often consisted of fields and garden plots, a dwelling, and in some cases one or more animals. And fourth, provincial governors were responsible for protecting deportees resettled in their provinces.

Assyrian military actions may be interpreted not just as a means of achieving victory over Assyria's enemies, but also as a way of creating and spreading Assyrian power to potential imperial subjects (Matthews 2003b: 149). As mentioned above, campaign itineraries suggest that when moving through a sensitive region, Assyrian forces were not arrayed across the landscape. Instead, the military traveled in a straight line from one destination to the next. In utilizing this strategy, the full force of the Assyrian military was brought to bear on specific singular targets (Parker 2001: 259–63), which were then completely obliterated. This strategy accomplished several things. First and foremost, it made the Assyrian army seem invincible. The magnitude of the destruction wrought by the onslaught was awe-inspiring, and news of the might of the Assyrian military machine surely traveled far and wide. Once victory was achieved, the Assyrians employed another gruesome but effective military tactic, one that H.W.F. Saggs (1963) called "psychological warfare" (see also Dubovský 2006: 161–88). This tactic, described by the Assyrians in their annals and depicted on the walls of their palaces, included such atrocities as flaying rebel leaders and hanging their skins from the walls of the captured city, burning the children of rebel families, piling the heads of enemy soldiers in great pyramids along roadways, and impaling rebel captives on high stakes around captured enemy cities. Such acts were clearly meant to spread fear among the surviving population. Assyrian military campaigns were thus not only a means by which the Assyrians defeated their enemies and increased the imperial dominion; they were also a means of actualizing the king's power and, in doing so, increasing Assyria's potential for expansion though coercive diplomacy.

Assyrian victories were recorded by scribes and artists and were later translated into both written and visual media for propagandistic purposes. The Assyrian

annals were initially composed as a means of recording royal campaigns, but these texts were constantly re-edited for display in the palaces, burial in foundation deposits, as messages to the gods, and surely as texts to be read aloud in temple festivals (Oppenheim 1960; Liverani 1981). The heroic deeds of the Assyrian kings were also displayed in visual form on the walls of their palaces. These representations were not merely for posterity but were meant to perpetuate the power created in past battles. Visiting dignitaries and Assyrian officials alike were reminded of the heroic deeds of the king whenever they visited rooms in the palace where such reliefs were displayed (Reade 1979a; Winter 1983; Russell 1991).

The power generated by the Assyrian military set the stage for expansion through coercive diplomacy. In many cases the Assyrian authorities could impose hegemonic rule over peripheral regions by binding exiting states to the empire as vassals. Vassalage was a compromise between degree of control and cost. On the one hand, the Assyrians obviously retained far more political and economic control over a province than over a vassal. On the other hand, manipulating a vassal was much more cost-effective than annexing a province. The decision to incorporate peripheral regions into the empire's vassal state system required the existence of a state-level political structure in a location where the threat of Assyrian force made submission by the local government an attractive option and geographic and logistical constraints would not diminish the strength of an Assyrian strike if the use of force became necessary.

3 Administrative Systems

The above discussion of Assyrian modes of expansion shows that Assyrian imperial administrators maintained a flexible policy toward the peripheral regions of the empire. When the Assyrians expanded into a new area, they had a variety of options by which to exercise their authority. They could establish territorial control through the military conquest and annexation of a region and its integration into the Assyrian provincial system; they could establish hegemonic rule by binding existing political structures to the empire through loyalty oaths, effectively converting autonomous polities into vassal states; or they could leave existing states or regions intact to act as neutral buffer states or zones between their frontier provinces and their enemies.

The Assyrians maintained territorial control inside provinces through a hierarchical system of provincial officials (see below)who administered authority from the provincial capital. These capital cities contained a palace and the offices of the various governmental departments as well as industrial installations and storage facilities. The provincial capital was at the top of a hierarchy of settlements that usually included several smaller towns and villages integrated into the empire from the previously existing settlement system, as well as many agricultural

villages, road stations, outposts, and garrisons established as part of the process of imperial consolidation (Wilkinson 1995; Parker 2003; Wilkinson et al. 2005).

The Assyrians exercised hegemonic control over peripheral regions by imposing vassal obligations on existing polities. Where the Assyrians found viable political structures in the imperial periphery, they often attempted to force those polities into a subordinate status through either the threat or the show of military force. If the polity in question submitted peacefully to Assyrian demands, the ruling elite were allowed to remain in power and retain control over their subjects and territory and therefore maintain a relatively autonomous status. However, if the polity opposed Assyrian rule or allied itself with an Assyrian enemy, it could be the object of a military campaign. In this case, the Assyrians would not hesitate to set up a puppet government.

Vassal status involved varying degrees of obligations on the part of both the vassal state and the empire. The most basic demand made by the Assyrians upon their vassals involved the flow of information. The Assyrian authorities were extremely concerned with gathering military intelligence and for this reason vassal states were required to send regular reports about political and military matters in their area to the imperial authorities. Vassals were also obligated to give tribute, not only in material goods, but also in labor, both for military operations and construction projects. In some cases, the Assyrians were allowed full military freedom in vassal territory and they often exploited the natural resources in and around vassal territory. They also imposed political and economic restrictions on vassals by regulating, or attempting to regulate, their interaction with other states. Vassal obligations were monitored by an Assyrian official who was stationed in the subject state. This official had a garrison of cavalry at his immediate disposal. He reported on the daily activities of himself and his hosts to the provincial governor in charge of his region, but, on more urgent matters, he wrote directly to the king or the crown prince.

In return for their loyalty, the empire promised to protect vassal states from foreign aggression. This protection pact applied first to the threat of invasion from rival states. How seriously the Assyrians abided by this obligation is difficult to say. In some cases, vassals were left to fend for themselves when disaster loomed, and, in others, it appears that the Assyrians used the protection clause as an excuse to invade states that might threaten a loyal vassal. In any case, it is clear that the Assyrians used this agreement to their own advantage. Promises of protection also applied to hostile forces from within the vassal state itself, and for this reason threatened or weakened regimes often sought help from the empire as a means of propping up a dynasty that was otherwise destined to collapse.

The Assyrians made every effort to win control over existing states in their periphery. However, when the geopolitical or geographic situation made military logistics difficult or impractical, and/or when no state-level polities existed in such a region, some areas were left intact to act as buffers between Assyria and

its enemies. Geographers generally agree that a buffer state is a polity that lies between two or more rival states or their spheres of influence. The continued existence of the buffer state as an autonomous polity is tolerated, or even encouraged, by its neighbors because it serves to spatially separate rival states and, therefore, as long as the buffer state remains neutral, it provides a degree of security for both sides (Chay and Ross 1986). Buffer zones are similar to buffer states in that they consist of neutral areas that lie between two or more rival states or their spheres of influence. However, buffer zones are substantially different from buffer states because they contain no viable political structures and they are not controlled by any outside political force. Instead, the rival states between which these zones lie consider them to be largely empty spaces, or no-man's land, and, since they physically separate the rival states, they too provide a degree of security for all sides.

4 Provincial Administration

The nature of the Assyrian royal correspondence, which is largely made up of letters sent from the provincial capitals to the palace, means that we have far more information about Assyrian provincial governors and other high officials than we do about their subordinates (Parpola 1981). Most of the information that we have about lower-ranking provincial officials comes in the form of short references to such persons within these texts. The exception is the small number of texts that have been excavated in the Assyrian provinces.

The provincial governor stood at the top of a hierarchy of officials and administrators. The second in command was probably the "deputy," since his title (Akk. *shaniu*) literally means "second" (Parpola 1987: 227). At the bottom of the hierarchy was the "village manager" (Akk. *rab alani*), who was in charge of a small area including one or more villages or hamlets. References to "village managers" reveal that their primary duty was to collect taxes in the form of goods and labor. This aspect of the work is exemplified by a letter that mentions mudbricks supplied by village managers for the construction of Sargon II's (721–705 BC) new capital at Dur-Sharrukin (Lanfranchi and Parpola 1990: no. 291) and a letter from Nimrud in which we learn that "the silver dues of the prefects and the village managers imposed on the local population have been handed over (to the central government)" (Parpola 1987: no. 176). In addition to having a small number of troops at their disposal, village managers were also expected to aid the imperial administration in the exploitation of the natural resources of the land. One letter relates how a village manager has led troops into the forest to protect his men as they attempted to transport felled trees through a dangerous area (Lanfranchi and Parpola 1990: no. 3). A letter from a governor named Duri-Assur mentions an official called the ^{LÚ}*ša bīt kūdini*. This term literally means "mule stable attendant," but in fact this official was in charge of implementing

the empire's system of corvée labor (Postgate 1974). Corvée officers kept careful track of the people in their jurisdiction, presumably by recording census lists and tallies of time served and time owed (B.J. Parker 1997). Since this official's duties included retrieving fugitives fleeing their corvée labor obligations to the empire, these officers must also have had access to cohorts of soldiers or police.

Assyrian provincial governors were concerned with various aspects of the administration of their realm. Broadly speaking, their activities can be grouped into three categories: development (discussed above), security, and taxation. Security concerns were particularly acute in frontier provinces. One of the main preoccupations of officials on the northern frontier of the empire, for example, was gathering military information about Urartu. To this end, Assyrian administrators had access to a vast network of spies or informants (Akk. *daiālu*) who kept provincial officials apprised of events both within and beyond the empire (Dubovský 2006). The correspondence of the governors of the northern provinces contains numerous references to "news of the Urartians" (e.g., Lanfranchi and Parpola 1990: nos. 32 and 41; see also Deller 1984), including two fragments that possibly refer to Urartian governors (Lanfranchi and Parpola 1990: nos. 23 and 41) and one letter that describes Urartian troop movements (Lanfranchi and Parpola 1990: no. 21). The central administration in the Assyrian capital expected to be constantly updated about developments in the provinces. The anxiety of officials about this topic, as well as the vagaries of the Assyrian mail system, are exemplified by a letter in which a governor (Sha-Assur-dubbu) responds to an inquiry from the palace saying: "I have (already) sent [a detailed report to] the king, my lord, […]! Let me now send it a second time" (Lanfranchi and Parpola 1990: no. 34) and a fragmentary text from an unidentified author that reports, "I have sent out (spies) to go and inquire; (when) they return with a detailed report, I shall write to the king, my lord" (Lanfranchi and Parpola 1990: no. 40). Another method of gathering intelligence was to kidnap enemy soldiers or officials and transfer them under armed escort to the capital where they would be interrogated. However, we learn in a letter that reports on the capture of Urartian spies that this was not solely an Assyrian activity (Lanfranchi and Parpola 1991: no. 55). Not only did Urartian spies infiltrate Assyria's provincial administration, but the Urartians also captured Assyrian operatives and even tried to influence Assyrian vassals.

Numerous letters in the Assyrian royal correspondence speak of the extraction of revenues from Assyrian provinces and vassal states. A royal delegate named Assur-resuwa, for example, extracted barley, wine, sheep, bronze objects, lumber, and carnelian from the vassal state of Kumme (Parker 2001: 93–4). Provincial governors were responsible for supplying offerings to temples, especially the Ashur temple, in the Assyrian heartland. Channeling revenues from the far-flung provinces to religious institutions in the imperial core was not only a method of underwriting state religious cults; it was also a means of connecting provincial elites to Assyria's religious institutions.

5 Territoriality

On most maps of the Ancient Near East, the Neo-Assyrian Empire is shown as a territorial polity separated from its periphery by a thick black line or the intersection of two contrasting colors (e.g., Saggs 1984: 110; Miller and Hayes 1986: 368; Roaf 1990a: 164; Hunt 2004: 92). This image is echoed in much of the literature, especially in introductory textbooks, where the Assyrian Empire is described as a "territorial unit" (Van De Meiroop 2007: 247), "divided into provinces" (Kuhrt 1995: 531) that stretched "from Egypt on one side to Persia (Iran) on the other" (Saggs 1984: 2). Such representations, in text or image, carry with them deep-seated meaning for the modern reader: they imply that the Assyrians held firm, homogenous control within a territory bounded by impervious borders (Smith 2005; Wilk 2004).

This vision of ancient states and empires is clearly at odds with the available data from the Mesopotamian Iron Age. These data show that the Neo-Assyrian Empire was not made up of contiguous stretches of land. Instead, much of the empire consisted of a patchwork of provinces, vassal states, and buffer areas linked to the imperial core by a network of fortified transportation and communication corridors. Although the imperial core almost certainly consisted of a series of adjoining provinces (Postgate 1995), as the empire expanded into its periphery, transportation costs and logistic constraints increased dramatically (Ekholm and Friedman 1979; cf. Hassig 1985). Flexibility was a key factor in forming imperial policy (Morris 1998). The Assyrian administration carefully weighed the potential military, political, and economic benefits of expansion into new regions, and chose a specific policy for each region that would maximize imperial gains. The further the empire expanded, the greater the economic, ideological, or strategic benefit had to be to make territorial control tenable and thus the areas that were suitable for annexation become more restricted. The sociopolitical landscape beyond the imperial core was, therefore, dotted with "islands" of imperial control (Liverani 1988). Some of the area between the "islands" that made up the outlying regions of the empire were filled in by establishing hegemonic control over existing states. This strategy was economical, since it provided income, in the form of vassal obligations, at a low cost; but, more importantly, it limited the possibility of rebellion in regions that may lie around or between Assyrian provinces. Other areas around and between imperial holdings consisted of neutral buffer states or buffer zones, and still others can contain hostile enemies.

GUIDE TO FURTHER READING

On Neo-Assyrian history, see Grayson (1982 and 1991a); Kuhrt (1995); and Saggs (1984). For Assyrian administration and officialdom, see, e.g., Larsen (1979), Grayson

(1993), Deller (1999), Mattila (2000), Parker (2001), and Dubovský (2006). Many original Assyrian letters from the state archives of Assyria are now easily accessible in the volumes of the University of Helsinki's Neo-Assyrian Text Corpus Project. On the Assyrian royal annals, recounting campaigns and actions undertaken across the empire, see, e.g., Fales (1981) and Tadmor (1997). For helpful discussions of ancient imperialism, see Doyle (1986), Sinopoli (1994 and 2001b), D'Altroy and Hastorf (2001), and Alcock et al. (2001).

CHAPTER FORTY-SEVEN

The Urartian Empire

Alina Ayvazian

1 Introduction

The roots of Urartu can be traced as far back as the 13th century BC when the land of *uruatri* was first mentioned in the annals of the Assyrian king Shalmaneser I (1273–1244 BC). At that time, according to B. Piotrovskii, *uruatri* denoted a tribal coalition located to the south and southeast of Lake Van (Piotrovskii 1959: 44). In 1271 BC Shalmaneser undertook the first of a series of five campaigns against *uruatri*. From this time onward, and for two more generations of Assyrian rulers, the term *uruatri* was replaced in Assyrian texts by "the lands of Nairi." Beginning in the 12th century, the Assyrians began a series of increasingly regular forays into the Anatolian highlands, the main purpose of which was the extraction of booty and tribute, particularly timber and horses (Saggs 1984: 48; Zimansky 1985: 50). The area's geography and climatic factors prevented the Assyrians from conquering these territories outright, but the tribes started the process of consolidation to counter the Assyrian threat. By the early 1st millennium BC, *uruatri* began to denote not only the land, but also the inhabitants of the area around Lake Van (Piotrovskii 1969: 43), and by the 9th century, Urartu arose as a political unit centered on its capital Tushpa, on the shores of Lake Van. Thus, in the words of P. Zimansky, "the Urartian state . . . seems ultimately, if unwittingly, to have been a creation of the Assyrians" (1985: 48). Throughout Urartu's history, Assyria remained its greatest adversary as well as one of its greatest sources of inspiration. The Urartians borrowed Assyrian cuneiform writing, making it conform to their own language; military and diplomatic practices;

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literary forms; artistic motifs and styles; and more. The two empires lived in a state of continuous mutual influence and uneasy respect.

The core of Urartu was located around the Sevan, Van, and Urmia lakes, in present-day Armenia, eastern Turkey, and northwestern Iran. The kingdom was separated from the areas to the north and the south by mountain chains, creating a sort of natural fortress. The Urartians themselves called their country "Biainili" – a term echoed in the modern name Van. Power belonged to a small, "ethnically Urartian" elite (Zimansky 1995a: 103ff; 1995b; Grekyan 2006: 150 n3) who imposed their beliefs and, possibly, their language on the diverse population of the kingdom. Throughout its history, Urartu remained a multiethnic and multicultural coalition. Two major efforts to centralize the kingdom occurred early in Urartu's existence during the reigns of kings Ishpuini (c.830–810 BC) and Menua (c.810–785 BC), and again during the reign of Rusa II (c.685–639 BC), shortly before Urartu's decline. Nevertheless, the goal of true centralization remained elusive, because in times of trouble people quickly and naturally reverted to the old-fashioned way of living within localized clans.

2 Kings and Reigns

Aramu was the first Urartian king attested in the cuneiform sources. He was mentioned in connection with campaigns by Shalmaneser III (858–824 BC) undertaken in the king's accession year (859/8 BC), in his 10th year (849 BC), and in his 15th year (844 BC) recorded in the Annals (Grayson 1996: 8, 14), and in three epigraphs on the bronze bands of the "Balawat Gates" found at Imgur-Enlil (modern Balawat) southeast of Nineveh (Grayson 1996: 140, 143, 146; cf. Gunter 1982). According to these texts, Shalmaneser captured three of Aramu's cities: Sugunia, Arne, and Bit-(A)gusi. The Balawat Gates show the Assyrian army marching over three mountain passes to Lake Van, while Shalmaneser performed sacrifices to the gods at the shores of the lake. Another set of bronze sheets shows the graphic aftermath of the battle with the Urartians, a deserted fortress and the cruel punishment of prisoners, illustrating the account given in the Annals where Shalmaneser says: "I besieged the city, captured [it], massacred many of their [people], [and] carried off booty from them. I erected a tower of heads in front of his city. I burned fourteen cities in their environs" (Grayson 1996: 14). The Assyrian sources show that the reign of Aramu, though largely unknown to scholarship, was rather eventful and lasted for at least 15 years.

The earliest known Urartian monument dates to the reign of Sarduri I (c.840–830 BC). It is a wall of colossal boulders (0.75 × 6 meters) in the western piedmont of the Rock of Van, which served as the citadel of the Urartian capital city Tushpa. The wall was inscribed with three identical inscriptions in Assyrian:

> The inscription of Sarduri, son of Lutipri, great king, mighty king, king of the Universe, king of the land of Nairi, who knows of no equal, a pastor worthy of

> admiration, fearless in battle . . . Sarduri, son of Lutipri, king of kings; I received tribute from all kings. Thus speaks Sarduri, son of Lutipri: I brought this limestone from the city of Alniunu, I erected this wall. (Arutiunian 2001: 9, no. 1)

The fact that Sarduri calls himself "son of Lutipri" and not "son of Aramu" may point to significant shifts in the internal politics of the Urartian kingdom in the 9th century. It is possible that during Aramu's reign the kingdom's center was located to the north of Lake Van. G.A. Melikishvili suggested that Aramu and Sarduri may have belonged to different Urartian tribes which came to the fore at different times (Piotrovskii 1959: 59–60). Sarduri's accession to the Urartian throne might represent the beginning of a new dynasty, one that possibly ruled Urartu for the next 200 years.

Sarduri was succeeded by his son, Ishpuini (c.838–810 BC) who, in many ways, was the first true monarch of the land of Biainili. Ishpuini ruled out of his father's capital city, Tushpa, and from there campaigned to the south, southeast, and north of his kingdom. The first inscriptions in the Urartian language date to Ishpuini's reign. These consist of short formulae carved into column bases, mentioning only the name of Ishpuini, son of Sarduri. Later, more extended inscriptions named both Ishpuini and his son and successor, Menua (c.810–786 BC).

Ishpuini and Menua were the great architects of the Urartian state. Their policies and reforms shaped Urartu into a strong, centralized polity. In addition to introducing written Urartian, they built roads and canals, extended the kingdom's borders, and introduced a centralized religion built around the worship of a new supreme god, Haldi. The extent of Urartu during the reigns of Ishpuini and Menua can be estimated from the widespread distribution of inscriptions extending from the lower Murat River basin (around Elazig, eastern Turkey) in the west to the Araks River in the north, and the southern shore of Lake Urmia in the southeast. The seat of the god Haldi was Ardini (its Urartian name) or Musasir (its Assyrian name). Conquered by Tiglath-pileser I (1114–1076 BC) of Assyria c.1100 BC, it fell within the Urartian sphere of influence during the 9th century BC.

At the end of the 9th century, Ishpuini and Menua erected a bilingual, Urartian/Assyrian stele near the Kelishin pass, on the border of Iran and Iraq. This important document, which provided clues for the decipherment of the Urartian language, testifies to the Urartian conquest of the city called Musasir, the site most closely associated with the cult of Haldi and the Urartians' main, official sanctuary. It may also have been the site of royal coronations. M. Salvini has suggested that the erection of the Kelishin stele established a *via sacra*, a processional way that connected the twin centers of Urartian political power (near Lake Van) and religion (at Musasir) (Salvini 1989: 81).

The introduction of an official pantheon was an important step in Ishpuini's campaign to secure the identity of his kingdom and the health of his dynasty. He placed a relatively new god – Haldi – at the head of the kindgom's pantheon to preside not only over the plethora of ancient local gods, but also over the

high-ranking gods of Hurro-Hittite descent, Teisheba and Shiwini. During Ishpuini's reign, the worship of god Haldi spread to newly conquered territories, mainly to the southeast of Tushpa, to the southern shores of Lake Urmia, and north into Transcaucasia. Ishpuini's policy was continued by his son and successor Menua.

The accession of Menua (c.810–785) signaled the beginning of the greatest period in Urartian history, one that lasted nearly 70 years. Menua started a rigorous building campaign, amply attested in more than 100 cuneiform inscriptions, one of which may testify to the completion, at this time, of the walls of the Urartian capital Tushpa (Piotrovskii 1959: 63). Menua expanded both westward and eastward, securing vital mineral resources around Malatya (Saggs 1984: 81–2) in eastern Anatolia. He extended the boundaries of Urartu both north and southeast, in the directions of Lakes Sevan and Urmia. Among the goals of this expansion were the control of rich agricultural lands for the cultivation of staples like wheat and barley, ill-suited to the cold climate of the highlands, as well as access to valuable commercial trade routes. Menua then conquered the north Syrian corridor, which gave the Urartians access to the markets and products of the Mediterranean. Eventually, Urartu came to dominate the export of Anatolian resources and controlled the shipment of tin and luxury goods that came overland from Central Asia, which, in turn, allowed it to profit from their distribution to the greater Mediterranean area.

Menua continued his father's policy of northern expansion, reaching the wealthy country of Diauehi across the Araks. To facilitate his operations in this area, he built an administrative center on the right bank of the Araks, and called it Menuahinili. Access to the Araks valley opened the way for Menua's heirs to the fertile Ararat valley, further north.

The approaches to the Urartian capital were protected by a chain of forts that followed an ancient route connecting Lake Van to the site of Khoy and Urartu's more easterly regions (Lehmann-Haupt 1926: 38; Piotrovskii 1959: 63). Approximately 10 kilometers to the northeast of Van, Menua erected a massive fortress near the modern village of Anzaf. More fortifications were erected in the northern parts of the country, around modern Malazgirt. According to extant inscriptions, other fortresses and "gates of Haldi" were established in the newly acquired territories.

At the beginning of the 8th century Urartu reached the height of its power and territorial extent. However, the westward expansion initiated by Menua, especially in northern Syria, was at odds with Assyrian interests in Asia Minor. The Assyrian king Shalmaneser IV (782–773 BC) therefore launched a series of energetic campaigns against Urartu in the years 781–778, 776, and 774 BC. In this challenging political climate, Menua was succeeded by his son Argishti I (c.785–760 BC). Argishti was probably not Menua's eldest son, nor his first choice as heir. Another name – Inushpua – follows Menua's in one of the inscriptions from Van. There is no firm evidence to show that Inushpua ever

reigned Urartu, however. Instead, Argishti acceded to the throne to face the challenges that a confrontation with Urartu's mighty neighbor Assyria would bring.

Argishti I left behind an extensive cuneiform record of his reign. His annals, known as the Horhor inscription, were carved into the southwestern wall of the Rock of Van. The second part of this inscription was carved on two stones – originally parts of a stele that was reused in the Armenian church of Surb Sahak in Van. The Horhor inscription consists of more than 295 lines in seven columns and describes 13 years of Argishti's reign. The similarities between parts of the Horhor inscription and the text of the stele fragments from Surb Sahak has allowed scholars to restore the missing parts of the inscription and thus obtain a rather complete picture of Argishti's campaigns. An energetic ruler, Argishti expanded the borders of Urartu in almost every direction. One of his first campaigns was directed north, to Transcaucasia. He crossed the Ararat valley, subdued the rich country of Diauehi, and laid upon it an annual tribute of gold, copper, horses, and cattle. Two years later he led his troops into northern Syria, returning with scores of prisoners whom he resettled in his new administrative center in Transcaucasia, the fortress of Erebuni (modern Yerevan, Armenia).

According to his annals, six years after the construction of Erebuni, Argishti built another large administrative center in Transcaucasia, and named it Argishtihinili. This new city replaced the earlier administrative center of Menuahinili, built by Menua to the south of Araks River. Argishti's own inscriptions describe the construction of four canals that supplied Argishtihinili with water from the Araks (Melikishvili 1960: nos. 136–137). During Argishti's reign, southern Transcaucasia firmly became a part of the Urartian state, and Urartu gained access to the fertile Ararat valley and the regions around Lake Urmia, further south. Urartu now monopolized all the principal trade routes to the west, replacing Assyria as the dominant power in the Near East.

The reign of Sarduri II (c.760–730 BC), son of Argishti, began auspiciously with victorious campaigns in the west, from which the Urartian troops brought back large quantities of gold, silver, and cattle, as well as a number of battle chariots (Melikishvili 1960: no. 158). Sarduri then proceeded to reaffirm his power in Transcaucasia, after which he marched south and won several seemingly effortless victories over Assyria, extending Urartian influence southward to the upper reaches of the Tigris and northern Syria (Piotrovskii 1959: 76) and northwards to the land of Qulha (legendary Colchis, in modern western Georgia). From this time onward, we see more and more north Syrian motifs in Urartian art. The representations of female goddesses, enthroned and tended by a female figure, so abundant on Urartian medallions, pectorals, and arrow quivers, may be dated to this period. Even though the goddesses are shown holding not a mirror but a leaf or a branch in their hand – recalling representations of the branch or a leaf of an aspen tree, sacred in later Armenian legends – such figures are reminiscent of earlier Hittite representations.

Sarduri's victories are described in his annals, partially preserved near Argishti's, on the Rock of Van, and partially on a stele that was incorporated into the construction of the church of Surb Sahak in Van. In the sixth year of his reign, he marched to the south of Lake Urmia, and to the north of Mount Aragats, to the land of Eriahi. The following year he cruelly punished the land of Qulha, which had continued to resist Urartian encroachment, and erected victory stelae there on the ashes of the defeated city (Arutiunian 2001: 238, no. 241D; Piotrovskii 1959: 80). In his eighth year Sarduri returned to the region of Lake Sevan, where he reaffirmed his control over all the districts of the rich land of Etiuni. Territories around Lake Sevan, especially its western and southern shores, thus became a part of Urartu. The territory of Urartu increased, and, after several victorious marches into northern Syria, the Euphrates became the kingdom's western border.

During Sarduri's reign, Erebuni and Argishtihinili continued as centers of Urartian royal administration in Transcaucasia. Argishtihinili seems to have been especially favored by Sarduri, who continued the construction and expansion of its fortresses, temples, and vineyards. Some of his inscriptions describe the establishment of stelae and gates of Haldi, as well as sacrifices made before them. Sarduri also continued to explore the center of his kingdom. A few of Sarduri's inscriptions describe the planting of vineyards and construction activity near Van (Melikishvili 1960: nos. 163, 167). By the mid-8th century, Urartu was at the height of its power. However, the political situation in the Near East soon changed.

After the uprising in Kalhu (Nimrud) in 745 BC, the Assyrian throne was occupied by Tiglath-pileser III (744–727 BC), who swiftly launched an aggressive campaign focused on breaking the Urartu/north Syrian alliance which stood in the way of Assyria's imperial aspirations. In 743 BC, he decisively defeated the Urartians at the battle of Arpad and proceeded to reassert Assyrian political control of the area, thus re-establishing Assyrian commercial links with the Mediterranean world. Seeking access to the sources of tin in the east, the Assyrians then turned to regaining control of the Zagros region. Between the reign of Tiglath-pileser III and Sargon II (721–705 BC), the Assyrians entered the Zagros eight times. These campaigns were aimed at robbing the Urartians of their commercial economic base. None of these campaigns was aimed directly at Urartu. Instead, the Assyrians concentrated on reopening the southern pass across the Zagros, the Khorasan road, in order to redirect the east–west trade through Assyria as an alternative to the northern route that was dominated by Urartu (Levine 1977b: 148–9).

The end of Sarduri's reign is not very clear. Various districts in Urartu started to rebel against centralized control, and Sarduri's descendant, Rusa I (c.730–714/713 BC), was faced with the challenge of putting his kingdom back together. By the time of Rusa I's accession c.730 BC, the kingdom had been weakened economically by Assyria and even more so by the raids of the Cimmerians on

Urartu's borders. The accession and reign of Rusa I have been discussed extensively (Lanfranchi 1983: 132 with earlier bibliography). Sargon II's boast that, "[w]ith my two horses and my charioteer I took over the kingdom of Urartu," has caused many to doubt the legitimacy of Rusa's reign. Moreover, Rusa adopted new royal titles to replace formulae that had been more or less standardized prior to his reign. From this point on, the Urartian archaeological record changes in nature.

In the very first years of his reign, Rusa had to take measures to protect his kingdom against Assyria. A bilingual inscription carved on the road to Musasir describes his installation of Urzana on the throne of Musasir. With the help of Urzana's troops, Rusa conducted raids on Assyrian territories. Nevertheless, Rusa avoided open confrontation with Assyria, focusing instead on strengthening the borders of his kingdom and fostering useful alliances. The Assyrian annals preserve a detailed description of Sargon II's eighth campaign of 714 BC. This was a punitive expedition against the countries to the northeast of Assyria. The expedition against Musasir and Urartu is described with special care, in 430 lines of cuneiform text in the form of a letter to the god Assur. According to the Assyrian annals, as Sargon approached the land of Mannea, its ruler came out to greet the Assyrian army with rich presents. Rulers of other smaller states around Lake Urmia followed suit, begging Sargon to rid them of Rusa's presence there. However, as Sargon continued his campaign to the east, he was informed that Rusa had gathered his army and allies at his rear, at Mount Uaush. Having learned this, Sargon changed course and turned back to the country of Uishdish to confront Rusa. Sargon personally led the attack. He overwhelmed the Urartian camp without warning, in the middle of the night, thus ensuring a swift and easy victory. After defeating the Urartian army, Sargon continued his advance into Urartian territory, around the eastern shore of Lake Urmia. His "Letter to Assur" describes in great detail the prosperous Urartian lands – gardens, canals, and luxurious palaces – in order to powerfully drive home the detailed picture of doom and destruction wrought by the Assyrian troops.

For most of his Urartian campaign Sargon remained on the outskirts of the kingdom. However, on his return journey home he decided to take a detour and headed for Musasir. Having sent the rest of his troops on their way, he led a small battalion of 1,000 cavalry through treacherous mountain passages and thick forests. At Musasir Sargon's army looted the city, carrying off tons of gold, silver, copper, lead, and semi-precious stones. The list contains a detailed description of objects of special interest, including bronze statues of Urartian kings. Sargon annexed Musasir, and laid upon it the conscription and building tax.

The loss of Musasir was a blow for Urartu. Not only did it signify the loss of a buffer state, but it also meant the loss of Urartu's identity, exemplified by the worship of Haldi. Sargon's annals state that having learned about the capture of Musasir and the cult image of Haldi, Rusa took his own life. At this juncture, the kingdom of Van came very close to its demise.

Rusa I was succeeded by his son, Argishti II (c.713–685 BC). We possess only a handful of inscriptions from his reign (Melikishvili 1960: nos. 275–277). Extant sources shed little light on Urartu at this time. Sargon's attention was demanded elsewhere and his successor Sennacherib (704–681 BC) was preoccupied with wars in Babylonia, Syria, and Palestine. Assyrian sources from this period are silent about the activities of their northern neighbor. Argishti II was involved in rebuilding his kingdom. Two stelae, found near Ardjesh, talk about the construction of a city, an artificial lake, and a canal in the center of the kingdom (Piotrovskii 1959: 112; Arutiunian 2001: 312, no. 406).

In 681 BC, Sennacherib was killed during a palace revolt by his two sons (see, e.g., 2 Kings 19:37; Isaiah 37:38). According to the Armenian historian Moses of Khoren, the murderers fled to Armenia and settled there, founding two of Armenia's most prominent clans – the Artsruni and the Gnuni. Argishti II's rule probably lasted as long as Sennacherib's. However, in the annals of the next Assyrian king – Esarhaddon (680–669 BC) – we encounter the name of a different king, Rusa II (c.685–640/639 BC). From this time until the end of Urartu, Assyria worked to support the status quo within the uneasy political climate of the day. The 7th century BC may be truly considered a period of flux. It was the time when, against the background of shifting events and the emergence of new powers, both Assyria and Urartu tried to find ways to survive rather than expand. This was Urartu's last great period, inaugurated by the accession to the throne of the extraordinary Rusa II.

Rusa II's reign manifested the arrival of a new, albeit short-lived, order in the kingdom of Van. The leitmotif of his efforts was not expansion but sensible consolidation. Learning from the mistakes of earlier rulers, Rusa reformed the kingdom's administration, replacing local governors with viceroys responsible directly to him. Rusa II seems to have been the last Urartian king to have left significant archaeological evidence of his rule. He founded at least five new cities: Teishebaini (modern Karmir Blur), Rusahinili on Mount Qilbanu (modern Toprak Kale), Rusahinili on Mount Eiduru (modern Ayanis), Bastam, and Kef Kalesi (by Adilcevaz). He also enlarged the fortresses of Argishtihinili (Armavir), originally founded by Argishti I, and Çavuştepe, founded by Sarduri II.

Buildling campaigns, sculpture, and artistic revival testify to Urartu's resurgence at this time. However, Rusa's consolidation efforts are best illustrated by his efforts to reinforce the importance of royal religion and ritual, and by his complete restructuring of the kingdom's administration. Under Rusa II, the "message" of Urartian kingship changed. Whereas Argishti I, for example, sought to portray himself as a great warrior, Rusa II presented himself as a pious builder. Faith and ceremony seemed to be of paramount importance during his reign. In place of Musasir, the Urartian holy city ravaged by Sargon II's troops in 714 BC, Rusa II established a new religious center at Kef Kalesi (Zimansky 1998: 36). The Urartian pantheon was broadened to include new deities, reflecting the shifting ethnic composition of the kingdom, and may have, for the first time, included the royal ancestors (Ayvazian 2006: 14).

For the first time, the Urartian administrative system was reorganized to facilitate the centralized control of the provinces. Not only did Urartian records include practical administrative documents, comparable to those introduced later by the Achaemenid monarchs, but they also displayed active bilingual elements, such as inscriptions in Urartian cuneiform and "Urartian" and Luwian hieroglyphs side by side (Zimansky 1998: 60). The bilingual nature of Urartian rule reflected changing ethnic realities in the kingdom. Urartu was becoming increasingly diverse, with migrant workers from Syria (Azarpay 1968: 62 n227) and deportees from Phrygia, Cappadocia, and territories mostly to the west and north of the Urartian core adding to its already diverse population.

3 The Kingdom's Demise

Like the date of its origin, the date of Urartu's demise is uncertain. A confusing series of successors followed Rusa II and a dearth of written records prevents us from being able to create a coherent picture of events. Based on a biblical reference (Jeremiah 51:27) and the Neo-Babylonian chronicles, the traditional date of Urartu's destruction was thought to have been c.590 BC. In the 1980s. this view was challenged by Stephan Kroll (1984: 170), who argued that the kingdom was essentially gone after the end of Rusa II's rule, c.640 BC.

Certainly, there is some evidence to support this view. Rusa II's inscriptions are the last known Urartian lapidary inscriptions. After his reign we have only cuneiform documents on clay tablets and brief texts inscribed on bronze objects. Rusa II's name occurs for the last time in the annals of the Assyrian king Assurbanipal, in connection with events in 654 BC. The names of up to five kings who may have occupied the Urartian throne after Rusa II's death are mentioned on various inscribed objects. In 639 BC, Rusa's son Sarduri III is said to have gone to Assyria, after which the Assyrian sources are silent on Urartu. Sarduri III is also attested on a clay tablet and a seal impression found at Karmir Blur. After Sarduri III, the next king of Urartu is thought to have been Sarduri, son of Sarduri, whose royal inscription appears on a bronze shield from Teishebaini (Piotrovskii 1969: 195). He was possibly followed by Rusa III, son of Erimena, whose father's name was preserved in the legend of a seal impression on a text from Teishebaini. Rusa III is attested in a dedicatory inscription carved on a highly artistic shield from Toprak Kale. Finally, the name "Rusa, son of Rusa" – possibly Rusa IV – appears on seal impressions on a clay tablet and bulla from Karmir Blur. Practically nothing can be said about these rulers with any certainty.

Virtually all the major Urartian sites show signs of violent destruction. Scythian-type arrowheads were found lodged in the walls and floors of buildings. Family treasures were discovered millennia later, tucked inside mudbrick walls or under the clothes of their owners or looters who were trying to escape the burning buildings. It has been suggested that arrows tipped with Scythian-type

arrowheads may have been used not only by the Scythians themselves, but also by the Medes, who are thought to have passed through Urartu on their victorious march to Lydia in 585 BC (Piotrovskii 1969: 197ff). A. Çilingiroğlu (2002), however, proposed a different scenario, suggesting that the kingdom may have fallen victim to internecine strife, rather than foreign invaders, some time in the 7th century BC.

Following the tumultuous events of the mid-7th century BC, Urartu may have broken up into a number of independent or semi-independent principalities. This idea receives some support from the apparent emergence of new political units – "houses" (Akk. *bīt*) – in Urartu during the reign of Rusa II (Grekyan 2006: 176–7 n207).The disparate princedoms (*nakharar*-doms) of later Armenian history may have their roots in this period. By the time historical Armenia comes into focus, the *nakharars* were strong enough at times to defy the power of a supreme ruler.

In the Bisotun inscription of Darius the Great (c.520 BC), the Babylonian toponym "Urashtu" appears in Old Persian as "Armina," and in Elamite as "Harminuia," corresponding to modern "Armenia." "Urashtu" was still mentioned in the inscriptions of Xerxes in the early 5th century BC, but by the time Xenophon passed through Armenia in 401 BC, the great kingdom of Van seems to have been thoroughly forgotten. An echo of it was preserved in the art and languages of its former territories, yet neither the religion nor the memory of Urartu survived until it was discovered once again more than 2,000 years later.

4 Religion

Rock-cut niches, one of the key features of Urartian religion, made their first appearance during the late 9th century BC, in the reign of Ishpuini. A niche was seen as a door, a symbolic gateway between worlds. Urartian rock-cut funerary monuments usually contain stepped niches, possibly to indicate the presence of several "gateways," or sacred passages, between spaces. The most important Urartian rock-cut niche is Mheri Dur, or Meher Kapisi ("the Door of Mithra"), just above modern Van. It is covered with an inscription that names all the major and minor Urartian gods, along with the sacrifices ordained for each deity. The Mheri Dur inscription continues to serve as the basic document for the study of the Urartian pantheon. The pantheon described in the Mheri Dur inscription consists of 70 deities – 48 gods of various ranks and 22 aspects or attributes of the god Haldi. The male and female deities in the Urartian pantheon may have formed couples, though it is possible that the supreme god Haldi, like Assur, did not originally have a spouse (Grekyan 2006: 155). "Minor" gods mentioned in the inscription were most likely those worshipped by the individual tribes of Urartu. They were headed by the supreme trinity of Haldi, Teisheba, and Shiwini. The worship of Teisheba, god of thunder, and Shiwini, the sun god, harkened

back to the Hurro-Hittite traditions that formed an important part of the composite Urartian identity. Haldi, on the other hand, seems to have been a newcomer, introduced by the Urartian monarchs with the aim of distinguishing, or even separating, their kingdom's identity from any ancestral associations. The supreme god further acted as a protector of the Urartian dynastic line and a unifying element for Urartu's many ethnic groups (Ayvazian 2004: 29ff).

While the Mheri Dur inscription is our most important source for understanding the structure of the Urartian pantheon, knowledge of Urartian religion was recently supplemented by an important bronze shield excavated in the fortress (?) of Anzaf (Belli 1999). Dated to the time of Ishpuini and/or Menua, the shield depicts a dozen Urartian gods who may have been the native deities of the Urartians and of the royal house. It is possible that these gods – including Teisheba, Shiwini, Hutuini, Shebitu, Quera, Elip(u)ri, Ua, Ura, and Nalaini – were introduced by Menua along with the worship of Haldi and may be the gods referred to as "all gods" on dozens of stelae from the reign of Menua and in many later Urartian inscriptions (Grekyan 2006: 157).

Haldi was the supreme god, the sun, the fertility god, the warrior and the god of war (Hmayakian 1990: 33ff). The center of Haldi's worship was Musasir. Even though it was never under direct Urartian control, Musasir served as an important symbolic locus of Urartian religion, the seat of the supreme god who came to signify Urartu itself. The original center of Haldi worship may have been near Yeşilaliç, where the monument called the "Gate of Haldi" and an open-air sanctuary, possibly pre-dating Mheri Dur, are located (Sevin and Belli 1976–7: 378ff). Haldi's rise to prominence was accompanied by the appearance of typically Urartian tower temples and rock-cut niches. The kings of Urartu probably served as the state's chief priests (Tarhan 1983: 300; Hmayakian 1990: 73).

With Urartu's demise, the cult of Haldi quickly disappeared, suggesting that the deity was never deeply embraced by the Urartian population. With him, the traditional tower temple disappeared as well, although the worship of niches and gateways remained strong and continued into recent, maybe even into modern, times.

Haldi's consort Arubaini was possibly the mother goddess as well as the goddess of fertility and flora (Loseva 1962: 307ff) and the patroness of arts and crafts (Hmayakian 1990: 38). Teisheba was the god of thunder and natural elements. Etymologically, his name is connected to the Hurrian supreme god Teshub. Finally, Shiwini was the god of the sun. Tushpuea, the goddess of the Urartian capital city Tushpa, was Shiwini's consort and the goddess of dawn (Hmayakian 1990: 46). Some historians have associated her with "siren" figures that often appear on Urartian bronze work, notably as attachments for ritual cauldrons (Piotrovskii 1959: 226). Amongst the multitude of Urartian gods, we may also mention Hutuini (fate), Shebitu (possibly the Pleiades), Melardi (the moon), Quera (god of soil and fertility, connected to the worship of water streams), and Elip(u)ri, a god of Hurrian origin connected to the worship of the

Taurus mountains (Grekyan 2006: 159–60). The worship of the moon god is not attested at Mheri Dur, but is referred to in the inscription from the *susi*-temple at Ayanis (Salvini 2001: 254).

5 Art

Urartian art went through an especially rich, formative period during the reigns of the early Urartian monarchs Menua and Argishti I. Long considered little more than a conglomerate of features and themes borrowed from its neighbors and predecessors, it remained understudied and misunderstood. In general, it reflects the artistic traditions of many different ethnic and cultural groups within the kingdom. Nevertheless, it emerged as both unique and highly distinctive. As the kingdom expanded and contracted over the course of two and a half centuries, its art continued to develop as well. Assyrianizing motifs gave way to more indigenous expressions and, over time, stylistic elements which originated in the far west made their way into local arts and fashions.

The goal of early Urartian art was to promote the idea of the divine nature of the Urartian state. Nature was perceived as being alive, divine, and filled with magical creatures. The king was a divinely guided defender and shepherd of his land and people. This idea is expressed over and over again in both minor and monumental Urartian art, from the early frescoes of Argishti I's fortress of Erebuni to Urartian seals. The king is always shown dressed simply, in a long tunic, usually wearing a conical helmet and carrying a shepherd's crook – an ancient Near Eastern symbol of royal power. He is shown among nature and animals, and in mystical contexts, entering realms inaccessible to simple humans. These "mystical" realms are easy to recognize through the presence of one or a combination of the following three elements: an animal (most often a lion, bull, or horse), a star, or a composite creature (i.e., one consisting of different parts of two or more animals). The choice of animals probably reflects early totemic beliefs in this geographic area, and by Urartian times may be symbolic representations of nature deities. Through comparison with Mesopotamian and Anatolian antecedents, Urartian scholars have suggested that the lion may have represented the chief god Haldi; the bull, the thunder god Teisheba; and the horse, the sun god Shiwini. Other animals and composite creatures may have stood for Urartian deities of lower rank.

6 Bronzes

Of all Urartian bronzes, military gear is best represented. Urartian armor is illustrated in detail on the Balawat gates of Shalmaneser III. Urartian warriors wore short tunics and wide belts. They carried short lances and bows as well as small,

round shields. Early Urartian helmets appear to be similar to Hittite ones. Later, in the 8th century BC, Urartian armor began to resemble Assyrian gear. It is to this later group that the objects found at Karmir Blur (ancient Teishebaini) belong.

A number of Urartian bronze helmets were found at Karmir Blur. Symbols of the god Teisheba – the storm god, depicted either as a bolt of lightning, or as snakes that mimic its motion by rushing down the center in an arched movement originating at the temples – are typically represented on these helmets. Another group of helmets shows standing deities flanking sacred trees. Both beardless and bearded deities, carrying pollination buckets in left hands and a cone in the right hand, are shown. The sacred trees in the center are framed by eight lion-headed snakes. The backs of these helmets are decorated with depictions of eight war chariots and ten horsemen. These helmets bore inscriptions by Argishti I and Sarduri II.

Other typically Urartian bronzes include large shields with dedicatory inscriptions of Argishti I, Sarduri II, Rusa, son of Argishti, and Rusa, son of Erimena (Piotrovskii 1959: 168). Such shields were described in Sargon II's "Letter to Assur," amongst the booty from the Urartian temple of Haldi in Musasir, and illustrated on the lost relief from Dur-Sharrukin (modern Khorsabad), known to us from Flandin's detailed drawing (Botta and Flandin 1848–50/II: Pls. 141). The drawing of the relief shows that these large shields were placed by the Urartians on the walls and columns of the Haldi temple. The Letter to Assur (ll. 370–371) claims that Assyrian soldiers removed "six golden shields" from the Haldi temple at Musasir, the centers of which were decorated with the heads of snarling dogs.

The Urartian shields found at Karmir Blur were decorated with lions and bulls arranged within concentric bands that ran around the shields' perimeter. The animals were shown in such a way as to always remain upright – that is, the artist inverted them halfway around the shield, instead of continuing in the same fashion, which would have made the animals in the lower half appear upside down. This suggests that such shields were votive offerings, like the ones illustrated on Sargon's relief from Dur-Sharrukin, rather than functional battle gear. Urartian bronze shields have been excavated at Karmir Blur, Toprak Kale, and Anzaf (Belli 2000).

Sargon's text also describes large bronze statues in prayer that functioned as temple "guardians of the gates," as well as statues of Urartian kings – specifically those of "Sarduri, son of Ishpuini," "Argishti, king of Urartu, in a starry tiara of the gods, blessing with the right hand, within its own niche," and that of Rusa with his horses and a chariot driver (ll. 400–403). The production of these, possibly life-size, statues would have required a high level of technical expertise. We can only regret not being able to see these objects today.

The Louvre (Paris), Hermitage (St Petersburg), and the British Museum contain examples of possible Urartian throne decorations. These include

recumbent bulls with human faces, ornately adorned with detailed incisions and inlays; divine statuettes in elaborate dress standing atop bulls; lions; and mixed beings. However, like so many bronze objects designated "Urartian," regrettably, they lack secure archaeological information and need to be used with caution (Muscarella 2006). An exception to these unprovenanced objects is a bronze candelabrum discovered during the German excavation of Toprak Kale in 1898–9. The candelabrum is c.1.36 meters tall, its shaft decorated with pendant leaves and supported by three legs terminating in bulls' hooves issuing from lions' jaws. The upper portions of the legs were adorned with statuettes of recumbent, winged bulls with human heads. The candelabrum was crowned with a simple lamp-bowl with tall sides. The shaft is inscribed with the name of the Urartian king Rusa.

Other well-known objects traditionally associated with Urartu are mounts for large bronze cauldrons in the form of sirens – birds with human faces and spread wings that rest against the cauldrons' outer surface, as well as bulls' heads with wing-like protrusions at the base. It has been suggested that the disc placed between the sirens' wings may indicate a connection between these creatures and the sun god's consort, Tushpuea (Piotrovskii 1969: 32). Most of these objects derive from illicit excavations.

In attempting to classify Urartian art stylistically and chronologically, many scholars (e.g. Azarpay 1968; Piotroskii 1969; Kellner 1976) have relied on bronze belts and votive plaques with lavish depictions of hunting and military scenes, religious motifs, and purely decorative designs. Unfortunately, as P. Zimansky (1995a: 108) has pointed out, many of these objects come from a single plundered site at Giyimly, rather than from controlled excavations. Although of great interest and technical and artistic ingenuity, they cannot match excavated material in determining the stylistic developments that took place in Urartu.

In the mid-7th century, Urartian art was greatly influenced by Scytho-Cimmerian groups in Transcaucasia. The discovery of an unfinished Scythian bird's head in the craftsmen's quarters at Karmir Blur may serve as an illustration for the process of cultural transfer, as well as explaining the appearance of purely Urartian indications of musculature in later Scythian finds from Melgunov and Kelermes, and in the treasure of Ziwiye.

7 Pottery

Urartian pottery is very varied. It ranges from miniature jars no more than a few centimeters tall to huge storage jars (*pithoi*) with a 1,200 liter capacity that could easily hold a human being inside them. According to S. Kroll (1976b), approximately 85 percent of all Urartian pottery consists of rough, hand-made grey ware found throughout the kingdom. However, the hallmark of the Urartian ceramic assemblage is the highly burnished red pottery called "Toprak Kale ware" by Charles Burney (1957: 432) because its production was traditionally associated

with the central part of the kingdom. Most often found at large fortresses and rarely seen in the smaller ones, such vessels may have been linked to the royal economy (Zimansky 1995a: 107), particularly storage and royal consumption. Especially fine vessels were often stamped or incised with potter's marks. Many stamped sherds of red burnished ware and one stamped sherd of black burnished ware were discovered during recent (2000–7) excavations at Erebuni (Ayvazian 2006; Ter-Martirosov 2009).

Urartian ceramic decoration consisted of incisions, indentations, and painted designs. Some vessels appear to imitate metal objects (Piotrovskii 1959: 189–91). Piotrovskii distinguished three groups in his excavations at Karmir Blur: red burnished ware, either manufactured at the kingdom's center or imitated locally; coarse, black vessels, often in the form of wide-mouth jars with incised chevron, wave, or dot decoration; and, finally, dark-colored vessels with pattern burnishing and deeply impressed, connected triangles. Pottery of this latter group finds analogies in Transcaucasian burials dating to the 7th–6th centuries BC (Piotrovskii 1959: 193).

Ceramic figurines of minor deities were found during excavations at Karmir Blur in 1949 and 1950. Three examples discovered in a storage room during the 1949 season take the form of bearded human figures in a "fish dress," with the head of a fish acting as a hood, and the body and tail as the back of the figures' outfits. The figurine found in 1950 in a different storage room is that of a scorpion-man whose face is painted white, eyes black, beard and hair maroon, and headgear bright blue, like the cloak of the figurines wearing fish garb.

8 Seals and Seal Impressions

Urartian seals came in a wide variety of shapes and sizes, including cylinders, stamp-cylinders, faceted stamps (bell-shaped, conical, cylindrical, cube-shaped, zoomorphic, ring, even phallic), flat bi-faced (rectangular and discoid) and scaraboid (Ayvazian 2006: 340ff). Excavated seals are known in a variety of materials, including ceramic, black amber, bone, onyx, lapis lazuli, bronze, ceramic, frit, jasper, faience, and many other simple, precious, or semi-precious stones. Based on design, workmanship, and shape, Urartian seals have been subdivided into several categories, from royal household and administrative seals to those of petty officials, ritual practitioners, and others (van Loon 1966; Seidl 1979, 1988; Abay 2001; Ayvazian 2006). Urartian officials seem to have preferred the cylinder or stamp-cylinder seal. Seals used by high officials are further distinguished by a balanced, "Assyrianizing" sense of composition. Their subject matter consists of pollination motifs, which differ from their Assyrian prototypes. All these seals were inscribed in cuneiform, sometimes supplemented with hieroglyphic notations. An analysis of currently known material shows that only royal seals and seals of royal officials were inscribed with a person's name, though it is

impossible to tell whether this happened by royal decree or because of general illiteracy amongst the population.

Stamp seal impressions exhibited a much greater variety of motifs – for example, mythical animals, including winged horses, winged lions, gazelles, dogs, birds, snakes, even hedgehogs (Museum of Erebuni, unpublished); composite beings, such as fish-goats, bird-men, sirens, etc.; ritual or symbolic scenes, including goddesses, stelae, altars, trees or branches, and astral bodies; dancers; and figures such as the "tree man" that may have come from Urartian folk tales and myths. Since these seals did not need to reflect official ideology, it is assumed that they depicted objects that the general population found auspicious, thus providing a glimpse of Urartian myth and oral tradition.

Faceted seals had four or more lateral sides and sometimes a bottom stamp. Formally speaking, these seals appear to be intermediate between a stamp and a cylinder seal. On the one hand, rolling the seal would produce a visual story, often in a sequential order. On the other hand, each facet stood on its own and had its own significance. All the seals and seal impressions of this type appear to have been used for ritual purposes, since they all carry designs that seem to have been either sacred or related to ritual activity. Additionally, when impressed on clay, each facet formed an indentation around the image, possibly alluding to the sanctity of niches for the Urartians. Common motifs on such seals were deities riding mythical animals; seven stars, possibly representing the Pleiades; symbolic objects; and drooping or blossoming trees or branches to indicate the season or the mood of the scene.

9 Architecture

The most well-known examples of Urartian architecture are the imposing fortresses perched upon high hills and gorges in the vicinity of drinking water. Their building blocks and walls sometimes preserve the name of the Urartian kings who ordered their construction. Urartian citadels were usually well protected and able to withstand lengthy sieges. The minimal amount of pottery found in these fortresses suggests that they were used as administrative, cultic, and defensive installations, rather than residential centers (Piotrovskii 1959: 197; Kroll 1976a: 12–13; Zimansky 1995a: 105). Fortresses represent the pinnacle of the building hierarchy, followed by habitation sites and small, unfortified settlements or farmsteads in the countryside where the majority of the Urartian population presumably lived (Zimansky 1995a: 106). In times of war, royal fortresses served as places of refuge for the population.

Urartian construction techniques were standardized throughout the kingdom. Before starting construction, Urartian builders strengthened the hillside by constructing a series of terraces. This not only prevented landslides, but also created extra space. Foundations consisted of footings carved into the bedrock. Walls

usually consisted of unbaked mudbrick on a stone socle c.1 meter high. No mortar was used, but the stone foundations were very solid due to the care apparent in the selection and working of the stones used. Some sort of level appears to have been used during construction to ensure horizontality (Zimansky 1995a: 106).

Most important buildings, such as temples, were constructed of high-quality ashlar masonry. Fortress walls were punctuated with regular buttresses – alternately large and small in the 8th century, and of uniform size in the 7th century (Kleiss 1976: 35–6; Zimansky 1995a: 106). B. Piotrovskii observed a decrease in the size of the stones used for socles over time. Earlier fortresses boasted huge, cyclopean masonry, while later ones were built of relatively smaller stones (Piotrovskii 1959: 199).

A signal feature of Urartian religious architecture is the square tower temple with reinforced corner buttresses. In accordance with ancient Near Eastern tradition, Urartian temples were placed at the highest point of a site. Temples consisted of a single cella, the substantial height of which is suggested by the quantity of thick mudbrick debris. Both excavations and glyptic evidence confirm the use of open-air platforms as shrines.

10 Burial Practices

The diversity of Urartian funerary practices enforces the belief that the kingdom of Van was culturally and ethnically diverse (Zimansky 1995a: 109). Both inhumation and cremation were practiced in the central part of the kingdom. In addition, jar burials, cremation urns, and multi-chambered, rock-cut tombs are attested. Several rock-cut tombs bear the inscriptions of Urartian kings. The annals of Argishti I were carved outside the entrance to the Horhor chambers at Van; an inscription of Rusa II was carved into the rock outside a tomb chamber at Kale Köyü/Mazgert (Öğün 1978: 642); and an inscription mentioning Argishti II was found in a subterranean tomb at Altin tepe (Özgüç 1969: 70; Zimansky 1995a: 109). This may indicate that such burials were associated with Urartian aristocracy, or state officials.

11 Language

In the past, the kingdom of Urartu was often considered backward and illiterate, a "pale reflection of Assyria" (Burney and Lang 1971: 28). The Urartians adapted Assyrian cuneiform to their language and used some common formulaic expressions from the Assyrian literary tradition. However, it is possible that before the kingdom was formed, the *uruatri* employed a more cumbersome, hieroglyphic script that continued in use in Urartian administration and cult practices (Piotrovski 1969: 65). It has also been suggested that the dearth of evidence for the early use of Urartian hieroglyphic system is due to the fact that it was written

on perishable materials (Klein 1974: 77ff). The discoveries at Altintepe, near Erzincan in eastern Turkey, illustrate the use of a syllabic hieroglyphic script to record the Urartian language. There, inscriptions written in Neo-Hittite hieroglyphic signs on large storage vessels record the contents in the usual Urartian measures. Cuneiform was reserved for more monumental messages that were meant to endure the test of time.

The Urartians recorded the contents of storage jars, usually liquids, in *aqarqi* and *terusi*. These terms are used in their full form at Toprak Kale, Shushantsa, and Arin-berd, while in other instances they are shortened to *a* and *te*. In both cases, simple cuneiform numbers were used to indicate quantity. Sometimes, different types of pictorial or hieroglyphic signs were used in combination with cuneiform, in which case numbers were indicated on the surface of a vessel by means of small holes drilled into its surface.

All the above-mentioned examples date to the early 8th century BC. Later, the needs of the growing kingdom could no longer be met by the rather cumbersome hieroglyphic script. Thus, the Urartians borrowed the Assyrian cuneiform system and adapted it to their own language. However, Urartian cuneiform script was used quite differently from other examples of cuneiform writing such as Elamite, Hurrian, Hittite, and Akkadian. As far as we know, Urartian was not used for the creation of literary works. It was reserved exclusively for monumental inscriptions on stone, and, to a lesser extent, dedicatory inscriptions on various other objects. The oldest inscriptions, produced under Sarduri I, were in Assyrian. Urartian-Assyrian bilinguals appeared during the reign of Ishpuini, and later rulers exclusively used Urartian for their annals and dedicatory inscriptions.

Urartian was an agglutinate ergative language. An affinity between Urartian and Hurrian has long been noted (Diakonoff 1971; Khačikyan 1995). This was expressed in vocabulary as well as grammatical forms. Both Diakonoff and Khachikian attempted to demonstrate a connection between Hurrian-Urartian and northeastern Caucasian languages, spoken today in the former Chechen-Ingushetiya, Daghestan, Georgia, and parts of Turkey (Diakonoff 1978: 24–42). The study of the Urartian language is far from complete. There is still no comprehensive grammar of Urartian and no unanimity on details of phonology, morphology, and syntax. We are yet to discover any Urartian law codes, myths, or rituals of any kind, even though a detailed study of the glyptic evidence may provide some understanding of common themes in the Urartians' worldview (Ayvazian 2006).

GUIDE TO FURTHER READING

Urartian studies are ever-evolving. With each excavation report, we have come to expect new, surprising discoveries. B.B. Piotrovskii, the former Director of the Hermitage

Museum, was a pioneer of Urartian studies. Despite the use of unprovenanced material, normal for his time, the breadth of his historical knowledge and unexpected perspectives was unprecedented (Piotrovksii 1967, 1969). The most comprehensive study of Urartian art to date is Van Loon (1966). For a thorough analysis of Urartian seals, see Ayvazian (2006, with extended bibliography), Seidl (1979 and 1988), Calmeyer (1974) and Calmeyer and Seidl (1983). Melikishvili (1960) remains the classic work on Urartian cuneiform inscriptions, but also see Arutiunian (2001) for an updated corpus (both in Russian). The work of Salvini (1989, 1994, 1995) is highly recommended for newer Urartian epigraphic material, as well as refreshing historical insights. For the comprehensive corpus of all known Urartian inscriptions, see Salvini et al. (2008). *Aramazd: Armenian Journal of Near Eastern Studies* presents the work of many young scholars and contains many thought-provoking ideas.

CHAPTER FORTY-EIGHT

Iron Age Western Anatolia: The Lydian Empire and Dynastic Lycia

Christopher H. Roosevelt

1 Introduction

Two Iron Age cultures of western Anatolia that emerged in the aftermath of the collapse of Late Bronze Age (LBA) systems merit special discussion because of their importance both as cultures with indigenous traditions and languages and as geographical, political, and cultural intermediaries between the Near Eastern and Aegean worlds: the Lydians in central western Anatolia and the Lycians in southwestern Anatolia. The LBA histories of Lydia and Lycia were presumably related in as much as the two regions were likely the heartlands of western Anatolian groups identified in Hittite archives – the Seha River Land and Mira, on the one hand, and the Lukka Lands, on the other – and they featured significantly in Hittite territorial campaigns in the west. They are related also in their unfortunate dearth of evidence pertaining to the transition from the LBA to the Early Iron Age. Yet, despite the clear and common impacts of interactions with other Anatolian, Greek, and later Achaemenid Persian cultures, the Iron Age histories of Lydia and Lycia remain almost entirely distinct.

The history and archaeology of early 1st millennium BC Lydia is illuminated by a combination of pseudo-historical, historical, epigraphic, and archaeological evidence, providing a rich synthesis of the sociopolitical, economic, and religious traditions of this indigenous and territorially unified kingdom down to the Persian conquest in the mid-6th century BC. While much of the material record in 6th century Lydia cannot be sorted according to specifically Lydian versus

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Achaemenid features – a result of a strong degree of cultural continuity – a clear picture of the pre-Achaemenid Lydians can be drawn. The Iron Age history and archaeology of Lycia before its mid-6th century BC conquest by the Persians, however, remain almost entirely unknown. Yet, Lycian traditions attested in and after the 6th century presumably owe at least as much to the continuity of older, local traditions as they do to the introduction of foreign features. Furthermore, while Lydia remained politically and geographically cohesive throughout both Lydian and Achaemenid hegemony, at no point in its early history can Lycia be defined as imperial, or even federal, and its dynastic history under the Achaemenids displays a territorial and, perhaps, political fragmentation that may have resembled its LBA configuration.

Our knowledge of Lydia and Lycia derive from a long tradition of scholarship beginning with early travelers in the 17th through 19th centuries who relied heavily on histories and rich anecdotes relating to these areas in Classical literature, and whose "archaeological" activities consisted primarily of collecting and/or cataloguing sculptural, architectural, numismatic, and epigraphic evidence for Western audiences. Early pictures of Lydia and Lycia were thus painted from the perspective of Classical Greek and Roman understandings of the local cultures of Asia Minor, as Anatolia was commonly known in Classical sources. Such sources directed scholarly interest toward the primary urban sites of the regions: Sardis, the capital of Lydia, and Xanthus, the capital of Lycia, at least during certain periods. More recently, archaeological excavations, regional surveys, and linguistic studies have highlighted the indigenous, Anatolian character of these cultures, and expanded research foci beyond primary centers to hinterlands and rural settlements. With reference to all such sources, this chapter aims to provide overviews of the Lydians and Lycians in western Anatolia from their earliest archaeological attestation to the Persian conquest in Lydia and to the loss of local administrative control during the Achaemenid period in Lycia.

2 Early Lydia

The obscurity of early Lydia, among its Aegean and western Anatolian neighbors in the Early Iron Age, is demonstrated by a lack of secure answers to seemingly basic questions regarding the origins of the Lydians and the extent of their territory. From where and when did Lydian-speaking populations arrive in Lydia? What was the territorial definition of Lydian culture at this time? Primary obstacles to answering such questions include a dearth of historical and archaeological evidence. Nevertheless, while Lydian origins remain debated, the probable core of early Lydia was the area surrounding its eventual capital and only known urban settlement of the Iron Age: Sardis, where over half a century of excavations have uncovered stratified occupation sequences beginning in the LBA. Located at the southern edge of the valley of the Hermus (Gediz) River, along the middle stretch

of its course from Mount Dindymus (Murat Dağı) to the Aegean Sea, Sardis and its immediate environs were undoubtedly the heartland of Lydia from its early days through the establishment of the Lydian Kingdom and later Empire. According to later Classical sources, the Lydian Kingdom included at least the valleys of the Hermus and Cayster (Küçük Menderes) rivers and their tributaries, separated by the Tmolus (Boz Dağı) range. A string of peaks and ranges separated inland Lydia from coastal Ionia and Aeolis to the west, while mountainous uplands to the north and east shared borders with Mysia and Phrygia, respectively. Ancient accounts vary as to whether parts of the Caicus (Bakir) and Maeander (Büyük Menderes) river valleys, on the northwest and south, respectively, were part of Lydian territory. This core region, then, contained diverse topography – rivers and lakes, broad and fertile valley floors, rolling and forested uplands, and lofty peaks reaching more than 2,000 meters above sea level – as well as varied resources – abundant water, wood and stone, richly arable land and precious metals, most notably gold. The discovery of gold, or rather the natural alloy of gold and silver called electrum (Ch. I.16), in the Pactolus (Sart) river at Sardis may, in fact, have been a primary attraction in the early settlement of the site in the LBA. But who were the first settlers of Sardis?

Toward the end of the LBA the region described above belonged to two vassal kingdoms of the Hittites, according to texts found at Hattusha (Chs. I.30, II.38). Mira, the better known of the two, had its capital at Apasa (Classical Ephesus) and controlled an elongated swathe of territory stretching from the Aegean toward the interior along the Maeander and Cayster river valleys. North of Mira and probably separated from it by the Tmolus range was the Seha River Land, with its capital probably in central Lydia and coinciding territorially with most of northern Lydia and perhaps the Caicus river valley as well (Hawkins 1998). The unnamed capital of the Seha River Land may have been located recently in central Lydia, not at Sardis but near the shore of the Gygaean Lake (Marmara Gölü) at Kaymakçi, the size and monumental remains of which suggest its probable regional significance (Luke and Roosevelt 2009; Roosevelt 2009, 2010). It was during the LBA when Kaymakçi was a regional capital, then, that Sardis, 18 kilometers to the southeast, appears to have been first settled.

The inhabitants of these western Anatolian vassal kingdoms of the LBA are usually thought to have spoken Luwian, an Indo-European dialect related to Hittite (Nesite) and Palaic, among other languages, all descending from Common Anatolian, the speakers of which are thought to have entered Anatolia by or sometime in the 3rd millennium BC. By the 7th century BC, at the very latest, however, it is clear that the inhabitants of Iron Age Lydia were speaking and recording things in their native tongue, Lydian. Known from around 115 inscriptions of the 6th–4th centuries, most of which are funerary in nature, Lydian is a dialectical descendant of Common Anatolian and is thus a member of the larger Indo-European language group. It had developed from its common Anatolian roots over a long time before its appearance in written form. If the Seha River

Land was primarily Luwian-speaking in the LBA, then, Lydian speakers must have entered Lydia some time after the collapse of LBA society in the 12th century, but before the appearance of written Lydian in the 7th century. Those who adhere to this view usually cite a Bronze Age origin for the Lydians somewhere in northwestern Anatolia, from where they later migrated south to Lydia (Melchert 2010). Citing the paucity of evidence for Luwian speakers in Bronze Age central-western Anatolia, however, other scholars think it likely that Lydian speakers inhabited the area already in the Bronze Age (Yakubovich 2008a). Thus, the first settlers of Sardis would have been Lydian speakers, as would the inhabitants of Bronze Age political centers in the area, notably Kaymakçi. Although both the pseudo-historical evidence of Greek accounts and archaeological data have been brought to bear on this problem, no firm resolution has emerged.

Greek accounts written well after the fact, yet perhaps containing kernels of truth, name many early kings of Lydia. Yet the earliest Greek account we have for this area, Homer's *Iliad*, written down some time around 700 BC, mentions nothing at all of a place called Lydia, referring to the same area, rather, as Maeonia. For later Greek authors, such as Herodotus and Strabo, writing in the 5th and 1st centuries BC, respectively, Maeonia was an early name for Lydia – and this may have been the case, since Maeonia appears to have roots in a LBA toponym of the Seha River Land (van den Hout 2003). At any rate, while Homer mentions neither Lydia per se nor its kings, others give accounts of numerous Lydian kings that appear to be irreconcilable, and the existence of none of these kings can be substantiated before the rise of the Mermnad Dynasty in the early 7th century, for which we have firm historical evidence.

The clearest account of early Lydian successions is by Herodotus (1.7), who reports that two dynasties ruled in Lydia before the Mermnads. The first of these was the Atyad Dynasty, with an eponymous founder named Atys, whose son, Lydus, gave his name to the region and people. Little else is revealed of this earliest Lydian dynasty, yet it is probably apocryphal given the nature with which it provides a neat history for the name of the Lydians. Herodotus knew the second dynasty of Lydia as the Heraclids, and he reports that Heraclid kings ruled for 22 generations, a total of 505 years, before the usurpation of Candaules by the first Mermnad king, Gyges. While the rule of Gyges is historically corroborated by the Assyrian archives of Assurbanipal (668–627 BC), which help to date his accession to c.680 BC and refer to him as Gugu of Luddi, the reigns of his predecessors have no external historical support. Nevertheless, it may be more than an interesting coincidence that the Heraclid Dynasty dawned, according to Herodotus, around 1185 BC, or 505 years before the reign of Gyges (c.680 BC). This would place the beginning of Heraclid rule in Lydia (and the end of Atyad rule, if historical) to just the time when LBA society in western Anatolia had fallen into turmoil. Unfortunately, archaeological evidence for this period of transition neither confirms nor denies such circumstances.

Limited excavations at Sardis have exposed levels extending well into the LBA and indicate the occupation of the site at least by this time. A burnt level is attested at some point toward the end of the LBA, but neither the date, the circumstances, nor the extent of this burning are firmly established. The exposure is too small to warrant any far-reaching conclusions about conflagrations at Sardis during a time when many sites in the eastern Mediterranean were destroyed and/or abandoned.

Abandonment, and possibly destruction as well, are attested, however, at Kaymakçi and other LBA citadels in central Lydia. In the Iron Age, such citadels remained abandoned in favor of settlement in other locations with both upland and lowland situations. Aside from this shift in settlement patterns, certain production technologies in central Lydia, including those for mudbrick and ceramics, also seem to change between the Late Bronze and Iron Ages. As for the burning level at Sardis, however, the timing and nature of such changes are too poorly understood to determine whether they derive from external or internal developments or from a combination of the two. Thus the archaeological record at Sardis and in central Lydia in general cannot yet distinguish between changes in population and changes in local, socioeconomic conditions during the transition from the LBA to the Iron Age.

The archaeological record at Sardis as it progressed into the Iron Age, however, especially ceramic evidence, bespeaks the general cultural affinities of Sardians during these times. Just as in the LBA, when the Seha River Land and Mira were intermediaries between the Hittites and their Aegean adversaries, to the east and west, respectively, and their material culture featured both Anatolian and Aegean characteristics, the evidence of the Early Iron Age shows shifting affinities from inland to coast among Anatolian, especially Phrygian and Aegean Greek features (Ramage 1994). By the late 8th century, just before the advent of the Mermnad Dynasty, Lydian material culture continued to show similarities with these two broad cultural regions. By this time, though, some classes of evidence, especially ceramics, appear to show a significant increase in Greek features that can be correlated with historically documented interactions between the Mermnad kings and the Greek city-states of coastal western Anatolia during the 7th century.

3 The Lydian Kingdom and Empire

Lydian interactions with coastal Anatolian Greek city-states naturally dominate the primarily Greek written sources that document the period of the Mermnad Dynasty, dating from c.680 to the mid-540s BC. Yet interactions with central Anatolian and Near Eastern powers are illustrated historically as well as archaeologically. The intermediary nature of Lydian territories between East and West, along with the Mermnads' eagerness to interact in both directions, helped produce a capital city, Sardis, a kingdom, and later an empire suffused with

cosmopolitan internationalism. The dynasty is defined by five kings reigning in hereditary succession, from Gyges (c.680–644 BC) to Ardys (c.644 to the late 7th century BC) and Sadyattes (late 7th century to c.610 BC), followed by Alyattes (c.610–560 BC) and Croesus (c.560 to the mid-540s BC). The military campaigns of each of these kings are chronicled by Herodotus and others, but the reigns of Gyges, Alyattes, and Croesus are known best.

Herodotus tells a romantic tale about Gyges' usurpation of Candaules' Heraclid throne involving superlative beauty, hubris, and honor (1.8–12), yet Gyges' rise appears to have been enabled by external support from Caria and external sanction from the Greek oracle at Delphi, just as it may ultimately have resulted from internal revolt or feuding (Ramage 1987). Shadowy as his beginnings may be, by c.664 BC Gyges was embroiled in territorial defenses against Cimmerian invaders who were laying waste to much of the Anatolian peninsula. We know of these invaders from Greek accounts, but more explicitly from the Assyrian archives of Assurbanipal that mention Gyges' requests for military assistance (Cogan and Tadmor 1977; Spalinger 1978). Specific confrontations between the Lydians and Cimmerians are noted in c.664 and 657, and again in c.644 BC, when Gyges was allegedly killed in battle. The Cimmerian problem long-outlasted Gyges' reign, however, causing difficulties throughout the 7th century for his immediate successors, one of whom, Ardys, also requested Assyrian assistance. According to Greek sources, the threat was at last put down by Gyges' great-grandson, Alyattes. Even then, remnant Cimmerian populations near coastal Adramytteion, just northwest of Lydia proper, may have prompted Alyattes to install his son Croesus there as governor.

Even while occupied with the Cimmerian threat to their immediate east, however, Gyges maintained diplomatic and military activities in other areas of the eastern Mediterranean, notably sending mercenaries to Egypt to assist Psammetichus I between c.662 and 658 BC. At the same time, Gyges attacked Ionian and Aiolian Greek city-states, including Smyrna, Colophon, and Miletus, to the west, and his successors Ardys and Sadyattes kept up similar campaigns. Ardys even captured Priene. There is little evidence that Priene or any other coastal areas were held for long, however, as the territorial bounds of the Lydian Kingdom appear never to have encompassed the Aegean coast. Lydian control probably stretched inland by the late 7th century, with the Phrygian capital of Gordion (Ch. II.42) serving as an important symbolic, if not also strategic, conquest. The real expansion of Lydian territories, however, came later during the reigns of Alyattes and Croesus, when the eastern border of Lydia was established at the central Anatolian Halys (Kizilirmak) river and Croesus began to exact annual tribute from all conquered states to its west.

The eastern border of Lydia was set at the Halys river as a compromise between the Lydian king Alyattes and the Median king Cyaxares, whose armies had previously fought to a standstill over some years. Herodotus (1.74) reports that a total eclipse of the sun (dated astronomically to May 28, 585 BC) interrupted the

inconclusive battles and helped precipitate the negotiation of a boundary between Lydian and Median territories at this river. He also says the treaty was witnessed by the kings of Babylon and Cilicia and was further cemented by a Lydian–Median royal marriage alliance. Alyattes' daughter, Aryenis, was wed to Astyages, son of Cyaxares, and it is likely that Alyattes or his kin reciprocated by taking a Median wife of royal blood. Such marriage alliances were by no means limited to Lydian diplomacy in the Near East, and seem to have been a defining feature of Lydian interactions with Greek polities. Carian and Ionian Greek wives bore children to Alyattes and a daughter of Alyattes was wed to Melas, the tyrant of Ephesus. Croesus, whose mother was Alyattes' Carian wife, thus had an Ionian half-brother and both Ephesian and Median brothers-in-law. The trend extends back even further to the founder of the dynasty, Gyges, whose mother was said to be Phrygian and whose wife was Mysian. This long tradition of royal intermarriage between Lydians and other western Anatolian cultures is only one example of interactions between such territories on many cultural levels. Increasingly strong ties with Greek cultures were notable in the spheres of religious practice and artistic production, among others, and are well documented in Greek sources.

Lydian kings, for example, appear to have regularly patronized Greek sanctuaries, as has been established for Gyges, Alyattes, and Croesus. All three of these kings made rich offerings to Apollo at his oracle at Delphi, and Alyattes rebuilt one temple and founded a second temple dedicated to Athena at Assessos. Croesus made dedications at a wider array of sanctuaries, including those at Thebes, the Amphiaraion, Sparta, Didyma, and Ephesus, and he commissioned precious works of fine craftsmanship from Greek artisans of Chios and Samos. Furthermore, inscriptions in Lydian and Greek attest Lydian technical and financial contributions to the construction of the monumental temples of Athena at Smyrna and Artemis at Ephesus, respectively. These two cities may have had particularly close connections to Lydia, perhaps because they would have served as its most important maritime ports of trade, at least under the reign of Croesus (Kerschner 2010).

The richness of Lydian interactions with other western Anatolian and Aegean Greek peoples and polities, however, never seemed to have limited, nor to have been limited by, Lydian attacks and eventual territorial conquest. Alyattes followed in the footsteps of his forebears by attacking Miletus and Smyrna, besieging Priene and invading Clazomenae. Croesus attacked all these again, yet significantly altered Lydian diplomacy in the area by imposing annual tribute on each of the places he conquered. Thus Croesus transformed the Lydian kingdom into an empire, with territories spread across most of Anatolia west of the Halys river, including the coastal Aegean region, but excluding, for reasons unexplained by Herodotus (1.28), the coastal Mediterranean areas of Lycia and Cilicia. Just as it had been the capital of the Lydian Kingdom, Sardis became the capital of the Lydian Empire, and its imperial status was reflected in new monuments built throughout the city and in its immediate environs.

Sardis, the only known urban settlement in all Lydia during these times, flourished during the 7th and 6th centuries BC under Mermnad rule, primarily that of Alyattes and Croesus. Located among the northern foothills of the Tmolus Range, along the southern margin of the Hermus River valley, Sardis likely gained importance from its strategic location: it sat along major routes of communication, had an extremely defensible acropolis and could exploit an abundance of nearby resources, including wood and stone in the mountains, arable land in the plain, and fresh water from springs and rivers. The topography of the site was shaped by rivers flowing north from the mountains that defined between them residual hills of local conglomerate bedrock. The most important of these was the Pactolus, the river that bore the silver-gold alloy electrum extracted in abundance by the Lydians. To its east lay the most intensively inhabited areas of Sardis, atop and covering the foothills of its acropolis, a naturally well-fortified citadel. West of the Pactolus was another precipice known today as the Necropolis because of the rock-cut chamber tombs and other burials of Lydian and later periods that cover its lower foothills.

By the late 7th or early 6th century, and perhaps earlier, the urban area of Sardis was defined by a monumental fortification wall that enclosed c.108 hectares of the northern foothills of the acropolis. Built atop stone foundations c.20 meters wide, on average, and with its varying mudbrick and stone-faced superstructure preserved in places up to 10–13 meters high (Cahill 2010b), the wall appears to have been built to impress on an imperial scale. Its functionality is demonstrated by the additional 20 meter wide sloping glacis that abutted its exterior in places, probably intended to waylay the likes of siege engines, chariots, and sappers. Below the strong citadel on the acropolis and within the area defined by the fortification wall, then, the city of Alyattes and Croesus took form. Prior to this centralization of the urban space, settlement remains including domestic workshop complexes and perhaps even public structures suggest that the focus of activities was along the eastern bank of the Pactolus. Yet, scattered remains from earlier periods have been recovered on the acropolis and in its northern foothills, too. During the mid-6th century, natural terraces on the acropolis and its northern foothills were transformed by a large-scale terracing project, with finely worked stone walls reveting natural spurs. The building technology and monumentality of such constructions, and of parts of the fortification wall as well, may have derived from Near Eastern traditions and they seem to have been pioneered in western Anatolia by Lydians and Ionians at around the same time (Ratté 1993). Terrace construction at Sardis was undoubtedly of royal sponsorship, yet its exact purpose has yet to be clarified. Palaces and temples at Sardis are attested in Greek sources, and, despite a lack of archaeological confirmation, it is likely that the terraces of central Sardis supported these types of buildings.

Textually attested sanctuaries at Sardis include only those of Artemis of Sardis and Cybele, locally known as *Kuvava* and, more generally, the "mother." Although remains of these sanctuaries do not survive, a modest altar of Kuvava

and small-scale models of her monumental temple were recovered during excavations. The latter seem to depict temples of Ionic Greek form, perhaps similar in design to those that Alyattes and Croesus sponsored at Miletus and Ephesus. Other sanctuaries, shrines and small cult places must have been quite common at the site, for several other deities of Anatolian and Greek origin are known from Lydian inscriptions and later textual sources. In addition to the above goddesses, who seem to have been especially important at Sardis, with Cybele probably serving as a protector of the royal house, Artemis appears to have been worshiped in the city in two other guises: Artemis of Ephesus, attesting to the special relationship between Sardis and that city, and Artemis Coloëne, or of Lake Coloë, another name for the Gygaean Lake, located some 12 kilometers north of the city. Other local deities include *Leus*, or Lydian Zeus; *Qldans*, perhaps the moon god or a sun god equivalent to Greek Apollo; *Baki*, the Lydian Dionysus; and *Sandas*, a warrior god with Luwian roots sometimes equated with Heracles. Deities originating in the Greek world yet who worshiped at Sardis include Apollo, Hera, Demeter, Kore, and possibly Aphrodite. In addition to these identifiable gods and goddesses, deities of unclear nature (perhaps Lydian or Carian) were probably the recipients of so-called ritual-dinner offerings, 26 examples of which have been excavated across the site. Each was remarkably consistent in content, including a place-setting (cup and plate), a small pitcher, a cooking pot, a knife, and the bones of a young canine (Greenewalt 1978). Obscure though they may be, each was deposited in what may be classed best as a form of household cult practice.

Spread across the spurs and terraces of the acropolis in and around more monumental constructions were the main residential areas of the mid-6th century city. Most houses were probably built with rubble foundations, mudbrick walls, and thatch roofs. Finely molded and painted terracotta tiles and architectural revetments have been recovered in excavations in some areas of the site, but these must have been associated with high-status buildings, such as elite or royal houses and cult buildings. More common houses or house complexes appear to have been composed of several single-room units arrayed within a courtyard space. Kitchen spaces attest to a variety of food processing and preparation activities as well as a diversity of foodstuffs, including cereals, pulses, garlic, and grapes, and the remains of meaty meals with bone scraps from bovines, fowl, pig, sheep, and goat (Cahill 2002). Other spaces within house complexes appear to have seen mixed use for both domestic purposes and cottage industry, with households producing small, rock-crystal and glass items and textiles, for example. Larger-scale workshops – e.g., for ceramics and stonework, including sculpture – have yet to be located within the city and may have been situated outside the fortifications, as in the case of a 6th century metal refinery located in the Pactolus river valley where the two-stage separation of electrum into its component parts of gold and silver was carried out. Earlier, during the 7th century, it was probably at a similar workshop that electrum was first hammered into lumps of regular

size and stamped with a royal insignia, a lion's head, thereby guaranteeing its value and inventing coinage, a particular claim in Lydian history. The separation technique that allowed Croesus to issue coins of pure gold and pure silver may have been hit upon at this very refinery, but, to date, minting facilities and paraphernalia have eluded discovery.

Also confined to areas outside the city walls were burials of the Lydian period. These include burial forms of three main types attested both at Sardis and throughout greater Lydia: pit burials, some lined and covered with stone slabs; sarcophagi of terracotta or stone; and chamber tombs, either hewn from bedrock or covered with mounds of rubble and earth and, in that form, commonly known as "tumuli" (sing. tumulus). Rock-cut chamber tombs, pits, and sarcophagi were used most frequently in the urban cemeteries of Sardis along the Pactolus river, especially in the foothills of the Necropolis, where more than 1,100 were excavated in the early 20th century. While these types of burials are found elsewhere in Lydia, too, the conspicuous monumentality of tumuli has resulted in a clearer understanding of their distribution and significance.

The largest Lydian tumuli are those containing the tombs of Alyattes and other members of Sardian royalty and elite found roughly 7 kilometers north of Sardis in the largest known tumulus cemetery of Anatolia, known locally as Bin Tepe (Turkish for "thousand mounds"). With its 70 meter height and 361 meter diameter, the tumulus covering the tomb of Alyattes is the largest example in western Anatolia and, as Herodotus first noted (1.93), vies with the Egyptian pyramids of Giza in its monumentality. While none of the royal tumuli of Bin Tepe have yet been found intact by archaeologists – having been looted some time ago, some already in antiquity – smaller tumuli located elsewhere in Lydia give pale hints of the grandeur of these royal burials. Tumuli at Güre, near Uşak (eastern Lydia), for example, had wall paintings decorating the interiors of finely built stone tomb chambers (Özgen and Öztürk 1996). The deceased were laid out on stone funeral couches (Greek *klinai*), adorned in fine jewelry of precious metals and stones, and covered with shrouds. Abundant grave goods included items of personal care and adornment, such as cosmetic boxes, perfumes, and combs, in addition to what may be interpreted as the remains of funerary feasts, including plates, bowls, cups, and incense burners made of ceramic, glass, stone, silver, and gold.

These tombs belonged to high-status individuals living in the early years of Achaemenid rule in the area, yet the quality and quantity of their finds reflect ultimately Lydian traditions concerning the dead, just as their locations reflect Lydian traditions concerning the living. More than 600 tumuli spread throughout Lydia are clustered into fewer than 100 groups that were sited with reference to subsistence, communication, territorial, and resource control (Roosevelt 2006) and probably mark the locations of elite family estates tasked by the Lydian court at Sardis to attend to such concerns. As such, they can serve as proxies for understanding the organization of regional settlement. While elite

family members may have spent much of their time at the Lydian court, slaves and/or commoner inhabitants living in small hamlets or villages near to or within estate lands would have farmed their holdings. In addition to slaves and commoners, Lydian society at Sardis was defined by at least three other broad social strata attested textually: a very broad middle class, including merchants, shopkeepers, craftsmen, artisans, etc.; high-status or elite groups, including noble families and religious officials; and royalty (Roosevelt 2009). A lack of evidence prevents further elucidation of Lydian social structure or differentiation along age or gender lines, yet it is clear that Lydian society was ethnically diverse, at least by the 6th century. Phrygian, Mysian, and, especially, Carian immigrants and influences are common among Anatolian sources and are attested at Sardis in material production as well as by historical texts and personal names. Further afield, similar types of evidence reflect possible interactions with, if not the local presence of, Phoenicians, Assyrians, and Scythians. Yet Greeks from the mainland and the east Aegean coast, as well as their cultural traditions, most permeated Lydian society. Lydian–Greek affinity was probably a result of long-term interaction on military, religious, commercial, and artistic levels and reached a crescendo in reign of Croesus, when several Greek leaders visited his court.

It was perhaps because of his close connection to Greece and its sanctuaries that Croesus made the fateful mistake attributed to him by Herodotus (1.46–81) that put an end to both his reign and the Mermnad Dynasty. According to this romantic tale, Croesus was unnerved upon learning that an upstart king of Persia named Cyrus had conquered the Medes under their king Astyages c.550 BC. Perhaps because of a familial obligation to avenge his brother-in-law, perhaps in an attempt to protect or even expand his rule in Anatolia west of the Halys River, Croesus planned to confront Cyrus and his army. Before doing so, however, he sought sanction from what he considered the best of the Greek oracular sanctuaries, the oracles of Apollo at Delphi and of Amphiaraus in Thebes. When asked whether Croesus should attack, both oracles answered that were he to do so "he would destroy a mighty empire." Fatefully misunderstanding the answer, Croesus led his armies east, having sent embassies of alliance to Sparta, Egypt, and Babylon. After an inconclusive battle near Pteria in Cappadocia, and outnumbered by Cyrus' vast army, Croesus retreated to Sardis, released his mercenaries, and awaited his allies' reinforcements. Cyrus and his army followed too closely upon Croesus' heels for his plans of reinforcement to come to fruition, however. Cyrus surprised the Lydians and engaged in open battle in front of Sardis, besting their cavalry with the strategic aid of a Mede named Harpagus. After a brief siege, Cyrus overcame Sardis' defenses, laying waste to its urban landscape, monumental and residential alike. This mid-540s BC Persian sack of Sardis has been attested archaeologically and impressively in numerous contexts across the site, vividly illustrating the destructive end of Croesus' Lydian rule. While Cyrus quickly sent his armies beyond Sardis to continue his territorial conquests, Sardis only gradually recovered from its violent sack. By the end of the 6th century, and after a

brief Lydian resistance, the city was transformed into the satrapal capital of an imperial Achaemenid province, with its administrative operations continuing much as they had under Lydian rule.

4 Pre-Achaemenid and Dynastic Lycia

Following the sack of Sardis and the successful conquest of rebellious contingents in Ionia and Caria, Cyrus' troops under Harpagus made their way south to Lycia. Importantly, while Herodotus refers to Harpagus' suppression of several peoples and places in Ionia and Caria (1.162–176), he reports that Harpagus took only Xanthus in Lycia, suggesting that, like Sardis, it may have been the only centralized seat of power in Lycia at that time. Here, the Lycians met the Persians in the Xanthus river valley and retreated to the acropolis of Xanthus after suffering defeat in open battle. Besieged by the Persians, the Lycian troops gathered their women, children, servants, and possessions in the acropolis and burnt it down completely in a final suicidal sally against the invading forces. We learn also from Herodotus that the city was later reinhabited by "foreigners" as well as 80 Xanthian families who had been absent during Harpagus' siege. Contrary to the earlier and longer thread of evidence available for Lydia, this account is the earliest historical testimony we have on Lycia, yet it clearly indicates the presence of a Lycian culture, if not a political entity, that was well established before the mid-6th century. What else can be said of pre-Achaemenid Lycia, its territory and people?

By the later 5th or 4th century BC, Lycia could be defined as the mountainous coastal area of southwestern Anatolia stretching between Caria, to the west, and Pamphylia, to the east, roughly between modern Fethiye and Antalya. The courses of several major rivers divided the mountainous terrain, and the largest of them, the ancient Xanthus (Eşen) River, achieved a width of 20 kilometers in places and was likely the political core of Lycia in the early 1st millennium BC and perhaps earlier. Other rivers created a dissected, circumscribed coastal terrain that encouraged both landed isolation (and the eventual establishment of more than 30 independent cities) and maritime communication. To the northwest of Lycia lay the territory of the Cibyratis and to the north-northeast that of Milyas, both separated from the coastal strip by mountain ranges. While Milyas displayed markedly Phrygian characteristics in material culture during the 7th century, as known from the Bayindir tumuli in Elmali, the area seems not to have been brought under Lycian political control until the 4th century BC (Keen 1998: 13–20).

The archaeological evidence of 2nd and early 1st millennium BC Lycia includes rare Bronze Age pottery from a handful of Lycian sites and early tombs and sparse pottery of the late 8th/early 7th and 6th centuries from sites such as Pinara, Xanthus, the Letoön, and Patara, in the Xanthus river valley, and Phellus,

Antiphellus, and Limyra, further east (Keen 1998: 28, 214–20). The 7th century remains at Xanthus also include architectural remains that resemble Near Eastern *bīt ḫilāni* (Ch. II.41) structures (Marksteiner 2005: 39). Little else can be said about pre-Achaemenid Lycia from a material perspective. Accordingly, one must speculate about the early history and geographical definition of Lycia on the basis of LBA historical, Iron Age pseudo-historical and linguistic evidence. That "Lycians" were associated with the area described above at least since the LBA is suggested by continuity in placenames between Iron Age Lycia, as it was known to the Greeks, and the Bronze Age Lukka Lands in Hittite sources (Bryce 1986: 1–10; Keen 1998: 214–20). The people of the Lukka Lands appear to have been politically unconsolidated groups dwelling in areas stretching from southern Caria into western Lycia, perhaps practicing transhumant pastoralism. Their maritime activities and coastal situation are indicated as well by their description as sea-borne marauders in the royal correspondence between Cyprus and Ugarit, and by their identity among the "Sea Peoples" plaguing the eastern Mediterranean during the reign of Merneptah in the late 13th century BC. Furthermore, the territorial affinity between the Lukka Lands and later Lycia, at least western Lycia, has been confirmed by an itinerary of the Hittite king Tudhaliya IV recorded in the Yalburt inscription (Poetto 1993) which names *inter alia* several places that can be identified with Tlos, Xanthus, and Patara, and that align well with the topography of the Xanthus river valley.

References to Lycia and the Lycians in the *Iliad*, too, though pseudo-historical, seem to confirm the importance of the Xanthus river valley and its population by the time of its composition around 700 BC. The Lycian contingent is taken to be Troy's most important ally, with their leaders Sarpedon and Glaucus playing important roles in the Trojan War's final year (e.g., *Iliad* 2.816–877, 5.471–492). "Lycia" and "Xanthus" even seem to be used interchangeably in Homeric epic, suggesting that, from a Greek perspective, the two were inseparable. The Bellerophon saga, and its location in Lycia, also, draws attention to the area and suggests a general familiarity with the region and its people amongst Homer's intended audience.

The troubling paucity of corresponding archaeological evidence of the 2nd and early 1st millennium BC for either the people of the Lukka Lands or for Homer's Lycians has been explained most commonly by assuming that the people of Iron Age Lycia lived elsewhere during the LBA and migrated into Lycia only later (Bryce 1986: 24–40), or that heavy alluvial sedimentation, the relative archaeological invisibility of transhumant pastoralist ways of life, and a lack of intensive surveys in the area have collectively failed to identify pre-7th century remains (Keen 1998: 27–8). Until richer remains of the LBA and Early Iron Age are located, and these can be associated with the Lukka or Lycians, this question will remain unanswered. Further confounding the story of 1st millennium Lycia is Herodotus' testimony that Lycians were earlier called "Termilae" (1.173) and that they migrated to Lycia from Crete. This and other Greek tales of Lycian

origins were probably literary inventions written to suit contemporary purposes and we need not rely on tales of foreign migrations today. Yet, Herodotus' account may have a kernel of truth, as "Termilae" resembles *Trmmili*, the term used by the Lycians in their native language in referring to themselves and the name by which they were known to the Persians and Babylonians (Keen 1998: 30).

Like Lydian, Lycian is attested in a relatively small corpus of texts, most of which date to the late 5th and 4th centuries BC. The earliest examples found in Lycia date to the 6th century, however, presumably well after the language had reached maturity. A corpus of around 200 inscriptions in stone is dominated by funerary dedications and burial instructions, though a few decrees and religious dedications are known as well. Bilingual (e.g., Lycian-Greek) and trilingual (e.g., Lycian-Greek-Aramaic) texts are also known, the longer of which aided the decipherment of the language (Bryce 1986: 42). Lycian is an Anatolian language, dialectically descendant from Common Anatolian like Lydian, but much closer to Luwian. Aside from indicating what the Lycians called themselves – *Trmmili* – Lycian inscriptions are among the richest evidence available for understanding family composition, burial traditions, bureaucratic and religious offices, and local political history.

Lycian sociopolitical, religious, and economic traditions have been partially reconstructed on the basis of epigraphic evidence in combination with analyses of numerous sculptural monuments, thousands of coins, settlement patterns, and burial traditions. Such sources are of great importance given the comparative dearth of reliable contemporary testimony pertaining to Lycian ways of life. It is difficult to judge the accuracy of reports (e.g., Herodotus 1.173) referring to Lycian men wearing long hair, practicing a matronymic pattern of self-identification, or donning feminine dress during mourning (Bryce 1986: 128, 139, 212). Equally unclear is how early and how widespread such customs may have been. Did they pre-date or post-date the Achaemenid conquest? Were they limited to the Xanthus river valley or not? That such evidence derives almost entirely from Greek authors writing for Greek audiences encourages caution in its acceptance.

Lycian tomb inscriptions provide the fullest evidence of family composition, showing that tomb owners, usually males, provided for the burial of their spouses and offspring, and sometimes for extended family members also, especially nieces and nephews (Pembroke 1965; Bryce 1979; 1986: 116). The inscriptions also provide the names, but rarely the associated responsibilities, of a variety of religious and secular titles and professions, including priest, seer, military commander, and even "king" or "dynast" (Bryce 1986: 129–35). Administrative institutions are named in inscriptions as well, and include a council known as the *minti*, which provided now obscure mortuary services, and a group of people or deities, the *itlehi*, that could be invoked to punish those who mistreated particular tombs. Other common invocations of tomb protection and/or retribution were

made directly to a variety of deities of Lycian, Carian, and Greek origin. These included *Eni Mahanahi*, the Lycian mother goddess later syncretized with the Greek Leto; *Trqqas*, the Anatolian storm god later equated with Zeus; *Maliya*, later equated with Athena; the *Teseti*, a set of oath gods; and the *Eliyana*, apparently akin to Greek nymphs. Greek deities adopted later included Artemis, Aphrodite, and Apollo (Bryce 1986: 172–82). No pre-Achaemenid cult places have been identified for any of these deities except, perhaps, at the Letöon near Xanthus. The early 7th century remains there were probably associated with a cult of the mother goddess and/or nymphs before it became something of a national sanctuary dedicated to Leto and her offspring in and after the late 5th or early 4th century.

Post-dating the sparse pottery and other remains that date the earliest Iron Age activities in Lycia to the late 8th/early 7th centuries BC, the first substantive archaeological evidence of settlement dates to the later 6th century and includes settlement and tomb remains at Xanthus and a number of rich tombs from other sites in central Lycia. Structures on the so-called Lycian Acropolis at Xanthus, usually described as a series of dynastic residences, were preserved beneath a destruction layer dated to c.540 BC. We know from Herodotus' account of Harpagus' conquest of Lycia that Xanthus must already have been an important center at that time – hence Harpagus' decision to conquer it – and these finds support that view. A particular class of monumental tomb known from Xanthus and sites in central Lycia also serves as evidence of pre-Achaemenid Lycian traditions and settlement distribution (Draycott 2007, following Marksteiner 2002b). These are the so-called pillar tombs, consisting of stone pillars that supported squared chambers decorated with relief sculpture on their exterior façades. The sculpture of these tombs not only reveals an openness to the ultimately Greek tradition of sculpted tomb embellishments, consonant with the adoption of Greek deities mentioned above, but also, through comparison with better known monuments in the Aegean, provides dates for the monuments, the earliest group of which was carved in the later 6th century. The distribution of the earliest group, with one each at five sites in central Lycia and two at Xanthus, indicates not only shared cultural traditions that encouraged prominent displays articulated in funerary architecture, but also the likely nodes of personages and/or families that had been important before and/or quickly rose to power during the early years of Achaemenid rule.

Already by the end of the 6th century, then, we can talk of a number of centers in Lycia where prominent families likely served in leadership roles and expressed their positions in society through common cultural signifiers. The commonality of Lycian cultural traditions in this and earlier periods may not have extended to political unification, however, and there is little evidence of regional political organization at this time. In addition to settlement patterns, tomb types, and sculptural styles, coinage also bears on such issues because the issuers and guarantors of coins of standard value were probably politically as well as

economically important. The earliest coinage in Lycia appeared by the last decade of the 6th century and had a limited range of decorative motifs and standard weights that, despite the invention of coinage in Lydia, suggest an introduction from Greece (Zahle 1991). Their uniformity implies a single mint, probably at Xanthus. The uniformity of the early coinage, however, gave way, by the end of the first quarter of the 5th century, to a confusing variety of coin weights, decorative motifs, and legends, which endures into the last decades of the 5th century (Zahle 1991).

The number of coin issues in circulation during the mid-5th century is paralleled by an increase in the number of prominent centers (usually referred to as "dynastic centers") that appear contemporaneously and persisted into later times. The prominence of such sites is suggested by the remains of sometimes fortified spaces called "dynastic residences" at Xanthus, Sura, Limyra, and Avşar Tepesi, among others (Işik and Yilmaz 1996; Marksteiner 2002a, 2002b). Additionally, new types of monumental tombs appeared by the mid-5th century at Xanthus, Phellus, Apollonia, Trysa, and Limyra, and these, too, are commonly thought to mark the locations of dynastic centers (Kjeldsen and Zahle 1975; Zahle 1983; Keen 1998: 182–6). Just who these "dynasts" were, however, and whether such sites were truly political centers, is unclear (Zimmermann 1992; Marksteiner 2002b). Equally unknown is whether and how they functioned within the overarching framework of Achaemenid governance. That at least some of these centers issued coinage throughout the mid-5th century suggests a degree of regional administrative fragmentation uncharacteristic of other Achaemenid satrapies and it is likely that at least some parts of Lycia were relatively autonomous in this period.

The administrative fragmentation of Lycia during the mid-5th century BC and later should be considered together with the broader military and political narratives of the time. In the first two decades of the century, the armies of Darius and Xerxes campaigned against mainland Greece. Greek and Persian naval conflicts persisted through the middle of the century as the Athenians continuously pressed to forge broad alliances (Childs 1981). Because of their strategic control of protected harbors, and thus maritime routes between the Aegean and the eastern Mediterranean, Lycian centers were likely pulled between Persian and Athenian allegiances and not all centers may have responded similarly. Thus the "Lycians" contributed 50 ships to Xerxes' fleet c.480 BC (Herodotus 7.92); Cimon gained "Lycian" allegiance to Athens before c.468 (Diodorus Siculus, *Hist.* 11.60.4); Telmessus and the "Lycians" are listed as paying tribute to Athens in the late 450s and 440s (Bryce 1986: 105); and the Athenian Melesander was killed in a "Lycian" conflict c.430/29 (Thucydides 2.69). The pendulum of support seems to have swung back and forth, yet a clearer understanding of the period and its local political developments is hindered by our inability to determine to which Lycia or Lycians – that is to which Lycian centers – such historical testimony refers. Nevertheless, continuous political interactions with Greek

city-states during the 5th century foreshadowed the relatively thorough Hellenization of such centers in later centuries.

At least one of the many centers of Lycia, Xanthus, appears to have been the seat of a hereditary dynasty that remained relatively faithful to its Achaemenid overlords throughout the 5th century BC. Inscriptions at Xanthus provide the names of five or six rulers of the Harpagid Dynasty, whose founder, one Harpagus, may or may not have been the same as Cyrus' general of the same name (Keen 2002). Beginning with Kybernis and his successor Kuprlli, who reigned from the late 6th into the mid-5th century, the allegiance of Xanthus to the Achaemenid Empire is displayed in part by features of sculpture and coinage appearing first around 480 BC. The so-called Harpy Tomb (c.480–470 BC) and the later Heroön G (c.460 BC) show pronounced Persian influences (Draycott 2007). Coins probably minted at Xanthus show similar affinities in their decorative motifs, suggesting that the dynasts of Xanthus wished to highlight their close connections to the Achaemenid administration at this time (Zahle 1991: 153).

Later pronounced Persian affinities may have also resulted from the personal ambitions of particular regents. Thus, in the late 5th/early 4th century, Erbbina, the ruler of Xanthus, decorated his clearly Greek-inspired tomb, the well-known Nereid Monument, with Persian motifs. Following Erbbina's death and the end of the Harpagid Dynasty c.380–370 BC, two western Lycian dynasts named Arttumpara and Mithrapata claimed power simultaneously. We know little of their activities, but their Achaemenid sympathies are suggested by their Persian names. Despite such examples, there seems to have been no pervasive Persianization of Lycia, or at least Xanthus. Persian personal names appear in inscriptions, yet this may reflect only a desire on the part of some families for close ties to Achaemenid sources of power rather than the presence of ethnic Iranians in the area. The balance of inscriptional evidence, in fact, seems to suggest a continuity of local traditions, especially in burial and religious practices, mixed with a gradual and broad Hellenization (Bryce 1986: 158–71). Thus, while Achaemenid features appeared again on coin issues circulating around Xanthus in western Lycia during the very late 5th/early 4th century BC, contemporary with Erbbina's reign and the Persian stylization of his tomb, the light monetary standard used for these issues was adopted directly from Athenian coinage (Zahle 1991: 152). Erbbina and his contemporaries appear to have embraced certain aspects of the Greek world while striving to maintain their own power and giving the appearance of being effective servants of Achaemenid hegemony, even if that hegemony was not uniform throughout Lycia.

Achaemenid rule in Lycia was soon challenged again, however, by a certain Pericles, who came to power at Limyra in c.380 BC. The extent of his growing power is paralleled by coin issues circulating in central and eastern Lycia at this time, struck on a single, regular standard, heavier than the Athenian one used in the west (Zahle 1991: 150–2). Whether or not he ever claimed allegiance to the Achaemenids, by c.360 BC, Pericles had briefly united a previously fragmented

Lycia under his autonomous rule, from Telmessus in the west, to Phaselis in the east, and to the Elmali Plain in the north (Keen 1998: 13).

Following broader crises in Achaemenid provincial control in western Anatolia, known collectively as the "Great Satraps' Revolt," it was untenable for the Achaemenids to allow such autonomy in Lycia and the area was soon brought back within the fold. At this point the region was put under the protectorship of the greatly Hellenophile, yet pro-Achaemenid Hecatomnid satraps of Mylasa and Halicarnassus, and thus the regional administration of Lycia left Lycian hands. The area remained this way through the end of the Achaemenid period and, because of its strategic location, was regularly contested among the powers of the Mediterranean throughout the Hellenistic period. Nevertheless, the region's persistent trend of political disunity was reflected again in the 2nd century BC, with the federalization of Lycia's many polities into a "Lycian League." Enduring for more than half a millennium, this league provided the first and only long-lasting and cooperative local administration of the area in its history, and serves well to contrast its earlier political fragmentation. However, by the time firm Roman rule took hold in the 1st century AD, most traces of indigenous Lycian culture had been supplanted by broader Greek and Roman cultural traditions.

GUIDE TO FURTHER READING

In addition to the sources cited in the chapter, further detailed reading on Sardis and Lydia should begin with Sardis excavation reports, published regularly in *BASOR* and *AJA*, and the numerous *Report* and *Monograph* volumes of the Harvard and Cornell University-sponsored Archaeological Exploration of Sardis, which present the ongoing work of that expedition at Sardis begun in 1958. For broader syntheses on Sardis and Lydia, see Hanfmann (1983) and, more recently, Dusinberre (2003), (Roosevelt 2009), and the papers in Cahill (2010a) Further reading on Xanthus and Lycia should begin with the series of volumes in the *Fouilles de Xanthos* series (Paris) published by the French team responsible for ongoing excavations at Xanthus and the Letöon begun in 1951. Regular reports of ongoing work at these sites can be found in *Anatolia Antiqua*. For a selection of other recent work at the many sites and areas in Lycia recently and currently being investigated, see Borchardt and Dobesch (1993); *Lykia*, the annual of Akdeniz University's Archaeology Department edited by Işik and others (Anatlya, 1994–); and the *Lykische Studien* volumes (Bonn, 1995–), an important series on work in central Lycia around Kyaneai edited by Frank Kolb. Other useful collections of articles on various Lycian subjects include Borchardt et al. (1990), French (1994), and Giorgieri et al. (2003).

CHAPTER FORTY-NINE

The Neo-Babylonian Empire

Heather D. Baker

1 Introduction

The Neo-Babylonian empire spanned the period from the accession of Nabopolassar in 626 BC to the conquest of Babylonia and the defeat of its last native ruler, Nabonidus (555–539 BC), by the Persian king Cyrus in 539 BC. During the century preceding the rise of the Neo-Babylonian (or "Chaldean") dynasty, Babylonia had been involved in a long-standing struggle for independence from its more powerful neighbor to the north, Assyria. When Nabopolassar finally defeated Assyria with the aid of his Median allies in 612 BC, Babylonia gained control over the Assyrian heartland and what remained of its subject territories.

In terms of its material culture assemblage, the Neo-Babylonian empire, which lasted less than 100 years, forms a continuum with what went before: it is difficult to distinguish it from that of the long period from c.1150 to 626 BC which has been variously termed "Middle Babylonian" or "Post-Kassite" (Brinkman 1984a: 3). Sometimes the latter part of this long period has been referred to as "Assyrian" – for example, Woolley (1965) wrote of "the period of the Assyrian kings" at Ur. However, Assyrian control over the region was by no means stable and continuous; moreover, the material culture of the time was Babylonian rather than Assyrian, so the term is of purely historical application.

It is difficult to distinguish not only the beginning of the Neo-Babylonian period proper in material culture terms, but also its end. Historians have repeatedly stressed the continuity in administration and daily life which marked the

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transition to Achaemenid rule over Babylonia. From a material culture perspective, Zettler (1979: 268), for example, noted that typical Neo-Babylonian seal types remained in common use until at least the reign of Darius I (521–486 BC), a quarter of a century after the Persian conquest in 539 BC. As Zettler also noted (1979: 269), we have to consider the possibility that some items of material culture were more easily affected than others by political change. Moreover, when old pottery forms are only gradually superseded by new ones, decisions about dating may rest on the relative proportions of certain types within the overall assemblage. This in turn requires an overview of entire assemblages – something often lacking because most of the relevant sites were excavated before the development of modern techniques of excavation and analysis, and selective publication of ceramic types was the norm.

Our knowledge of the archaeology of this period in Babylonia itself is dominated by monumental buildings located at the heart of the major cities. In large degree this reflects the preoccupations of earlier excavators, who were primarily interested in these impressive structures to the neglect of the other (to them) less prepossessing urban features such as residential areas and the margins of settlements. This bias of interest has resulted not only in an incomplete picture of the makeup of urban sites; it has also seriously affected our understanding of the settlement hierarchy, since smaller sites, especially villages, remain unexplored. Further investigation is clearly needed in order to make good these gaps in our knowledge, but in the meantime we have to work with what is available; nevertheless, this state of affairs should be kept in mind when reading the overview that follows.

For a number of reasons, relatively little is known about the immediate precursors of the Neo-Babylonian cities. Royal building inscriptions, which were typically buried in the foundations of the structures which they commemorated, are an approximate indicator of the level of such activity in a particular period. When found in situ, they serve to date the building level with which they are associated and often to identify a structure by name. The dearth of building inscriptions for the period between the reign of king Adad-apla-iddina (1068–1047 BC) and the mid-8th century BC therefore reflects, in all likelihood, the actual situation: the absence of a powerful central authority with the means and motivation to implement construction projects on any significant scale. During this period, which has been termed a "Dark Age," the material culture associated with the Babylonian rulers is dominated by inscribed artifacts, often of bronze, such as arrowheads, generally of uncertain or unknown provenience (on the so-called "Luristan bronzes," see Frame 1995: 3–4). Even when monumental building activity resumed, the first projects documented after this long interval were those carried out in Borsippa and Uruk by local inhabitants rather than by rulers, during the reigns of Nabu-shuma-ishkun (c.760–748 BC) and Nabu-nasir (747–734 BC), respectively. We should note also that the inscribed monuments generally known as *kudurru*s, especially associated with the Kassite dynasty and the

Middle-Babylonian era (Ch. II.37), are known also from the earlier 1st millennium, with dated examples spanning the 10th–7th centuries BC. Yet these artifacts are frequently of unknown or uncertain provenance (Slanski 2003).

The first Babylonian ruler whose works have been recovered through excavation is Marduk-apla-iddin II (721–710 and 703 BC), who was responsible for restoration work on the Eanna temple at Uruk, including the shrine of Ningizzida located within the precinct wall. He was followed by a succession of Assyrian kings who sponsored reconstruction works in Babylonia: Sargon II (the Eanna temple at Uruk; the city walls of Babylon); Sennacherib (the Processional Way at Babylon); Esarhaddon (work on the Marduk temple Esagila, the *ziggurat* Etemenanki, and the Processional Way at Babylon; the Gula temple at Borsippa; the Enlil and Ishtar temples at Nippur; Eanna at Uruk); Assurbanipal (the city wall at Babylon and the shrines of Ea, Ishtar-of-Babylon, and Ninmah, as well as Esagila and Etemenanki; the Ebabbar temple at Sippar; the city wall and Nabu temple at Borsippa; the *ziggurat* and Enlil temple at Nippur, and the Eanna temple at Uruk). During the reign of Assurbanipal (668–627 BC) one governor of Ur, Sin-balassu-iqbi, exercised a considerable degree of autonomy and carried out building projects in his own name. These included work on a number of shrines and a well, which have been excavated (Woolley 1965: 4). Also during the reign of Assurbanipal, the Assyrian king's brother Shamash-shum-ukin, who served as king of Babylon until he revolted in 652 BC, performed work on the city wall and the Ebabbar temple at Sippar and on the Nabu temple in Borsippa. Finally, Assur-etel-ilani, whose precise dates are unknown but who ruled in the 630s BC, carried out work on the Urash temple at Dilbat and the Enlil temple at Nippur. Most of the aforementioned projects are known from excavation as well as written sources. However, building levels attributable to the period of Neo-Assyrian rule are in general much less well known than the Neo-Babylonian (re)buildings that overlay them.

2 Settlement Patterns

Settlement survey has identified sites datable to the Neo-Babylonian period in several regions of southern and central Mesopotamia: the Diyala region (Adams 1965); the "heartland" region between Nippur and Uruk (Adams 1981); the Uruk region (Adams and Nissen 1972); the Kish region (Gibson 1972); and the Sippar region (Gasche and De Meyer 1980). It should be noted that the periodization of surface collections based on ceramic typology is necessarily imprecise, and the dating criteria used to define the period vary between different surveys, making it difficult to compare results. Moreover, the most densely settled area may by now have lain somewhat to the west of the most intensively surveyed "heartland" region (Brinkman 1984b: 175–6), a difficulty which may now be partly surmounted using advanced techniques for the study of high-resolution

satellite imagery (Hritz 2004). By this time, fairly broad expanses of land had been brought under continuous cultivation and the Neo-Babylonian (NB) and Achaemenid (Ach) settlement systems were connected to "an interlocking, much more 'artificial' grid of watercourses that broke large, contiguous areas of cultivation into polygons of fairly uniform size and shape" (Adams 1981: 188).

Survey evidence indicates a period of sustained population growth, beginning in the 8th century BC. According to this evidence, the Neo-Babylonian period saw a substantial increase in the number of settlements, with 182 sites identified in the "heartland" area, compared with 134 of Middle Babylonian (MB) date (Adams 1981: 177). Moreover, average site size increased, to 6.88 hectares (NB/Ach) compared with 4.6 hectares (MB) (Adams 1981: 178). While the numbers of sites in all size categories increased, the increase was proportionally greater for sites in the larger size brackets. For NB/Ach, 51 percent of the total occupied area was composed of settlements classified as urban – i.e., larger than 10 hectares, as compared with only 36 percent of MB sites (Adams 1981: 178). Of the 30 NB/Ach urban settlements identified, some two-thirds had no earlier MB occupation and thus represent new settlements. Survey in the Diyala region revealed similar long-term trends, though with some variation in matters of detail: new sites tended to be rather small and the total area occupied by sites classified as urban was relatively low (Adams 1965: 58–9).

Various reasons have been put forward for this steady and sustained increase of population, the most significant of which were most likely the relatively stable political conditions and a general increase in prosperity. The population of Babylonia may have been boosted also by the return of groups exiled by the Assyrians and by immigrants resettled there by the Babylonian kings, such as the Judeans and Cilicians (Adams 1981: 177–8).

3 Babylonian Urbanism

The Babylonian cities at this time typically combined both planned elements (generally monumental structures of various kinds – see below) and quarters that developed without much (if any) intervention from the central authorities. Among the relatively small areas of street network that have been excavated, we find nothing remotely approaching an orthogonal grid, most likely because streets conformed to centuries-old patterns, bearing in mind that we are dealing with long settled *tells* whose topography helped to shape subsequent urban development.

The best-known city layout in this period is that of Babylon. However, it cannot be taken as typical: as the seat of kingship and the capital (both actual and cosmic), it received special treatment at the hands of successive rulers. Nevertheless, certain key elements were common to most Babylonian cities of this period: a main temple precinct housing the city's patron deity, and a *ziggurat*,

with other temples and shrines scattered around the settlement; city walls with gates; and residential areas whose integration into the wider city was articulated by a three-tier hierarchy of major public streets, minor public streets, and blind alleys. Some city walls of this period enclosed not only areas of occupation proper, but also unbuilt areas, especially around the lower-lying margins of the *tell*, which might be used for intramural gardens and orchards. Within the residential areas, such unbuilt plots as existed were generally part of residential house complexes.

According to Van de Mieroop (1999: 82), residential areas mixed with industrial sectors were a key element of the Mesopotamian city. However, while this observation certainly applies to some cities of the earlier 2nd millennium, from 1st millennium Babylonia evidence of such discrete areas of industrial activity within the city is scarce, for several reasons. First, within the residential areas, craft activity in the private sphere very likely took place at the level of the household rather than in separate areas dedicated to it; archaeological evidence of such activities within the Neo-Babylonian house has not yet been recovered. Second, the urban margins, where some industrial activities such as pottery manufacture are likely to have been located, remain under explored. Third, judging from the written evidence, a significant amount of production took place within the institutional sphere; for example, the temple precincts housed workshops and storerooms where personnel carried out the various activities related to supplying the divine meals and looking after the cultic paraphernalia. Like the residential areas, these too have yet to be investigated with a view to identifying different activity zones.

4 The Babylonian Cities and Towns

In this section I shall focus only on those sites that have yielded a certain amount of information about their urban structure as a result of controlled excavation. These include Babylon, Borsippa, Kish, and Sippar in northern Babylonia; Isin and Nippur in central Babylonia; and Larsa, Tell al-Lahm, Ur, and Uruk in the south.

The main double city wall of Babylon enclosed a rectangular area of c.450 hectares, bisected by the north–south course of the Arahtu (i.e., Euphrates) river. The center of settlement, as evidenced by the concentration of occupation mounds, was on the eastern bank of the river; the western site of the city remains unexplored. Within the city walls on the east side, the principal excavated features include the South Palace of Nebuchadnezzar II (604–562 BC), to its south the religious precinct comprising the *ziggurat* Etemenanki and its enclosure, and, still further to the south, the Esagila or temple of Marduk. The Processional Street separated the palatial and religious sectors from a substantial residential district to the west, known today as the Merkes quarter. The excavated part of

Merkes represents an area of high-status housing; beyond it to the south the excavators traced the street network for several further blocks. In addition to these three key areas within the city, several other temples were excavated which were integrated into the local residential areas, although – with the exception of the temple of Ishtar-of-Akkad in Merkes – their immediate surroundings have not been explored.

The city wall of Borsippa can still be traced for much of its course; it encloses a roughly rectangular area measuring c.220 hectares, with its long axis oriented roughly northeast–southwest. Within the walls are two main mounds separated by an ancient watercourse. Off the mounds are ample lower lying areas enclosed by the city wall, especially on the southeastern side of the site. The smaller mound, Birs Nimrud, is the site of the *ziggurat* and the Ezida, temple of the city god Nabu. The larger mound to its northeast, Tell Ibrahim al-Khalil, remains unexplored. Investigations at the site have focused almost entirely on the main temple precinct and *ziggurat*, and very little is known about the remainder of the city. The impressive, vitrified remains of the *ziggurat* were long identified by early travelers and archaeologists with the Tower of Babel (e.g., Peters 1921), and Borsippa was thought to be a mere suburb of Babylon. The results of the soundings made by Hormuzd Rassam in the Ezida on behalf of the British Museum between 1879 and 1882 have been summarized and evaluated by Reade (1986b). An additional, brief campaign of excavation was carried out on Ezida by German archaeologists in 1901–2 (Koldewey 1911: 50–9, Taf. XII; further details in Jakob-Rost 1989, especially regarding the excavated objects and inscriptions). In recent decades excavations have been carried out on the *ziggurat* and Ezida by an Austrian team (Allinger-Csollich 1991, 1998; Trenkwalder-Piesl 1981; Trenkwalder 1997–8, 1999–2000). Their work has shown that the Ezida temple uncovered in earlier excavations is not actually Neo-Babylonian, as previously thought, but, rather, a later rebuilding (Allinger-Csollich et al. 2010: 32–3). Thanks to a foundation cylinder found in situ, the *ziggurat* is known to have been rebuilt by Nebuchadnezzar (Allinger-Csollich 1991: 494–8). Its destruction was attributed by Boehmer (1980) to Xerxes' suppression of revolts which took place early in his reign (484 BC), but it is now known to have happened more than a millennium later (Allinger-Csollich et al. 2010: 32).

Kish is made up of an extensive area of at least 40 discrete mounds. Excavations were carried out by H. de Genouillac in 1912–14, and then again in 1923–33 by a joint expedition from Oxford University and the Field Museum (Chicago). The results of these later seasons have been re-evaluated by Gibson (1972) and Moorey (1978), focusing on the finds and records housed in Chicago and Oxford, respectively. A new project aiming at the complete publication of all the relevant material from these excavations is currently being conducted by the Field Museum in collaboration with the Ashmolean Museum (Oxford). Japanese archaeologists have also worked at the site, uncovering part of what may be a Neo-Babylonian house (Matsumoto 1991: 276–80). At the western end of the

site, on the mound known as Tell Uhaimir, one of the *ziggurats* of Kish was located. This is traditionally identified as that of the main city god, Zababa, and associated with his temple Edubba; the latter is known to have been rebuilt by Nabopolassar and his son Nebuchadnezzar II. Investigation of the *ziggurat* revealed a phase attributable to Nebuchadnezzar II (Moorey 1978: 25–6, and plan facing p. 24). Within the rooms flanking the *ziggurat* to the southeast, as well as in the temple area to the northeast, Neo-Babylonian remains were scarce, perhaps owing to erosion; the extant plan dates to the Old Babylonian period. Aside from the *ziggurat* and temple precinct, Uhaimir seems to have been unoccupied in the 1st millennium (Moorey 1978: 28–9), though one wonders whether here too erosion might have affected preservation.

The main center of Neo-Babylonian occupation at Kish was in the part of the city known as Hursagkalamma, identified with Tell Ingharra in the eastern part of the site. A Neo-Babylonian temple partly excavated by de Genouillac was investigated further by the Oxford/Chicago team; it turned out to be a double temple, built by either Nebuchadnezzar or Nabonidus. The temple itself cut into the fabric of two *ziggurats* made of plano-convex bricks; these were probably ruined by this time, though they may have been intended to be rebuilt (Moorey 1978: 85). It seems likely that these can be identified with the two *ziggurats* of Hursagkalamma named in temple lists of the later 2nd millennium – namely, those of Ninlil and Enlil (George 1993: 45–56) – and that the temple itself is that of Ninlil/Ishtar, called Ehursagkalamma (despite Jursa 2005: 103, who considered its identification as the Zababa temple to be "virtually certain").

The site of Sippar is rectangular in shape, enclosed on three sides by the city wall and on the fourth (southwest) side by a watercourse. The wall comprises a continuous earthen rampart with no evident breaks for gates; access to the interior was probably via ramps. The mound itself stretches along the site's long axis from the canal on the southwest to the city wall on the northeast side. The wall also enclosed lower-lying areas, along the northwestern side of the *tell* and at the eastern corner of the site. In the Neo-Babylonian era, much of the *tell*'s southwestern end was occupied by the great Ebabbar temple, dedicated to the city god Shamash. Elsewhere, excavations on the mound have mostly encountered Old Babylonian (or earlier) occupation immediately below the surface, thus tending to support what the written sources also suggest, namely that the walled city was rather sparsely occupied during the Neo-Babylonian period and that settlement was concentrated in an area known as the Quay of Sippar. This quay has yet to be located, but it must have lain outside of the city walls on a major watercourse, probably the King's Canal to the north. Early excavators at Sippar (Rassam in 1881–2, Scheil in 1894) concentrated on the Ebabbar temple (see Walker and Collon 1980 for details of Rassam's work and the finds, without precise provenance, from the temple). In 1972–3 a sounding was dug into the city wall on the northeastern side, on the basis of which Belgian excavators determined that the earthen rampart had served as a flood barrier. Their report

includes a contour plan of the site, plus a plan of the Ebabbar temple (De Meyer 1980: Plan 2). Among the episodes of heightening the wall which the excavators identified in the city wall sounding, the penultimate one may be identified with work known to have been carried out by Shamash-shum-ukin, while the latest may be late Neo-Babylonian in date (Baker forthcoming). Iraqi archaeologists working in the northwestern part of the Ebabbar precinct in 1985–6 discovered a library with cuneiform tablets lying in situ in niches built into the walls of the room (Pedersén 1998: 194–7 for details and further refs.). In 2002 further excavations by Iraqi archaeologists revealed fragmentary building remains dated to the Neo-Babylonian era, as well as a couple of graves of the same period or possibly later (Fadhil and Alsamarraee 2005).

The site of Isin was excavated between 1973 and 1989 by archaeologists from Munich University. Near the Gula temple they found a dog cemetery dated to the early 1st millennium BC (the dog was a symbol of the goddess Gula) (Hrouda 1977: 18–19; Livingstone 1988). The Gula temple itself is known to have been restored by Nebuchadnezzar II, whose stamped bricks were found in and around the building (Hrouda 1987: 151). In other soundings, remains of this period were too poorly preserved to shed much light on the Neo-Babylonian settlement, although a near-complete house was excavated in Nordabschnitt III (Ayoub 1981).

Nippur consists of two areas of high mounds bisected by an ancient northwest–southeast watercourse, once a branch of the Euphrates. On the northeastern side are the temples of Enlil (the Ekur) and Inanna and the North Temple, as well as soundings TA, TB, and TC. To the southwest of the ancient watercourse soundings WA and WB were excavated on the high mound, while the WC soundings were located at the low-lying, southernmost extremity of the site. Excavations at Nippur by a team from the University of Pennsylvania began in the late 19th century. In the mid-20th century work was undertaken jointly by archaeologists from the universities of Pennsylvania and Chicago, and subsequently (1972 onward) by a team led by McG. Gibson of the Oriental Institute (Chicago). According to his account of the settlement's history, Nippur was a mere village from the 11th to the 8th century BC, but then underwent a revival during the 8th and especially the 7th century BC (Gibson 1992: 46–9). The Assyrian kings Esarhaddon and Assurbanipal (and his brother, the Babylonian regent Shamash-shum-ukin) implemented major construction projects, including the rebuilding of the city wall and the restoration of several temples. The construction of the wall was similar to that of Babylon, with an inner and outer wall surrounded by a moat, in this case apparently a dry one (Gibson et al. 1998: 26–7). Though none of the city gates has been excavated, the names of several which are known from everyday documents of the mid-1st millennium BC feature on the so-called "Kassite city map" of Nippur (Ch. I.28 and Fig. 28.8), suggesting that the general layout of the city at this time resembled that of the later 2nd millennium. In contrast to the attention it received at the hands of the

Neo-Assyrian kings, Nippur appears to have been neglected by the Neo-Babylonian rulers, who left scarcely any trace of major works at the site. This may well have been a matter of deliberate policy whose background lay in the downgrading of the city's major deity, Enlil, in favor of the god Marduk, now head of the Babylonian pantheon, with his seat in Babylon (Baker forthcoming). In spite of this royal neglect, the city remained occupied and remains of housing dated to the 7th and 6th centuries, such as the houses (Buildings A and B) excavated in the WC-2 area (Gibson et al. 1983; Baker 2010: 190–3), have been uncovered. Housing was also excavated in the TA sounding. Armstrong's (1989) re-evaluation of its stratigraphy has made a vital contribution to clarifying the ceramic sequence for the earlier 1st millennium.

Neo-Babylonian remains at Larsa have been mainly uncovered in the area of the Shamash temple, Ebabbar, and the *ziggurat*. When Nabonidus rebuilt the *ziggurat*, he was the first ruler to carry out work on it since the Old Babylonian period (Bachelot and Castel 1989: 75). In the 2nd millennium the *ziggurat* precinct was separated from the mound on which the Ebabbar temple was situated by two substantial courtyards, but these seem not to have been rebuilt in Neo-Babylonian times. The Ebabbar was the focus of building activity by Nebuchadnezzar, who, in addition to rebuilding it, constructed an oval enclosure wall around the small mound on which it was situated (Huot 1985; Huot et al. 1987). Nabonidus also carried out some work on the temple.

Tell al-Lahm (ancient Kissik) was excavated by Iraqi archaeologists in the 1940s (Safar 1949). Of the two mounds which make up the site (Wright 1981a: 345, nos. 172 and 173), the more northerly one was found to contain significant remains of the 1st millennium BC. On the basis of seven soundings there, three levels were identified: the lowest was dated to the late Neo-Assyrian period, the middle to the Neo-Babylonian era, and the latest to the Achaemenid period. The Neo-Babylonian level yielded a cylinder of Nabonidus commemorating his reconstruction of a temple of Ningal, presumably located at the site (though not excavated). An area of Neo-Babylonian housing was uncovered comprising partial plans of two adjacent structures, together with some graves of this period, but beyond this little is known about the character of the urban settlement.

The extent of Neo-Babylonian occupation at Ur has been estimated at c.40 hectares (Wright 1981a: 338, no. 10). During the period of Neo-Assyrian domination, a substantial amount of rebuilding work was carried out by Sin-balassu-iqbi, a governor during the reign of Assurbanipal (Woolley 1965: 4). Both Nebuchadnezzar II and Nabonidus also carried out various construction projects at Ur (Woolley and Mallowan 1962). However, the remains of this period were badly eroded, to the extent that their poor state of preservation has hampered understanding of the excavated levels. Nebuchadnezzar rebuilt a number of major shrines within the religious center dedicated to the moon-god, which he surrounded with a massive *temenos* wall. Nabonidus rebuilt the *ziggurat* of Sin and the Ningal temple Enunmah, and constructed the Egipar for the newly installed Entu-priestess (his daughter). He is also credited with having built the

palace next to the North Harbor. A small area of private housing crossed by streets was excavated in the AH area southeast of the *temenos*; House 1, with a triple courtyard layout, is one of the largest houses known from this period. Evidence has also been found for the rebuilding of the city wall during this period; its rather insubstantial remains have been ascribed to Nebuchadnezzar (Woolley 1974: 63).

The vast site of Uruk, with its city wall originally enclosing an area of 550 hectares, has been the subject of many seasons of investigation by German archaeologists, beginning in 1912. The Neo-Babylonian levels are scheduled for publication by A. Kose; in the meantime, a series of preliminary reports is available (UVB), as well as the final reports, such as the one on graves (Boehmer at al. 1995), which include discussion of Neo-Babylonian material. At the center of Neo-Babylonian Uruk lay the great Eanna temple precinct, including its *ziggurat*, dedicated to the goddess Ishtar. Within Eanna, various building operations were carried out by Merodach-baladan II, Sargon II, Esarhaddon, and Nebuchadnezzar. Areas of residential housing have been excavated immediately to the west and southwest of the main temple precinct; these were, in turn, located within a greater walled enclosure associated with the temple complex. Judging from the contents of the tablets in archives excavated in this housing area, it was occupied by mid-level temple personnel. Another *ziggurat*, that of the god Anu, located some distance west of Eanna, was rebuilt by Esarhaddon (Kose 1998: 133). Beyond this central area of the city occupied by the temple and associated housing, little is known of the settlement of this period. An *akitu* house (where the New Year's festival was celebrated) located outside of the city wall is known to have been rebuilt by Nabonidus. The city wall seems to have lain in ruins by this time, though it survived as a monument and the written sources show that it was still used by the inhabitants to distinguish urban space from the steppe beyond. Aerial photography has revealed the presence of intramural canals at Uruk; these are difficult to date, but textual sources confirm that some canals in the city were certainly in use at this time.

5 Monumental Architecture

Monumental architecture clearly encompasses palaces, temples and *ziggurats*, city walls, and processional streets, but we should also take into account other large-scale construction projects which involved a significant investment of labor, resources, and planning, such as artificial waterways (canals, whether urban or rural, and their associated features such as embankments) and cross-country defensive structures. The building (or rebuilding) of monumental structures was essentially the prerogative of the ruler. Rare exceptions to this involve the (re) construction of temples by local officials, generally at times when central government was relatively weak.

The only royal palaces to have been excavated are those located in Babylon (Kuhrt 2001a; Miglus 2004). Heinrich (1984: 198–231) discussed the Neo-Babylonian palaces in the context of the Mesopotamian architectural tradition of palace building. Several palaces situated in other cities are mentioned in cuneiform sources (Jursa 2004a), though with one exception (see below) none has yet been identified and excavated. Nothing is known of any palace in the capital Babylon prior to the reign of Nabopolassar, first builder of the South Palace (*Südburg*) in the area of the later *Westhof*. Nabopolassar's work was continued by his son Nebuchadnezzar, who extended the South Palace as far east as the Processional Street. The building comprised a linear arrangement of five units, each with its own central courtyard. The functions of these courtyard units encompassed administration and storage at the eastern end of the palace, with the central unit housing the throne room suite and residential suites situated in the units to the west. The South Palace occupied a corner formed by the Euphrates river to the west, and the city wall to the north; it was heavily fortified at its western end where it adjoined the river. On the other side of the city wall Nebuchadnezzar built another palace, the so-called North Palace (*Hauptburg*). The remains of this building were badly preserved and the plan of the palace is poorly understood. It too adjoined the Processional Street to the east, where its course extended northward beyond the Ishtar Gate. A third Summer Palace was built some distance to the north of the main city walls, in the corner formed by the defensive wall which Nebuchadnezzar built to the east of the city.

The only building which can be identified with some certainty as a local governor's palace is the so-called "Palace of the Entu-priestesses" or "Palace of Bel-shalti-Nannar" at Ur (Woolley and Mallowan 1962: 41–3, Pl. 70) which shares certain design features with the South Palace at Babylon, though it was built on a considerably smaller scale (c.5,743 square meters, compared with more than 43,000 square meters for the South Palace). The building occupied a roughly trapezoidal plot by the North Harbor of Ur, and was surrounded by a substantial outer wall with a corridor running around much of its internal face, except for on the north side and at the southeast corner, where a number of rooms were built up against the wall's inner face. The corridor in turn enclosed the palace building proper, comprising four courtyard suites, the largest of which occupied the southwest sector of the building. The surviving floor of the building was paved with bricks of Nabonidus, but these came from another building.

The temples of this era fall into two categories: the main temple of a city's patron deity which lay within its own walled enclosure (and which might well incorporate the shrines of a good many other deities), and other freestanding temples which were scattered around the city, often in residential quarters, and which had no precinct of their own. This distinction is important not merely from the point of view of the typology of cultic structures, but also for the spatial organization of the cultic activities associated with the care and feeding of the gods. The great temple precincts housed substantial working areas where such

activities were performed, whereas the free-standing temples were relatively restricted as to the facilities they could accommodate.

The *ziggurat*, comprising a massive stepped tower with a shrine on top, was normally located within the precinct of the city's major temple, though at Babylon the *ziggurat* Etemenanki had its own enclosure, which was separated from that of the great Marduk temple, Esagila, by the east–west stretch of the Processional Street leading to the east bank of the river. Some cities are known to have had two *ziggurats*. Cultic pedestals and daises were also located in the streets (Baker 2009: 96–7).

The layout of the Neo-Babylonian temple consisted of the same basic elements as the palace at one end of the scale and the typical residential house at the other: a central courtyard enclosed on all sides, with the principal room(s) – in this case the cella(s) – normally situated on the south side. Some temples contained smaller, subsidiary courtyards (e.g., the Ishhara temple, Babylon), while others were single-courtyard affairs (e.g., the Ninurta temple, Babylon). The main entrance was often located on the side opposite the cella(s) and its exterior was marked by projecting towers decorated with pilasters.

A number of ceremonial streets are known from Neo-Babylonian textual sources (Miglus 2006), but only one of these has so far been excavated, namely the Processional Way at Babylon. It ran along the eastern side of Nebuchadnezzar's South Palace and exited the city wall via the Ishtar Gate, continuing northward past the North Palace (*Hauptburg*) and beyond. To the south of the South Palace, it continued past the *ziggurat* precinct, turning to the west at its southeast corner and running as far as the bridge over the Euphrates built by Nabopolassar (or possibly his son). The excavated levels of the Processional Way were built by Nebuchadnezzar, but some of the limestone blocks with which its surface was paved were reused: they bore inscriptions of Nebuchadnezzar on the upper side, but inscriptions of Sennacherib (704–681 BC) on their underside; the Assyrian king was probably responsible for an earlier phase of construction.

Turning to the question of defensive structures, among the great monuments planned and constructed by Nebuchadnezzar II were two cross-country walls aimed at strengthening the defenses of the realm. One of these, running some distance to the north of Sippar, stretched between the Euphrates and Tigris rivers at around the point where their courses ran closest together. Part of this massive baked brick structure, known as Habl as-Sahr, has recently been excavated (Black et al. 1987). The other cross-country wall, situated to the east of Babylon in the vicinity of Kish, is known from textual sources but has not been located for certain on the ground (see Reade 2010 for a discussion of various landscape features in this vicinity and their possible identification with projects described in Nebuchadnezzar's inscriptions).

Nebuchadnezzar's strategy in focusing on the defense of Babylonia's northern borders – presumably perceived as the most likely direction from which an external threat might come – is evident not only in the construction of these massive

cross-country walls, but also in the treatment of the walls of the Babylonian cities: those of the key cities of northern Babylonia (Babylon, Borsippa, Kish, Kutha) were rebuilt and kept in good order, while archaeological evidence indicates that those of the south (Ur, Uruk) were not (Baker forthcoming). This seems to reflect a considered policy of concentrating resources on fortifying the northern part of the Babylonian heartland, near to its point of entry, while neglecting the south.

Royal construction projects involving watercourses may be divided into two groups: canals in the rural hinterland, and watercourses and related structures in and around cities. The former have generally not yet been the subject of detailed archaeological research (see Cole and Gasche 1998 for the current state of knowledge, and Reade 2010 on Nebuchadnezzar's lagoons to the east of Babylon). Nabopolassar canalized an old branch of the Euphrates just north of Sippar, the so-called King's Canal (Brinkman 1998–2001: 15). In an urban context, water-related structures include river embankments, bridges, intramural canals, and moats; examples of all of these have been excavated at Babylon (see the references given above).

6 Domestic Architecture

Houses of this period typically comprised a single, unroofed central courtyard enclosed on all four sides by suites of rooms; occasionally they might contain two courtyards, and more rarely even three, in the case of exceptionally large houses. Each side of the courtyard had a centrally placed doorway by which the main room on that side of the house was accessed. Often these main rooms gave access to further, smaller rooms, the whole forming a self-contained suite. Houses were generally orientated southeast–northwest, and the largest room/suite – presumably the main living area – was typically the one situated at the southeast side of the courtyard, while the second-largest room/suite was the one facing it on the northern side of the house. The exterior wall presented a blank, unadorned façade to the outside world, without windows and normally with a single entrance located at the farthest end of the house from the main living room. Sometimes adjacent houses shared a party wall; this seems to be connected with status, since the larger, better appointed houses tended to be free-standing, even when they were situated right next to another house.

Neo-Babylonian houses were constructed of sundried mudbrick; baked brick was reserved for certain features such as the paving of the courtyard and of rooms which were exposed to water, and for built drains, toilet installations, and the like. The roofs were made using locally available timbers, which could span rooms of up to c.3.5–4 meters in width. These beams were overlain with reeds or reed matting, which was in turn overlain by a slab of straw-tempered mud (Baker 2007: 70–2; 2010, 2011, forthcoming).

7 Material Culture and Long-Distance Trade

The written sources attest to a wide variety of commodities imported into Babylonia over a long distance, including metals (Cypriot copper, Cilician iron); alum (Egypt); dyes, mordants, and colored textiles (the Levant); wines and aromatics (Syria); timber for construction (Lebanon); and aromatics (Arabia and the east) (Jursa 2004b: 129–132). Many of these were, of course, perishable, and actual finds of imported goods tend to be restricted to the kinds of precious items found in graves, such as items of jewelry made of gemstones and/or precious metals. Other products of skilled craftsmanship include the inlaid wood and ivory box found in Grave 423 at Uruk (Boehmer et al. 1995: Taf. 158–159). Cylinder seals and stamp seals were also, of necessity, usually made of imported materials (on their iconography, see Collon 1987: 80–3, with further discussion in Collon 2001). The few rare cylinder seals that are provenienced come mostly from Ur and Uruk (Collon 2001: 1; note also M. Sax's summary of the materials identified on p. 19, and the discussion of the provenience of the materials used in Babylonian seals on pp. 33–4). Locally made artifacts include anthropomorphic terracotta figurines such as those excavated at Babylon (Klengel-Brandt and Cholidis 2006).

8 Beyond Babylonia

Outside Babylonia itself, the effects of Babylonian imperialism can be seen more in the destruction levels that can occasionally be related to the conquests of its rulers than in any evidence for a governmental infrastructure imposed from the center. Evidence of the process of post-conquest integration is conspicuous by its absence, thus it is extremely difficult to develop anything approaching a model for the archaeology of empire at this period, since Babylonian rule left so few material culture traces in the areas under its control.

After the fall of Assyria at the end of the 7th century BC, it seems clear that Babylonia (rather than Media) exercised control over northern Mesopotamia, as well as over the northern Levant, and in recent years increasing attention has been paid to the Neo-Babylonian presence in the former Assyrian heartland. The evidence remains scanty because of the more or less complete collapse of urban life at this time, which means that no substantial, post-Assyrian occupation levels have been detected at any of the former major urban sites. Moreover, potentially relevant finds are difficult to evaluate because it is rarely possible to distinguish remains datable to the period of Neo-Babylonian control from those of the Achaemenid period which followed, hence the catch-all label "post-Assyrian" that has been applied to the material culture, especially the ceramics, of northern

Mesopotamia at this time. Beyond the heartland this problem is being addressed by study of the ceramic material found in situ at Dur-Katlimmu (mod. Tell Sheikh Hamad) in the Khabur valley, where the so-called "Red House" continued in use throughout the 6th century BC. Kreppner (2008) determined that there was continuity in ceramic production at the site from the mid-7th to the early 5th century BC, although he detected a decline in general living standards over the course of the 6th century. Thus, he concluded that the term "post-Assyrian" is of merely historical significance and has no application in the sphere of ceramics.

The northern Mesopotamian evidence for the presence of, or contact with, Babylonians is rather limited. It includes sparse finds of tablets, such as the Assyrian tablets found at Dur-Katlimmu which were dated to the reign of Nebuchadnezzar II according to the Babylonian convention. Babylonian tablets written after the fall of Assyria were also found at Guzana (Tell Halaf). In the case of other items identified (however tentatively) as Neo-Babylonian, in the absence of an unequivocal, well-stratified context it cannot necessarily be assumed that they reflect a post-612 BC Babylonian presence, since they could equally well represent either imports or the personal effects of Babylonian immigrants or visitors during the later decades of the Assyrian empire. Remains which might be indicative of Babylonian infrastructure are lacking. Two small, post-Assyrian temples at Assur have been assigned to the Neo-Babylonian period, with a Parthian-period rebuilding (Andrae 1977[1938]: 164–6). This has generally been followed by subsequent authors (e.g., Haider 2008: 194–5), while Czichon (1998–2001: 205) attributes them specifically to Nebuchadnezzar II, without adducing any evidence. However, there are no grounds for dating the construction of these shrines to the Neo-Babylonian period. Curtis (2003: 161) cited a suggestion by M. Roaf that they may have been founded in the Parthian era, though an Achaemenid or Seleucid date seems equally possible.

Harran was the last refuge of the Assyrians following the conquest of their heartland. However, remains of this era (late 7th century BC) have not been excavated, except for monuments of the last Neo-Babylonian ruler. Four stelae dating from the reign of Nabonidus were found, unfortunately not in their original contexts but reused as part of the fabric of the Great Mosque (Gadd 1958). Two bore the well-known inscription of Nabonidus's mother, Adda-guppi, in which it is claimed that she lived for 104 years until her death in the ninth year of her son's reign; the other two were inscribed with a text of Nabonidus himself. Additional fragments of inscriptions found by D.S. Rice in deep soundings in the area of the Great Mosque suggest that it was indeed the site of the earlier Sin temple which Nabonidus rebuilt and which is where the stelae may originally have stood (Saggs 1969).

Turning to the Levant, rock inscriptions of Nebuchadnezzar II have been found in Lebanon, at Nahr el-Kelb and Wadi Brissa (new studies are being

prepared by R. da Riva). In Jordan, a poorly preserved Neo-Babylonian rock relief and inscription recently discovered at Sela' near Buseirah has been tentatively attributed to Nabonidus and perhaps reflects the route taken by that king on his way to Tayma (Ch. II.43) (Dalley and Goguel 1997). Dalley goes on to suggest that the destruction levels found at Buseira, Tawilan and Tall al-Khalayfi may be related to Nabonidus's subjection of Edom (Dalley and Goguel 1997: 175).

These monuments are clearly testimony to Neo-Babylonian political domination of the region. However, apart from the destruction levels found at a number of sites which have been attributed to the actions of Nebuchadnezzar's army, other material traces of a Babylonian presence are remarkably scarce. In this respect it is difficult to reconcile the archaeological remains with the historical record, which suggests rather a firm grip on the region (Katzenstein 1997: 335). It is often assumed that Neo-Babylonian rulers simply took over the previously existing Neo-Assyrian governmental infrastructure, though Vanderhooft (2003: 236–7) noted that by 605 BC direct Assyrian control over Judah had been defunct for two, if not three, decades. Stern (2001: 348–50) wrote of a vacuum during the Neo-Babylonian period, with settlements that were destroyed during the Neo-Babylonian conquest being rebuilt only in the Persian period. He concluded that in the archaeology of Palestine "there is virtually no clearly defined period that may be called "Babylonian," for it was a time from which almost no material finds remain" (Stern 2001: 350; cf. Vanderhooft 2003: 253).

Nabonidus, the last Neo-Babylonian king (556–539 BC), is known to have stayed for 10 years in the oasis city of Tayma (Ch. II.43) in northwestern Arabia (Dandamayev 1998–2001: 8). Recent excavations at the site have uncovered evidence for the Neo-Babylonian presence there, including a fragment of a stele of Nabonidus (Eichmann et al. 2006). However, the palace which the king is known from written sources to have built there has not yet been found. In the vicinity of Tayma a handful of rock inscriptions bear the names of members of Nabonidus' military entourage; these particular individuals seem not to have been of Babylonian extraction, judging from their personal names (Müller and al-Said 2002).

As for the Persian Gulf region, a votive inscription on a bronze vessel found on Failaka (part of ancient Dilmun) indicates that the local temple Ekarra, known from earlier periods, was in use during the reign of Nebuchadnezzar; it was very likely dedicated to the god Shamash of Larsa. A stone slab with an inscription identifying it as belonging to the palace of Nebuchadnezzar, king of Babylon, has also been found on Failaka; however, it was probably en route to Babylon when it was deposited and does not reflect the presence of a royal palace on Dilmun itself (Ferrara 1975; cf. Potts 1990: 348–9; Glassner 2008: 190–1, 193). Burials of Neo-Babylonian type have also been found on Bahrain (Potts 1985: 702 with refs.).

GUIDE TO FURTHER READING

This chapter draws heavily on the author's forthcoming study of Babylonian cities of the 1st millennium BC, where a more detailed treatment of the archaeological and written evidence for each site can be found (Baker forthcoming). To date, no general account of Neo-Babylonian material culture has been written; for a recent introduction to the art of the period, see Hrouda (1998–2001). On *kudurrus*, see Slanski (2003; with additional comments and corrections by Charpin 2002 and Brinkman 2006). On burial practices, see Baker (1995) and especially the detailed publication of Neo-Babylonian graves from Uruk in Boehmer et al. (1995). For a general discussion of the factors influencing the physical form of the Babylonian city, see Baker (2007), and for a discussion of the various categories of unbuilt urban land at this period, see Baker (2009). For a detailed overview of Neo-Babylonian temple architecture, see Heinrich (1982: 243–82). The same author discusses the Neo-Babylonian palaces in the context of the Mesopotamian architectural tradition of palace building (Heinrich 1984: 198–231). A comprehensive overview of Babylonian housing in early 1st millennium BC, with numerous illustrations, can be found in Miglus (1999: 177–213). On Neo-Babylonian settlement patterns, see the invaluable critique of Brinkman (1984b), who examines the survey data in the light of the written documentation for the period 1150–625 BC. See also Cole and Gasche (1998) on the watercourses of northern Babylonia. For a summary of the results of the German excavations at Babylon, see Koldewey (1990); Oates (1988) is also a good general introduction. In addition, several recent volumes have been devoted to the archaeology and history of Babylon, including Renger (1999) and the well-illustrated books accompanying the major exhibitions held in Berlin, Paris, and London (Marzahn 2008; André-Salvini 2008; and Finkel and Seymour 2008, respectively). The Neo-Babylonian presence in Assyria is treated in detail by Curtis (2003), with further relevant discussion in Curtis (2005b).

CHAPTER FIFTY-ONE

The Achaemenid Provinces in Archaeological Perspective

Lori Khatchadourian

1 Introduction

In the 1990s, at a time when the study of the Achaemenid Persian Empire was beginning to coalesce as a self-conscious field of inquiry, Margaret C. Root (1991) lamented that a "politics of meagerness" dominated the archaeology of this unprecedented experiment in world empire. Root had in mind a troubling tendency on the part of commentators to underscore *absences* when addressing the material impact of Achaemenid art and institutions in the western reaches of the empire. This discourse of feebleness betrayed, in Root's assessment, a modern predisposition to underrate the efficacy of the Achaemenid imperial project. It both fueled and was fueled by a deeply entrenched scholarly perspective that privileged the cultural production and world-views of the Greeks, through whose literary works much of Achaemenid history is compiled. As many before and since have noted, when it comes to the Persians we moderns have long been beguiled by the tropes of those to whom we credit the origins of Western civilization – tropes that emphasize Persian barbarism and weakness (Sancisi-Weerdenburg 1987; Briant 2005). These and other disciplinary origin myths account for the liminal status of Achaemenid studies, long marginalized by both Classical and Near Eastern archaeology. Contesting traditional "Hellenocentric" approaches to the Persians and their empire (and a clarion call for a corrective to this particular manifestation of Eurocentrism) has become a central element of the subfield's "process of self-legitimation" (Giddens 1995: 5).

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

Two decades after Root's defiant dictum, it may be said that the politics of meagerness in the archaeology of the Achaemenid Empire is on the wane. A growing community of scholars is now studying the empire on its own terms, no longer refracted solely through the lens of Greek cultural production. Archaeologically, this is well attested by a recent edited volume, *L'Archéologie de l'empire achéménide*, that provides a much-needed, candid assessment of the state of the field. Bygone narratives staked upon a Greek civilizational prerogative have been rendered, if not obsolete, then at least irrelevant. What remains, however, are preambles and asides about insufficient evidence that still permeate an (ironically) expanding body of work. What are we to make of the current talk of meagerness that still prevails? In part it emerges from a rather banal fact: the evidentiary record of a little-investigated imperial phenomenon that is over two millennia past – indeed, one that has scarcely been the object of targeted archaeological research – is limited, sometimes even threadbare. But there may be more at work in the concern to underscore the dearth of evidence. The grievance over scanty material remains emanates in part from the misplaced expectation that "normal" imperialisms express themselves in the form of abrupt material ruptures and the diffusion of canonical artistic styles of a dominant group – an expectation encoded in the abused term "impact" – and that deviations from this must constitute imperialism's aberrant forms. But imperialisms both ancient and modern are rarely so straightforward and unimodal in their manipulations of the object world. As we shall see, the evidentiary record appears far less meager when this expectation is relinquished, when formal style is no longer the barometer of imperial efficacy, but more subtle forms of social re-engineering within materially constituted sociopolitical worlds.

The intended or unintended effect of the qualifications and forewarnings about limited evidence is to dampen expectations with respect to the interpretation of what data there are. The unfortunate need simply to demonstrate that the Achaemenid Empire *existed* – to conjure the spaces and things within it into the field of vision of Classical and Near Eastern archaeology – has led to an understandable commitment to description as an end in itself. This, in turn, has diminished Achaemenid archaeology's epistemological prerogative vis-à-vis ancient history. Despite work theorizing the relation between text and artifact within historical archaeologies (Andrén 1998; Moreland 2001), one still encounters the perspective that archaeology's capacity to inform the Achaemenid past resides in its ability to play "un rôle correcteur" against partial interpretations of Greek literary sources (Briant and Boucharlat 2005b: 22). Briant and Boucharlat have acknowledged archaeology's role in contributing to socioeconomic history and the study of material techniques, even if they place political and cultural analysis beyond its ambit. Other historians hold an even less sanguine view. Tuplin (2007a: 297) has opined that "there is little point in pretending that [literary] texts do not (or should not) provide a framework with which purely material evidence has to interact."

This is neither the place, nor any longer the era, to mount a defense of archaeology's capacity to extend the study of past and present into domains of knowledge production where history is relatively impotent. However, it is an opportunity to begin to recalibrate the archaeology of the Achaemenid provinces, opening it up to contemporary anthropological perspectives that probe the profoundly spatial and material constitution, and conditions, of social and political life. As a starting point, in place of the more customary region-by-region approach to the archaeology of the Achaemenid Empire (cf. Briant and Boucharlat 2005b; Curtis 2005a, 2005b), this contribution adopts a thematic organization, highlighting a selection of sites that best illuminate a given problematic. In forsaking aspirations for comprehensive coverage and the useful catalogues that such coverage can generate, it is hoped that a comparative account can bring into greater relief the degree to which agents of the Achaemenid Empire pursued material strategies toward imperial integration. In addition, although the present contribution is intended primarily to provide a broad overview of the archaeology of the Achaemenid provinces, thus hovering at a general register that prohibits in-depth analysis, where appropriate I draw upon my own research on the Achaemenid province of Armenia in order to provide a small window onto an archaeology of the empire that forwards the spatiality and materiality of social life.

Reasons more prosaic also dictate the economy of data sources and themes chosen for these pages. The proliferation of research on this empire in recent decades has given rise to the entirely felicitous need to delimit inquiry. Thus, little will be said about entire artifact classes customarily researched through art historical approaches (e.g., glyptic, coins, sculpture, toreutics). I steer clear of the minefield of "Greco-Persian" style and related questions of "cultural" influence that, by their very nature, reify normative ethnic positions. Also set to one side is the growing body of landscape and settlement pattern studies in places like Arabia (Anderson 2010), Armenia (Khatchadourian 2008), Judah (Milevski 1996–7), Lydia (Roosevelt 2009), Paphlagonia (Johnson 2010), Phoenicia (Tal 2000), and Samaria (Zertal 1990). So much, then, for meagerness.

2 History at a Glance

At the time of its ascendancy, the Achaemenid Empire (c.550–330 BC) was, by all accounts, the largest polity the ancient world had ever known. From the imperial heartland in southwestern Iran, the Achaemenid Dynasty maintained ever shifting degrees of sovereignty over an enormous domain, stretching from the Aegean Sea to the Indus River, and from Egypt and Arabia to the Caucasus mountains and Central Asia. Some of this realm was conquered during the reign of the founder king Cyrus, who took control of Media (in 550 BC), conquered Babylonia (in 539 BC), possibly reduced areas along the Aegean coastline, as well as Lydia or Armenia (in 547 BC), and campaigned in Central Asia. His immediate

successor, Cambyses, continued this expansionary phase of the empire's development with his conquest of Egypt. A period of severe dynastic and provincial unrest followed Cambyses' death in 522 BC, but it was brought to an end by the charismatic king, Darius I (522-486 BC), who, in addition to adding more territory to the empire, inaugurated a period of consolidation. Both before and after Darius, much of what ancient Classical authors wrote about the Achaemenid empire is a story of revolts and military campaigns as various kings faced uprisings from recalcitrant subalterns, for instance in Ionia (Asia Minor), Egypt, and Babylonia. The events of the reigns of Darius' successors up until the empire's demise at the hands of Alexander of Macedon are less well known, but recent attention to these long-dismissed periods suggests that the later kings focused primarily on internal administrative concerns.

What is meant by a "province" of this enormous macropolity? Strictly speaking, the Persians themselves had no such word. They appear to have envisioned their empire as constituted by a number of countries or peoples. In each such realm they appointed privileged Persian individuals known as *xšaθrapāvan*, or protectors of dominion. Greek authors called these individuals "satraps" and, from this, coined the word "satrapy" to designate a province of the Achaemenid Empire (Klinkott 2005). By and large, these satraps were based in the locations of the satrapies' earlier political centers (e.g., Babylon in Babylonia, Sardis in Lydia, Memphis in Egypt), from which they conducted administrative duties such as collecting taxes and tribute, maintaining military forces, and carrying out royal decrees. Beneath the level of the satrapy, the imperial establishment appears to have relied heavily on pre-existing institutions and local ruling families, inevitably creating conditions of tremendous diversity across the empire. This raises one of the prevailing questions in Achaemenid studies: to what extent should we speak of local autonomy as a function of ineffective governance, or to what extent was a policy of indirect rule and the use of pre-existing institutions a deliberate strategy of hegemonic control? Recent trends favor the latter interpretation.

3 The Armor of Coercion: In Defense of Empire

On his tomb at Naqsh-e Rustam, Darius underscored his ability to extend the empire's military might into the outermost reaches of his realm through the poetic metaphor of a singular warrior: "the spear of a Persian man has gone forth far." Archaeologists of the Achaemenid Empire have long been attuned to that most elemental dimension of imperial power – the capacity to act on the threat of organized political violence in order to forge and maintain sovereignty. Although often indirect, scattered across the empire is tantalizing evidence for the deployment of the instruments of violence. At Gordion, for example, a major stronghold in Phrygia strategically located on the Royal Road from Sardis to Susa, archaeologists have associated the presence of arrowheads embedded in

fortification walls, the destruction of a nearby pre-Achaemenid fortress abutted by what appears to be a monumental siege mound, and the abandonment of a pre-Achaemenid Lower Town, with the historically attested Persian capture of Gordion in 546 BC (Voigt and Young 1999). And amidst the debris surrounding a fortification wall at Sardis, unsettling remains of battle – weaponry, armor, and skeletons – have been associated with Cyrus's capture of the Lydian city (Cahill and Kroll 2005). Apart from initial conquest, material traces of the many rebellions known to have flared up over the course of the empire's long history – in Ionia, Egypt, Babylon, to name a few – are rare but extant. Some have attributed the destruction levels and renovations of several sites in Persian-period Palestine – Megiddo, Dor, Nebi Yunis, Mikhmoret – to the Tennes Revolt of the mid-4th century BC although debate surrounding such claims continues (Barag 1966; Stern 1990, 2001; Betlyon 2005). And as at Gordion, the extensive remains of a siege mound at Palaipaphos on the island of Cyprus, coupled with hundreds of sling stones, arrowheads, and javelin points, have been taken as telltale signs of the Achaemenids' aggressive response to the Cypriot revolt at the turn of the 5th century BC (Briant 1994; Maier 1996).

Such examples may serve to illustrate specific events of Achaemenid military history and, however faintly, render palpable the devastating force of political violence, otherwise easily obscured by the remove of textual representation. But insofar as the defense of empire hinges more critically upon the deterrence of instability rather than solely its brutal suppression, we must look elsewhere as well for its archaeological correlates. Our immediate concerns are not the social institutions of persuasion and consensus that are so critical to the project of maintaining political order, but the "armour of coercion" that ultimately protects hegemony (Gramsci 1971: 263). In the archaeology of the Achaemenid provinces, an infrastructure of military preparedness, marked most conspicuously by fortresses and garrisons, attests to the empire's coercive capabilities.

This is particularly visible in Persian-period Palestine, where numerous military outposts protected the strategic routes that traversed the region both north–south, along the Mediterranean coast, and west–east, from the coast to inland territories (Tal 2005). In addition to building new military installations, in many cases local or imperial leaders renovated existing facilities first built in the age of Assyrian ascendancy (Stern 2001). Though their sizes varied, many of these forts shared a highly standardized architectural form. The strongholds of Hazor in the north, Nahal Tut on the Phoenician coast, and Ashdod, Tell Jemmeh, Tel Sera', Tell el-Far'ah (S), and Tel Qatif in Philistia, for example, all exhibit a characteristic quadrangular courtyard structure (Stern 2001; Betlyon 2005; Tal 2005). The presence of silos, granaries, storage pits, and storehouses at some of these sites further suggests that many of the forts may have served as way stations for army garrisons, just as did Tell el-Hesi in Philistia, Tel Michal on the Sharon Plain, and Tel Halif in Idumaea, where evidence for provisioning is also present. Yet the material remains of daily life – pottery, figurines, agricultural tools –

caution against a solely martial interpretation that precludes the multifunctionality of these sites as lived places. Indeed, across this region we find several towns and administrative centers, such as Megiddo, Dor, Lachish, and Tel Haror, that also project a concern for defense, billeting, and provisioning. That said, special-purposes installations like the observation tower at Tel Qatif and the fortified encampment at el-Qaʿadeh also existed (Zertal 1990; Stern 2001).

Some of the abovementioned sites likely functioned to safeguard agricultural production and commerce along busy thoroughfares, but the relatively dense concentration of logistical depots in southern Palestine may more directly represent an apparatus of political violence. The region was at times a border zone between the empire and the recalcitrant province of Egypt, which attained a period of independence from c.400 to 342 BC (Fantalkin and Tal 2006). Not surprisingly, then, we find signs of military preparedness on the other side of this frontier. In the northern Sinai, investigations at the imposing fortified site of Tell Kedoua, for instance, have revealed bastions, access ramps, and a system of casements. Encampments may have surrounded this fortress, possibly a satrapal center or fortified royal pavilion. Religious, civic, and administrative activities likely also took place at the nearby fortresses at Tell el-Herr, whose saw-toothed fortification walls recall earlier, Egyptian defensive architecture (Valbelle and Deferenz 1994). Together with Tell el-Maskhuta in the eastern Delta – a Saite-period site that was expanded subsequent to its attack by the Persian army in 525 BC – these fortresses guarded access into Egypt from the north (Bard 2008). To extend and protect Egypt's southern frontier, the Persians garrisoned troops within a network of fortresses, most notably Elephantine and Dorginarti, at the First and Second Cataracts (Heidorn 1991).

The twin need to secure crucial transit routes and provide bases for military engagement in the face of actual or potential political unrest appears also to have been particularly pronounced in western Anatolia. Surface survey suggests that the Mediterranean coastal regions of Aiolis and Ionia, for example, hosted a system of strategically placed fortifications that protected routes leading to and from major inland centers, such as Sardis. The nature of these sites range from fortified towns to garrisons and lookout stations, all seemingly integrated into a single defensive network (Gezgin 2001). The immediate hinterlands of Sardis itself exhibit a similar investment in an infrastructure of defense, in the form of dispersed rural garrisons, some of which were situated at high elevations and heavily defended, such as Şahankaya and Kel Dağ. These likely functioned not only to insure tax collection and safeguard agricultural productivity, but also as military bases in the frequent skirmishes that threatened imperial authority in the Lydian countryside (Roosevelt 2009). Elsewhere in Asia Minor, as in Lycia, we see a pattern of fortified settlement marked by towering strongholds that guarded residential areas clustered around their slopes (Marksteiner 2005). Forts and fortified settlements also regulated transit routes along the Black Sea (Johnson 2010).

Hilltop fortresses dotted the landscape in more easterly regions of the empire as well, possibly serving as both defensive locations and provincial centers. Included among them is the monumental fortified town of Meydancikkale in Cilicia (Gates 2005). In Central Asia, of particular note are the massive walled sites (not exclusively forts) of Old Kandahar in Arachosia, Kiuzeli-g'ir and of Kalal'i-g'ir in Chorasmia, Erk Qala, and other fortresses in Margiana, possibly Koj Tepa in Sogdiana, and numerous fortresses surrounding undefended settlements in Bactria (Vogelsang 1992; Genito 1996; Helms 1997; Francfort 2005a; Khozhaniyazov 2006; Gricina and Genito 2010).

Two important caveats conclude this cursory discussion on the archaeological correlates of the empire's armor of coercion. First, we must allow for some fluidity when ascribing social roles to the actors who occupied the empire's fortified spaces. While at some times, and in some places, such strongholds may have buttressed directly the long and heavy arm of the imperial apparatus, they also likely worked to satisfy local concerns for defense and stability in the face of threats (real or imagined) that were outside the purview of the imperial gaze. Second, the tendency to narrowly associate monumental fortifications and lofty perches with an anxiety over security can obscure the intra-communal social divisions and power disparities that such spatial dividers can engender, reproduce, or reflect. In the satrapy of Armenia, for example, it appears that fortified sites such as the possible satrapal centers of Erebuni and Altintepe (see below), as well as more modest citadels like that at Tsaghkahovit, were linked not exclusively to defense in the narrow sense of resistance from violent attack, but more fundamentally to the defense of a longstanding sociopolitical arrangement that had staked inequality upon topographic distance and the further symbolic and practical segmentation of political community through massive stone enclosure walls (Khatchadourian 2008). Comparative survey data from across the Armenian highlands hints at a movement of settlements in the Achaemenid period downward from the commanding heights of mountain citadels, and outward from walled spaces into unfortified locales. Though possibly attributable to a *pax Persica* in this region, the probable shift away from fortified living in some regions of the Armenian satrapy may be more immediately linked to a transformation in the material constitution of social difference in the Achaemenid era. The separation of the archaeological dimensions of coercion from those of political life is a heuristic gesture whose limitations are clearly exposed when the sociopolitical work of the armor of coercion is taken into account.

4 The Armature of Authority

Agents of empire have well understood the work of built spaces in appropriating and maintaining authority within conquered territories. From the "other Cuzcos" of the Inka, to the far-flung cities of the Roman Empire and modern Europe's

Gothic colonial architecture, many imperial projects have relied in part on the perceptive and experiential dimensions of somewhat standardized political landscapes (A.T. Smith 2003). Understood in only its broadest contours, the Achaemenid Empire presents an early and, on current evidence, tantalizingly minimalist iteration of this materially constituted strategy of expansive rule. That is, in place of a stock architectonic of provincial governance, in most cases the Achaemenid establishment (by which I mean both central and local authorities) incorporated and adapted existing spatial logics.

Thus, dotting the full breadth of the empire from Syro-Palestine to Central Asia was a myriad of privileged places that have come to be called "palaces," "residences," or "administrative centers." Such locales stand out as sites of local officialdom on account of several of the following factors, in terms of the built spaces that constituted them: relatively monumental scale; agglomerations of integrated, functionally differentiated rooms; supra-household storage facilities; and architectural elements of canonical Achaemenid (formal) style. In the eastern reaches of the empire, attention has turned to such palaces or administrative centers at Dahan-e Golaman in Drangiana (eastern Iran) (Scerrato 1966), Old Kandahar (Helms 1997), and Kalal'i-g'ir (Vogelsang 1992). In Arabia and Mesopotamia, there is Qalat al-Bahrain in the Persian Gulf (Potts 2010) and Tell ed-Daim in northern Iraq (Curtis 2005b). Recently published sites like Tille Höyük on the Upper Euphrates (Blaylock 2009) and Meydancikkale (Gates 2005) are filling in the picture for Anatolia, a region where the accretions and erasures of subsequent occupations at known satrapal centers such as Daskyleion and Sardis have limited our understanding of civic architecture (Ateşlier 2001; Bakir 2001a; Dusinberre 2003; Erdoğan 2007). Such built spaces of political authority have been uncovered with particular density in Syro-Palestine (coastal Syria, Jordan) and Cyprus: Vouni, Lachish, Ashkelon, Ashdod, Dor, Tel Michal, Tell Qasile, Tell es-Sa'idiyeh, Tell el-'Umeri, Akko, Tall Jalul, al-Dreijat, Buseirah, Tell Mardikh – the list could go on (Mazzoni 1990; Bienkowski 2001; Stern 2001; Zournatzi 2003, 2011; Betlyon 2005; Tal 2005; Fantalkin and Tal 2006). A cluster of "palaces," so described on account of the presence of stone column bases distinctly Persepolitan in their formal style, have recently been uncovered in the South Caucasus, at sites like Gumbati, Sari Tepe, Beniamin, and Karacamirli (Gagošidze and Kipiani 2000; Knauss 2005, 2006; Knauss et al. 2010).

Though listed here with little elaboration, these sites should by no means be conflated as a singular homogenous phenomenon. Among other things, these "palaces" or centers differ in the timing of their emergence, the scale of their operations, the details of their built plans, and their histories of occupation before and after Achaemenid takeover. That said, a shared research approach certainly provides a common ground for our understanding of these provincial centers. Scholars of these major and minor centers have attended carefully to matters of chronology and periodization, architectural description, and, in some cases, the

specific historical circumstances – both eventful and structural – that can account for their emergence and functioning. Where the density of such "palaces" is particularly high – namely, in Syro-Palestine – efforts at typology are underway (relevant here is the prevalent open courtyard house whose closest parallels are to be found in Neo-Assyrian architecture; see Tal 2005). And where architectural elements invoke forms of the imperial heartland, as in the Caucasus, there has been a concern to define the ethnic identities of the occupants and workmen (Knauss 2005, 2006). What the current approaches offer is an effective antidote to the discourse on meagerness, by providing a rich dataset for querying the spatiality of local power in the Achaemenid Empire.

New findings will continue to thicken the descriptions of these sites and there can be little doubt that additional examples will emerge. But the time is ripe to begin considering the symbolic efficacy of such sites within local regimes of rule and their practical operation in promulgating local authority. As they are currently deployed, the terms in circulation are elusive. "Palace," "residence," "administrative center," though useful as shorthand, can lend a false sense of understanding to spaces whose practical affordances and affective capacities in the production of political community and the everyday making of empire remain underexamined. In the remainder of this section, I illustrate an approach to the armature of Achaemenid authority that fixes its gaze on such unaddressed concerns, using as examples two sites from the highland satrapy of Armenia: Altintepe (Turkey) and Erebuni (Armenia) (Khatchadourian 2008, in press). It is often emphasized that the Achaemenids, like a great many imperialists, largely co-opted the major centers of their conquered communities, insinuating themselves into well-entrenched structures of political authority. But in some of their building programs, agents of the empire also appreciated the need to deploy a distinctive architectonic vocabulary that extended and signified the institutions of Achaemenid power. In the case of Altintepe and Erebuni, reappropriation and rebranding appear to have gone hand in hand. It should be said that the analysis that follows is preliminary; the findings from recently revived excavations at Erebuni may alter the chronology of its construction and occupation.

Once counted among the iconic hilltop fortresses of the earlier Urartian Empire, based on current understandings of these sites, it appears that Achaemenid authorities reconfigured fortresses by building hypostyles halls within their walls – spacious, internally undivided chambers with roofs supported by multiple rows of pillars. As an architectural form, the columned hall signals a departure from the local past of the Armenian highlands. This building type finds no direct counterpart in the earlier architecture of the region (even as similar columned halls are known from pre-Achaemenid sites in Iran). By and large, Urartian fortresses were labyrinthine spaces premised on the segmentation of activities and the regulation of movement through the use of densely compacted rooms (A.T. Smith 2003). As a new kind of built space, the highland halls articulate most immediately with an Achaemenid tradition of configuring places of authority with

strictly rectilinear colonnaded structures (other full-fledged hypostyle halls outside of the imperial centers of Pasargadae, Persepolis, Susa, and Babylon have only been postulated on the basis of isolated archaeological elements, such as column bases and capitals fashioned in distinctive Achaemenid formal style). I have argued elsewhere that the halls of Altintepe and Erebuni may have served metaphorically as extensions of the empire's struggle for cosmic and political order into the provinces (Khatchadourian in press). They can thus be seen to evoke the aspirations that underlay an Achaemenid world-view.

At the same time, by building the halls within the buttressed walls of Urartian fortresses these satrapal centers of Achaemenid control were effectively anchored to a familiar and enduring local political landscape. The new users of these sites appear to have vested their authority in part on the potentially diverse affective responses such reoccupations might have created for those both within and beyond the walls of the fortresses. They were citing a distinctly highland conception of the proper constitution of authority, as vested in topographic difference, augmented by formidable defensive constructions that accentuated the distance between rulers and ruled. In other words, on view in the conjoining of hilltop fortress and hypostyle hall at Erebuni and Altintepe is a complex assimilation of old places into new traditions of political practice.

Apart from the perceptive dimension of these spaces, considerations of the halls' architectonics (scale, circulation, and orientation) open a window onto the kinds of everyday activities that may have taken place within them. I have argued on the basis of such architectonic analysis that they were multifunctional places in which group council among highland elites periodically took place (Khatchadourian 2008, in press). Assembly halls would have facilitated the production of cadres versed in the norms of Achaemenid social practice through face-to-face interaction. If so, the halls would have served as critical mediating locations between local leaders from across the highlands and representatives of imperial authority. The highland halls likely inculcated local leaders, thus binding the communities from which they came to a larger collective and sustaining the empire's rules and conventions. The spaces at Erebuni and Altintepe not only mediated certain kinds of Achaemenid practices that sustained hegemony, but in the process these spaces enabled the preservation, albeit in altered form, of deeply engrained highland political values that became implicated in imperial reproduction.

5 Living Under Empire: Households Beyond Palaces

The archaeology of households is now widely recognized as a research focus uniquely positioned to inform the everyday practices that reproduce relations of power, yet it has made few inroads in the archaeology of the Achaemenid Empire. The tendency to seek the "impact" of the empire in only the most privileged

locales of social life has given rise to a rather restrained view of imperialism as a contained phenomenon that extends no further than the rarified spheres of elite activity. This is not to say that ordinary residential contexts have gone entirely unnoticed in the archaeology of the Achaemenid provinces, as we shall see, but that such contexts have not been traditionally understood as constitutive of the social and political reproduction of empire. Yet, as archaeologists of other empires have demonstrated, domestic contexts and quotidian routines are key arenas for the imposition, adoption or rejection of imperial institutions at the microscale (Brumfiel 1997; Voss 2008).

A rather different set of preoccupations surrounds the study of household contexts in the Achaemenid Empire. In Palestine, for instance, a concern to trace the emergence and development of Hippodamian (or gridded) town planning looms large, such that the residential quarters at sites like Tel Dor, Akko, Shiqmona, Megiddo, Tel Megadim, and Tel Michal are examined less as spaces of social production than as models that more or less conform to an urban ideal predicated upon regularly gridded streets that intersect at right angles (Stern 1990, 2001; Betlyon 2005). The social world of everyday life under empire is equally absent from efforts to develop typologies of domestic architecture in this region (Stern 2001; Tal 2005). Elsewhere across the empire, the limited attention given to domestic contexts has focused on the grounds for their identification, the description of their architecture, and the cataloguing of the objects they contained. In Jordan, for example, domestic contexts have been identified at Tall al-Mazar and Tall el-'Umeri, among other sites, on the basis of evidence for everyday activities requiring storage pits, groundstones, spindle whorls, oven fragments, etc. (Bienkowski 2001). In Egypt, houses at Ayn Manwir have attracted interest for the dated documents (ostraca) found within them (Wuttmann et al. 1996), much as Aramaic papyri from the site of Elephantine dating to the 27th Dynasty have overshadowed interpretive analysis of the houses excavated there. However, variability among domestic contexts at the site of Tell el-Muqdam in the central Delta invites further investigation into the everyday making of social difference in one town under empire (Redmount and Friedman 1997). At the Anatolian site of Gordion, questions of continuity and change in domestic architecture before and after Achaemenid conquest surround the study of a relatively large sample of excavated houses (Voigt and Young 1999). In this same region, a large residential complex at Tille Höyük may illustrate the intermingling of domestic and official activities among privileged landholders or local administrators (Blaylock 2009). And in the eastern Iranian province of Sistan, a substantial residential quarter at Dahan-e Golaman preserves local traditions of domestic architecture even as public buildings at the site reveal the long hand of empire (Gnoli 1993; Scerrato 1966).

Research currently underway at Tsaghkahovit, a remote mountain town in the satrapy of Armenia, was designed with the express purpose of investigating the material making of Achaemenid hegemony in the everyday (Khatchadourian

2008). The daily lives of Tsaghkahovit's denizens revolved largely around a subsistence economy of mixed agropastoralism supplemented by craft production involving bone and stone tools, ceramics, textiles, and iron implements and adornments. In a semi-subterranean residential complex of more than 20 interconnected rooms, tantalizing evidence is emerging for specific routines linked to the reproduction of certain imperial institutions. Faunal analysis hints at the rearing of horses, perhaps consistent with the satrapy's tribute obligation, as described in historical sources. More importantly, excavations across several sectors of the site are opening the possibility to gauge the social segregation of subsistence and tribute economies. In addition, the faunal remains, coupled with morphological, quantitative, and qualitative characteristics of ceramic assemblages in select rooms of the complex, point to forms of commensal consumption that, in various ways, reference conventions of the imperial heartland. Similarly, Dusinberrre's (2003) analysis of ceramics from Sardis also indicates new patterns of consumption attendant upon Achaemenid imperialism, offering important insights into the practices that extended the empire's reach into the everyday lives of ordinary subjects.

6 Dying Under Empire: Archaeology of Mortuary Practice

In the middle of the 4th century BC, the satrap Maussollos and his wife (and sister) Artemisia designed a tomb of such scale and ostentation that the monument would later join the ranks of the Seven Wonders of the Ancient World. Maussollos' tomb at Halicarnassus, in Caria (southwestern Anatolia), was set atop a high, rectangular podium perched by an Ionic peripteral upper stage that was roofed with a stepped pyramid, which was in turn crowned with a statue of a four-horse chariot. Though scarcely extant today, written descriptions, sculptures, and fragmentary building remains suggest a massive and elaborate construction that harnessed a diverse architectural and iconographic vocabulary drawn from Mediterranean and Near Eastern traditions.

The Mausoleum of Halicarnassus represents the culmination of an Achaemenid phenomenon that is strikingly unique in the archaeology of archaic empires: provincial authorities who were either granted, or appropriated, the prerogative to build immense tombs that displayed their status and materialized their claims to authority. The existence of such tombs in various regions of the empire and across the two centuries of Achaemenid hegemony suggests that they signal less the inability of central imperial authorities to reign in ambitious provincial leaders than a strategy of rule that capitalized upon the local sources of legitimacy enjoyed by regional collaborators. Given the nature of the evidence, this discussion primarily focuses on the upper echelons of Achaemenid society, suggesting that more work remains to be done on lower-status burials that might articulate with the archaeology of the everyday described in the previous section.

The available data point to two broad patterns. First, a limited but notable pattern comprises funerary practices that appear to conform either overtly or obliquely to the mortuary traditions and material practices of the Achaemenid Persians themselves. For instance, reconstructions of the Pyramid Tomb in the Lydian capital of Sardis, with its built chamber placed atop a stepped base, closely resemble the tomb of king Cyrus at Pasargadae (Ratté 1992), as does a freestanding, rectangular, two-story monument hewn from a single bedrock outcrop at Taş Kule, near the Ionian city of Phokaia (Cahill 1988). So confidently do these tombs appear to cite an iconic symbol of the Achaemenid founder king that the question of the ethnic identity of the deceased (some have suggested they may have been Persian) recedes in importance relative to the bold declarations of authority that such monuments represent. Later free-standing stone tombs of the 4th century BC, such as Maussolos' tomb and the "heroa" or "ruler-tombs" of Lycia, distantly echo the Cyrus monument, but apart from their elevated podia the designers looked principally to the architectural and iconographic traditions of Greece rather than Persia. The precise funerary rites enacted in association with these tombs remain obscure. Cahill posits that the stone hollow in front of Taş Kule recalls the fire bowls used in Zoroastrian ritual. Others have also identified archaeological evidence for mortuary rites that may have adhered to funerary laws proscribed by Zoroastrianism, such as ossuaries and possible fire installations in Lycia, Lydia, and Caria (L'vov-Basirov 2001). Yet interpretation of mortuary remains as locales for the disposal of the dead in accordance with a putative Achaemenid proto-Zoroastrian code sits uncomfortably alongside ongoing scholarly debate concerning the relationship between Achaemenid religion and codified Zoroastrianism.

In addition, evidence for mortuary rituals in the mountainous zones of inland Palestine and Jordan suggest the deliberate, if selective, reproduction of Achaemenid practical (as distinct from iconographic) conventions. The coffin burials in the cemeteries of Shechem and Tell al-Mazar, for example, contained assemblages of ceramic and metal vessels that morphologically replicate Achaemenid royal tableware and finewares. Some have assigned such burials to Persian soldiers serving in provincial garrisons (Stern 2001; Wolff 2002), but rather than viewing them as passive reflections of normative ethnic positions, we might instead consider such assemblages for their role in funerary ritual activities that to some degree reproduced Achaemenid conventions of ritual consumption. A particularly complex mortuary dataset survives in Paphlagonia (northern Anatolia). Here, columnar, rock-cut tombs hewn from sheer cliff faces amalgamate Aegean, Achaemenid, and Anatolian architectural and iconographic elements whose social efficacy, Johnson has argued, can only be understood when situated within their local landscapes (Johnson 2010; cf. Dönmez 2007; Summerer and von Kienlin 2010). Such rock-cut cliff tombs occur elsewhere in Anatolia (see below), in some cases pre-dating the Persian conquest. While the Paphlagonian tombs are unique, resisting neat attribution to the predominant Greek and Persian sculptural

traditions of the day, they articulate in subtle ways with Achaemenid ritual practices (Johnson 2010).

Across the provinces of the empire, individuals and families of varying social status drew upon and reimagined mortuary and material practices of the Achaemenid heartland as expressions of Persian identity, strategic gestures of political allegiance, or cynical appropriations of hegemonic symbols. However, the far more widespread pattern in the Achaemenid provinces entails either the persistence of old or the emergence of new local funerary traditions that exhibit limited, if any, association with the mortuary and material practices of imperial Persia. At the highest echelons of Achaemenid society, we may look to the elaborate shaft tombs of Egyptian elites, like the senior official and Persian supporter Udjahorresnet and the priest and administrator of palaces, Iufaa (and his family), who embedded themselves within ancient sacred and royal landscapes by aligning their tombs with the pyramids of the 5th dynasty at Abusir, the Step Pyramid at Saqqara, the Giza pyramids, and the Sun Temple at Heliopolis. More modest shaft tombs appeared later in the Persian period around Memphis, perhaps as new imperial overlords imposed limits on excesses of affluence and stature among regional elites (Stammers 2009). But the overall conception of elite Persian-period burials of the 27th Dynasty remained decidedly Egyptian, so much so that they can be difficult to assign narrowly to the period of Achaemenid hegemony (Aston 1999). In nearby Phoenicia, stone anthropoid sarcophagi redolent of Egyptian prototypes in overall form, yet inflected in the Achaemenid period with Greek modes of facial representation, likewise perpetuate earlier traditions (Moscati 1988b).

Available evidence suggests a thoroughgoing commitment to local burial traditions among several privileged families of western Anatolia as well, although the work of tomb robbers has left us with a woefully partial basis for reconstructing mortuary practice. Most widespread are the region's tumuli burials – large earthen mounds built atop chamber tomb complexes that dot the landscapes of several regions of Asia Minor (e.g. Phrygia, Lydia, Paphlagonia). In some cases, such tumuli contained elaborately carved sarcophagi, such as those from Kizöldün and Çan (in northwestern Anatolia). Both draw upon the iconographic traditions of the Aegean. Yet they evince a possible shift over time in elite conceptions of the themes appropriate to funerary art, with the earlier sarcophagus calling up Greek mythology and the later one deploying subject matters more prevalent in the artistic circles of the Achaemenid establishment (Kaptan 2003; Rose 2007). In the case of the Lydian tumuli, the presence of ceramic assemblages associated with drinking, of couches possibly symbolic of (eternal) banqueting, and of charcoal deposits that hint at a ceremony involving fire provide a sense of the broad contours of a funerary rite (Dusinberre 2003). The tumuli burials derive from Anatolian antecedents that predate Achaemenid conquest, and they appear to have been reserved for the region's political and social elites. The more than 600 known tumuli in Lydia alone point to a funerary strategy premised on

individual and kin-based status display and ostentation (Roosevelt 2009). Though highly conspicuous on account of their strategic placement and monumental scale, in some cases phallic stones, stelae, and lion statues further marked the locations of the mounds, and perhaps variously symbolized rebirth and passage, or functioned apotropaically. Such Lydian tumuli likely both reflected and encouraged a strong sense of autonomy rooted in pre-Achaemenid local traditions of imperial hegemony. The phenomenon of secondary burials in the form of pits and sarcophagi dug into pre-existing tumuli in Lydia may attest to the ideological efficacy of these monuments in reaffirming commitments to a local past.

Also common to several regions of Anatolia (e.g. Lydia, Lycia) are rock-cut chamber tombs hewn from cliffs and hillsides that differ from the Paphlagonian variants in that their origins and forms reside primarily in the pre-Achaemenid traditions of the region. Roosevelt (2009: 140) has assigned the rock-cut chamber tombs of Sardis to the city's "large and affluent middle classes" (cf. Ch. II.48). Zahle (1983) has posited that the "house-tombs" of Lycia, whose stone architectural features are thought to reproduce the region's wooden houses, belonged to individuals of more modest social standing relative to Lycia's sarcophagi and "pillar tombs" (Keen 1995). Reigning dynasts or leading personages of Lycia built large, rectilinear, upright shafts of stone that taper slightly toward the top, out of which a burial chamber was hewn. Perhaps the most distinctive burial form in Achaemenid Anatolia, the Lydian pillar tombs, confidently (and perhaps at times insubordinately) asserted local authority through an entirely unique mortuary monument whose inscriptions and artistic motifs emphasize themes of wealth, public fame, personal achievement and aggression (Draycott 2007).

For the vast majority of subjects in the imperial provinces, below the highest echelons of society, burial traditions varied widely. Some communities buried their dead much as they had before the Achaemenid takeover, while others introduced new forms and incorporated grave goods of distinctive Achaemenid style. Commoner burials have received the least attention in the archaeology of Achaemenid mortuary practices. But those that have been exposed – like the humble pit burials of Tall al-Mazar and Tall es-Sa'idiyeh (Jordan) (Bienkowski 2001), Tell Shiyukh Fawqani (Syria) (Luciani 2000), Kamid el-Loz (Lebanon), or the terracotta and limestone "bathtub" sarcophagi of Lydia (Roosevelt 2009) – adopt forms that point to the continuity of local material practices. Other, modest burials, such as the shaft tombs, cists, and pits of Phoenicia and the Palestinian coastal plain (e.g., Tel Michal, Akhziv, Atlit, etc.) contain inventories, in many cases quite limited, that derive from traditions not of Persia but of the Mediterranean (e.g., Phoenecia, Greece, Egypt) (Stern 2001; Wolff 2002). The humble pit and stone-lined cist graves of Deve Höyük introduce a new mortuary practice to this region of ancient Syria (inhumation rather than cremation) and contain eclectic assemblages that combine Mediterranean ceramic traditions with metal weapons and jewelry associated with the material culture of the empire's eastern

lands (Moorey 1980). Amidst similarly eclectic assemblages, the jewelry recovered from the stone-lined cist and ceramic "bathtub" burials of Haçinebi suggest related associations to Achaemenid material repertoires (McMahon in Stein et al. 1997). As at Haçinebi, humble pit, cist, coffin, or "bathtub" sarcophagus burials excavated at sites of past grandeur, such as Ur, Babylon, and Tushpa (modern Van, Turkey) are embedded within or above the ruins of earlier structures (Woolley 1962; Haerinck 1995; Tarhan 2007), inviting analysis into the commemorative acts that transform houses of the living into houses of the dead (Khatchadourian 2007).

This discussion has remained largely silent on the myriad artistic representations deployed in Achaemenid-era burials of particularly privileged individuals in the provinces. The implied distinction between, on the one hand, the practices linked directly to the disposal of the deceased and, on the other, the ways in which funerary imagery provided an opportunity for the broader expression of identities, political and social aspirations, and personal aesthetics may be largely heuristic. For example, in Achaemenid Anatolia, in particular, many elites clearly deemed visual representation as a desirable, if not essential, element of proper burial practice and they favored imagery that engaged with a wide range of concerns, such as banquets and battles, hunts and mythological accounts, scenes of audience, procession, and gift-bearing, and the symbolism of the vegetal and animal kingdoms. These are encountered across media, but attention has focused especially on free-standing stone stelae, relief fragments, sculptures, architectural façades, wall-paintings from tombs, and sarcophagi. The scholarly approaches to these representations have become increasingly refined in recent years, such that efforts to segregate putatively fixed Persian, East Greek, and Anatolian iconographic traditions are giving way to a subtler mode of analysis that recognizes complex processes of hybridization and the strategies entailed therein. Suffice it to say that few themes appear to relate directly to funerary rituals (banquets and processions may, but the contextual meaning of these are also debated), constituting instead representational contemplations upon the concerns and identities of the deceased during their lifetimes. They are thus beyond the scope of the above discussion.

7 Divine Disjuncture

Whether seeking to incorporate compatible structures of cosmological meaning or to eradicate and replace putatively idolatrous beliefs, agents of empire often turn to material tactics in the religious integration of conquered communities (Jennings 2003; Wernke 2007). The archaeology of religious life in incorporated provinces of empire becomes a particularly challenging enterprise, however, when religious integration itself is not an aspiration of imperial authorities. Such appears to have been the case in the Achaemenid Empire, where religious het-

erodoxy was, if not cultivated, strategically tolerated across the empire. The thorny question of the Achaemenid Dynasty's religious practices lies beyond the limits of this inquiry. But what is clear from an assessment across the provinces is that there is little evidence for the promulgation, materially or otherwise, of a state religion or imperial cult deployed as an instrument of imperial integration. Claims of a systematic policy of religious syncretism that amalgamated local deities with the pre-eminent Achaemenid gods also rest on shaky ground (Bedford 1996).

Instead, the written record points to what Allen (2005: 125–6) has succinctly described as the crown's "positive but removed relationship" to local religions, whose "Civic sanctuaries and regional pantheons, when relevant and convenient, could be cultivated and drafted into a recognition of Achaemenid rule." This is most vividly apparent in Babylon and Egypt, where early Achaemenid kings co-opted the mantle of indigenous kingship by fashioning themselves as upholders of local cults (Bedford 1996). The temple of Hibis in the Kharga oasis, completed under Darius I and dedicated to Amun, provides archaeological evidence for this phenomenon (Winlock 1941). Cooperative communities met with religious tolerance and sometimes even beneficence toward their cults and temples, but tolerance was, as Allen (2005: 131) contends, "a tactic of domination": the sanctuaries of the uncooperative or rebellious could be subject to religious repression. In this section we explore the kinds of material evidence of sacred practices that register efforts on the part of imperial authorities to reckon with the tremendous diversity of pantheons and pieties within their realm. The discussion here focuses mainly on built sacred spaces, setting aside the ways in which natural features, cultic objects, ritual deposits, and iconographic representations of sacred activity were also constitutive of religious practice.

Material evidence of religious rituals in the Achaemenid provinces thought to derive from the imperial heartland centers primarily on an enigmatic construction known as a "fire altar" – an installation, typically consisting of a stand with stepped top and base, used to hold fire for the purpose of veneration (and sometimes, not uncontroversially, with Zoroastrianism) (Houtkamp 1992; Garrison 1999). Depictions of fire altars on the tombs of the Achaemenid kings and on sealings associated with the imperial court establish their sacral and political significance in the constitution of Achaemenid ideology. Material remains of presumed fire altars from the heartland (cf. Ch. II.50) are at present restricted to stepped stone fragments and a podium that may have hosted such an altar from Pasargadae (Stronach 1978).

In the provinces, the appearance of such features and, more broadly, evidence for extensive usage of fire are customarily associated with Achaemenid religious ritual. Stepped pyramids of clay often interpreted as fire altars were found at the sites of Dahan-e Golaman in eastern Iran (QN6 and QN16) and Altyn-10 in Bactria (Structure II) within apparently residential ("palatial") and public contexts (Sarianidi 1977; Scerrato 1979). Scerrato regarded the large sacred

enclosure of QN3 at Dahan-e Golaman, with its multiple altars and oven-like installations, as not necessarily a centrally imposed ritual space intended for the veneration of fire or the worship of Achaemenid deities (Ahuramazda, Mithra, and Anahita), as others have suggested (although for a more recent assessment, see Sajjadi 2007). Instead, he contended that, prior to the Achaemenid takeover of this region, religious practices were reserved for the "private" sphere, suggesting that the large-scale ritual space may be the result of a centrally mandated institutionalization of religious practices.

Installations that may have been used in rites involving sacred fire also appear in western Anatolia. In addition to the presumed fire bowl at Taş Kule discussed above, a limestone feature with a two-stepped plinth and top recovered from Bünyan in central Anatolia may represent one such altar, as may the rock-cut stepped feature with platform from Lycian Limyra (Wurster 1974; Houtkamp 1992; Işik 1996). Excavations of a free-standing rectangular platform in the refinery area at Sardis revealed traces of burning episodes that some have taken as evidence that this edifice, originally built before the Achaemenid conquest as an altar to Cybele, was converted into a fire altar (Ramage and Craddock 2000). The structure does not conform morphologically with the altar types known from the imperial heartland. Dusinberre (2003: 68) has cogently argued that this instance of religious rehabilitation provides evidence of Achaemenid religious "cooptation and conversion." In contrast, Roosevelt (2009) regards the fire altar near the fortress of Şahankaya in greater Lydia as a sanctuary intended for Persian troops stationed in the nearby garrison (see above). Dusinberre's and Roosevelt's differing interpretations of these two installations highlight a key struggle in the effort to make sense of the "fire altar" phenomenon: if the notable occurrence of such features is attributed to a deliberate policy of imperial intervention in religious life, then the infrequency of the phenomenon demands explanation. On the other hand, interpreting the altars as places of worship for Persian colonists, soldiers, or adherents to a pan-Iranian Mazdean religion risks stripping these sites of their potential political significance as institutions of domination.

A different set of challenges is presented by sites of enduring religious significance that underwent some transformation upon or during the imposition of Achaemenid control, but where the correlation between such transformations and the imperial hand remains obscure. For example, in Phoenicia, the longstanding temple of Eshmun and Astarte, near Sidon, was renovated in the Achaemenid period to include a massive podium that recalls Achaemenid architectural elements (Ciasca 1988), but for what new ritual purpose remains uncertain. Perhaps most striking is the open-air temple complex, a rock-cut stepped altar with stepped crenellations enclosed by a colonnaded portico, dedicated to Melqart-Heracles near Amrit. The structure arguably incorporates architectural elements drawn from Phoenicia, Egypt, Greece, and Persia. While much debate has surrounded the stylistic analysis of the site (Jigoulov 2010: 184), it remains to be

considered how such eclecticism in built form might have forged hybrid ritual practices and to what social ends. Lastly, we might include in this category a second altar at Sardis – a rectangular stepped platform built in the Achaemenid period possibly in a place of earlier religious significance, whose built form merged East Greek and Persian architectural traditions for the veneration of a local instantiation of Artemis. If Dusinberre (2003: 63) was correct in ascribing the stepped component to Achaemenid influence, we have yet to understand what practical significance this would have had in the worship of a local deity. In all these examples, the agents, motivations, and meanings behind the observed changes in spatial practices demand further elaboration that admits for direct, indirect, or even absent involvement on the part of imperial authorities.

Further investigation needs to undertaken into the archaeological evidence of religious practices in the Achaemenid provinces that suggest a thorough disinclination on the part of imperial agents to intervene in local cults. Such evidence is particularly abundant in Phoenicia. The sanctuary of Tanit-Astarte at Sarepta, for instance, underwent little change from its Late Bronze Age predecessor. Likewise, the conversion of the temple of Tell Sukas from a Greek to a Phoenician religious site, dedicated to the worship of Astarte and Melqart, betrays no indication of imperial intervention, though it may have been an indirect consequence of social transformations brought about by Achaemenid hegemony. Newer temple sites at Tel Michal and Mizpe Yammim point to the viability of a diverse and pluralistic sacred landscape that embraced Phoenician and Egyptian deities, but the Achaemenid/Iranian pantheon is virtually absent. Smaller shrines or chapels at several sites of Palestine (Dan, Tel Michal, Achzib) represent an enduring Iron Age tradition of cultic practice that was unhindered in the Persian period (Betlyon 2005; Stern 2001). At present, we lack a sufficient sociopolitical explanation for the conspicuous homogenization of some dimensions of ritual practice across this region, marked by a newfound uniformity of cult objects such as figurines associated with the worship of Phoenician, Egyptian, and Greek deities. But, by and large, local religious traditions prevailed without disruption in much of Phoenicia and Palestine.

This observation holds in other regions of the empire as well. In Mesopotamia, Woolley (1962) suggested that a late complex associated with the *ziggurat* at Ur might indicate the continued maintenance of the Nanna priesthood under Achaemenid occupation. In Egypt, the temple of Amun at Hibis and the temple to Osiris at Ayn Manawir attest to the strength of indigenous cults, in the case of the former, with direct royal benefaction. Yet the absence of such direct intervention should not be taken as an indication of imperial irrelevance. As Zahle (1994) remarked with respect to the "Ionian Renaissance" and the lavish, sacred building projects of the Carian Hecatomnid satraps, the wealth and authority needed to undertake initiatives such as the temple of Zeus Labraynda at Halicarnassus were privileges largely conferred by the crown.

8 Conclusions and New Beginnings

This chapter began with a critical discussion on the rhetoric of meagerness that has long pervaded the archaeology of the Achaemenid provinces. In that context, an encouraging statistic concludes this account of the materiality of coercion, authority, households, death, and religion in the archaeology of the Achaemenid provinces: more than half the relevant publications cited in these pages have appeared since the turn of the new millennium and as many as a third have been published since 2005. The accelerated pace of recent archaeological research begs the unconfronted question: What is the measure against which paltry and plenty are to be gauged? Archaeology offers no such yardstick, but recent decades of archaeological thought have productively resisted the notion that processes of data collection and analysis are either strictly sequential or independent. Future fieldwork and methodological advances are critical, to be sure, and we can be generally confident that they will occur. It can also be hoped that, with the abundance of new evidence coming into view, mutterings over insufficient datasets will subside as the work of robust interpretation begins.

Several potential new directions of research may enrich that project. As Sinopoli (1994, 2001b) has noted, the tremendous scale of most empires makes the task of comparative archaeological analysis within them (let alone amongst them) incredibly daunting. Yet integrative analysis offers an important complement to tightly focused research, providing a window onto "the extent to which the impact of empire on households, communities, and local economies was uniform across diverse regions or whether imperial hegemony differentially affected imperial subjects and imperial territories, and how this changed over time" (Sinopoli 2001). More broadly, as it strives to refine higher levels of abstraction on the materiality of imperialism, the comparative archaeology of empires stands to gain from more active interventions on the part of those who study one of the earliest experiments in expansionary macropolity. Students of the Achaemenid Empire will likely continue to struggle over the relationship between the different epistemologies engaged in their enterprise. But some resolution may be found in the comparative social archaeology of provinces under empire that allows the archaeological to collaborate with the historical and the art historical, without dissolving the distinctions among them.

GUIDE TO FURTHER READING

For a brief, general introduction to Achaemenid history, students may consult Kuhrt (2001b) while for a lengthier treatment, see Allen (2005). For a comprehensive, primarily historical work, see Briant (2002). A number of edited works touch on the key themes

in Achaemenid studies. Most important among these are the *Achaemenid History* series published between 1987 and 2003. See also the studies published in Tuplin (2007b) and Curtis and Simpson (2010). Works dedicated to material culture that bring together multiple regions of the Achaemenid Empire include Briant and Boucharlat (2005a) and Curtis (2005a). For full-length archaeological works devoted to particular regions, see, e.g., Stern (2001) on Palestine; Dusinberre (2003) and Roosevelt (2009) on Sardis and Lydia; Khatchadourian (2008) on Armenia; and Johnson (2010) on Paphlagonia.

CHAPTER FIFTY-TWO

The Seleucid Kingdom

Lise Hannestad

1 Introduction

The death of Alexander in Babylon in 323 BC left a vacuum not only in the leadership of his huge army, but also in the leadership of Macedonia, since he had no obvious successor, his still unborn son by his Iranian wife and his mentally handicapped half-brother being the only blood-related options. In this situation, more than a handful of talented and ambitious generals made "agreements," but actually began to fight each other for territorial gains and, in the end, also for the royal title as the successor of Alexander. It was in these tumultuous circumstances that the Seleucid kingdom was born. One of those generals was Seleucus who in 321/320 BC came to rule Babylonia. Fifteen years later, in 304 BC, after continued fighting, he was able to assume the title of king. In 303 BC he took possession of the regions east of Babylonia, the so-called "upper satrapies," including Iran and present-day Afghanistan. After the battle of Ipsus in 301 BC and the defeat of Antigonus the One-Eyed, Seleucus' main rival in Asia, northern Syria fell to him. The Seleucid kingdom, which for periods also included extensive parts of Asia Minor, was by far the largest of the Hellenistic kingdoms. By the mid–3rd century BC, however, Bactria, the easternmost satrapy, had broken away and become an independent Greek kingdom. This was to some extent compensated for in the late 3rd century when one of Seleucus' successors, Antiochus III (the Great), conquered and took Phoenicia and Palestine from the Ptolemies based in Egypt. From the 2nd century onwards the kingdom gradually shrank in

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size, most notably when the Parthians conquered Mesopotamia. In 64 BC the last Seleucid king, Antiochus XIII, lost his kingdom, at the time comprising only Syria, to the Romans, and a few years later the area became a Roman province.

2 Administration and Royal Economy

The nature of the Seleucid kingdom has been the subject of a large number of scholarly discussions. The traditional view of it as a "Western" kingdom, based on a continuation of Macedonian kingship and firmly rooted in the Greek way of life, was challenged in the late 1980s and 1990s by, e.g., E. Will (1979–82), P. Briant (1990), and A. Kuhrt and S. Sherwin-White (Sherwin-White and Kuhrt 1993) who claimed that it was an "Eastern" kingdom centered in the Middle East – to a large extent a successor of the Achaemenid empire. A more recent approach argues that this is not an either/or issue. It is now accepted by most scholars that the kingdom cannot be classified as one or the other, for in reality the situation was much more complex (Austin 2003; Hannestad 2004, in press a).

As in the other Hellenistic kingdoms, the administration of the Seleucid kingdom was centered on the king's court. The highest-ranking group of administrators and officials, the so-called "friends" (*philoi*), was the heart of the power structure in all of the kingdoms. The court was normally located in the palace (or palaces) of the capitals in the kingdom. To the "friends" also belonged the governors of the various provinces. The structure of governance with satrapies as the main units was inherited from the Achaemenids. We have a wealth of royal correspondence from the Seleucid kingdom from which we learn of the administrative procedures involved as decisions taken by the king were executed through a chain of higher- to lower-ranking officials. The central issue, as in all the Hellenistic kingdoms, both for the central administration and local bureaucracy, was clearly to maximize income for the royal treasury.

Rich evidence of the fiscal system has been found in several cities in the kingdom, both ancient ones and new foundations. This consists mainly of sealed bullae (clay dockets) that were originally affixed to parchment or papyrus documents or, in Mesopotamia, cuneiform texts with seal impressions. Among the taxes attested is a tax on land and its produce – undoubtedly the largest source of royal income (Aperghis 2004). The salt tax, evidence of which is provided by bullae found, e.g., at Seleucia-on-the-Tigris and Uruk, was also important. From Uruk we also have evidence of a tax on sales of slaves, probably also other types of goods, and on transport on the Euphrates. At Ai Khanoum in northern Afghanistan (ancient Bactria), excavations in the royal or satrapal palace (see below) have revealed part of the treasury where jars containing "drachms," "silver of high quality," "olive oil," and "incense," to mention some of the best attested products, were stored. On the jars we find Greek inscriptions in ink with information on their contents and volume or weight (Rapin 1983).

Economic transactions, although based on the tax-collecting system of the Achaemenid Empire, saw a move towards monetization, undoubtedly brought about by the Greek and Macedonian conquerors. During the lifetime of Alexander, only one mint, at Babylon, was established east of the Euphrates, immediately after the conquest. There huge quantities of Alexander coins were produced. With a few exceptions, the Greek coinage tradition became completely dominant. Alexander coins continued to be produced in the early decades of Seleucid reign, but later the Seleucids used the portrait of the reigning king on the obverse of coins, while the reverse shows an incredible wealth of motifs, among them Apollo or Zeus, the tutelary deities of the Seleucids (Mørkholm 1991; Houghton and Lorber 2002). Coins in gold, silver, and bronze were produced at mints scattered across the kingdom. Seleucus established a mint at his first capital, Seleucia-on-the-Tigris, and others at Ecbatana (modern Hamadan) and Susa in Iran, all of them very productive. Other important mints included the one at Ai Khanoum in Bactria. After the conquests in the west, mints were established at, e.g., Antioch-on-the-Orontes in Syria and later at Sardis in Lydia (western Turkey). From the 2nd century onward, Antioch was by far the largest mint in the gradually diminishing kingdom. Large emissions of coins were often connected with the kings' military campaigns.

The impact of the Alexander coinage on economic life is reflected in Babylonian administration, where we find cuneiform texts stating prices in "x shekels of silver in staters of Alexander." A text from 321 BC records the wages of workers restoring a temple as "1/3 mina of silver, the weight of 10 staters" (van der Spek 2007). In cuneiform texts from Uruk dated to shortly after 295 BC, prices were given in "Alexander staters in good condition." The impact of the Alexander coinage outside the empire is perhaps best witnessed by the imitations produced in Arabia (Potts 1990, 1991a; Callot 2010; van Alfen 2011), a region in close trading contact with Mesopotamia as well as Egypt and the Mediterranean, reflecting how sociopolitical circumstances influenced old trading networks. Alexander types became the recognized international means of exchange.

3 Cities and Settlements in the Kingdom: A Program of Colonization

Alexander founded a large number of new cities in the territories he conquered, the most famous of which was undoubtedly Alexandria in Egypt. Like Alexander's other successors, Seleucus continued this tradition, founding his first capital in Babylonia and naming it Seleucia-on-the-Tigris after himself. Following the conquest of Syria, Seleucus founded a number of cities there, the most important being the so-called "Tetrapolis," the four cities of Antioch (mod. Antakya, Turkey), Laodikeia (mod. Latakia, Syria), Seleucia-in-Pieria (mod. Çevlik, Turkey) and Apamea (mod. Afamia, Syria), all named after close family members or

himself and situated in the coastal region of northern Syria and the hinterland along the Orontes River. Smaller cities were founded on the main routes heading east (e.g., Kyrrhos and Gindaros) and along the Euphrates (Cohen 2006). This ambitious program, which clearly shows that Seleucus saw the newly won territories as the future center of his kingdom where he wished to make an unprecedented display of wealth and power, changed the physical landscape significantly and represented one of the most impressive and lasting displays of Hellenistic royal power on a landscape (Hannestad in press b). Seleucia-in-Pieria was undoubtedly intended as his western capital, since it was given his own name. Later, Antioch-on-the-Orontes became the capital and would grow to become one of the largest cities in the Hellenistic and Roman world. Many foundations mentioned in the literary sources remain unknown to us, whereas excavations have brought to light other cities of Seleucid origin, the ancient names of which are lost, such as Jebel Khalid in Syria (see below) and Ai Khanoum in Bactria (see below).

Who were the inhabitants of these new cities and how did they interact with the existing populations? That ex-soldiers in the Seleucid armies were settled here cannot be doubted. The conquered territories were to a large extent classified as royal land, and the king had the power to distribute the land as he saw fit. Land allotments (Greek *kleroi*) in and around the new cities were given to soldiers and their families. North and northeast of Damascus, rectangular (96 × 144 meters) Hellenistic land plots have been identified that are closely connected with the Hippodamian layout of the street grid of the city. It is uncertain, however, whether this land division dates to Ptolemaic or Seleucid times (Dodinet et al. 1990).

As Chaniotis (2005) has stressed, the foundation of new cities and military settlements in the Hellenistic world provided opportunities for large numbers of immigrants from mainland Greece, the islands, and the coast of Asia Minor.

Seleucia-in-Pieria

Seleucia-in-Pieria was undoubtedly intended to be Seleucus's western capital, since, like his capital in Mesopotamia, it was given the king's own name. The fact that Seleucus was buried there after being murdered in 280 BC is yet another argument favoring its identification as his capital. Based on the standing remains of its city wall, Seleucia-in-Pieria may have covered c.300 hectares. In his account of its re-conquest by Antiochus III in 219 BC (at the beginning of the Fourth Syrian War), Polybius described the city thus (*Histories* 5.59.3):

> The town descends in a series of broken terraces to the sea, and is surrounded on most sides by cliffs and precipitous rocks. On the level ground at the foot of the slope which descends towards the sea lies the business quarters [*emporia*] and a suburb defended by very strong walls. The whole of the main city is similarly fortified by walls of very costly construction and is splendidly adorned with temples and other fine buildings. (Trans. W.R. Paton, Loeb Classical Library)

Excavations have revealed Hellenistic fortification walls preserved for c.5 kilometers with at least nine towers (McNicoll 1997). The foundations and remains of a Doric temple (possibly Seleucus' burial monument (Hannestad and Potts 1990) were discovered, as well as one of the characteristic traits in the townscape mentioned by Polybius – i.e., the staircase connecting the lower and the upper city.

Antioch-on-the-Orontes

Antioch is a case where contradictions between archaeological and literary evidence (Cohen 2006: 80–4) have caused confusion, the main problem being how to relate the wealth of literary evidence available from late Antiquity to the scarce archaeological evidence of the Hellenistic period. Among the earlier literary sources, Strabo informs us (*Geography* 16.2.4) that the city in itself was a Tetrapolis,

> since it consists of four parts: and each of the four settlements is fortified both by a common wall and by a wall of its own. Now Nikator [i.e., Seleucus I] founded the first of the settlements, transferring thither the settlers from Antigoneia, which had been built near it a short time before by Antigonus; the second was founded by the multitude of settlers; the third [the palace area] by Seleucus Callinicus; and the fourth by Antiochus Epiphanes. (Trans. H.L. Jones, Loeb Classical Library)

The layout and the development of Antioch during the Seleucid period have been studied and discussed by many scholars since the 19th century (Lassus 1972b; Hoepfner 1999a; Leblanc and Poccardi 1999; Hannestad in press a), but archaeological excavations have been severely hampered by the fact that the modern city of Antakya is situated on top of the ancient city, which today lies c.10 meters below the surface. Trial excavations along the modern main street have revealed several strata, the oldest of which date to the Hellenistic period and confirm the hypothesis that the main street of modern Antakya is identical to part of the ancient central street of the city. The city may have covered no less than 600 hectares by the time of Antiochus IV. Two issues in particular, however, still cause disagreement among scholars. One is the size of the city in the period after its foundation; and the other is the location of Strabo's fourth quarter, the so-called Epiphania, which was built during the reign of Antiochus IV.

Apamea

Despite the fact that Apamea has been excavated by a Belgian team since 1965, Hellenistic Apamea raises as many open questions as Antioch. The main reason

is probably the severe earthquake of 115 AD and the intensive building activity that followed in its wake. Recent studies, however, have confirmed that, apart from a short stretch near the theater, elements of the Hellenistic city wall can be traced everywhere in the preserved Roman wall (Leriche 1987; Balty 2003). That the wall has two Hellenistic phases is shown by the reuse of earlier blocks in a second phase, which has been dated by the discovery of a well-preserved didrachm of Alexander Balas, struck in 146/145 BC (Leriche 1987; Balty 2003). The earlier phase probably dates to the foundation of the city. Lamps – probably Attic imports – of Howland's type 25A–D (Howland 1958) and some pottery bear witness to very early Hellenistic layers in most parts of the city (Balty 2003). The layout was probably very similar to that of Antioch, with a broad, central street. The Hellenistic (and the Roman) wall enclosed an area of c.255 hectares (Balty 2000).

Laodikeia

Laodikeia, the fourth city of the Tetrapolis, was described by Strabo (*Geography* 16.2.9) as a beautifully built city with a good harbor and hinterland producing, among other things, huge quantities of wine. It was laid out according to a grid system still reflected in modern-day Latakia. A street running north–south, about 2 kilometers long, seems to have been the central street of the city (Bejor 1999: 49). Laodikeia was probably about the same size as Apamea. Its importance in the scheme of Seleucus I is suggested by the fact that, during his lifetime, Laodikeia had the largest mint in Syria, possibly targeted particularly at the international market (Houghton and Lorber 2002).

Apamea-on-the-Euphrates

The fairly meager evidence of how these four large cities in Syria looked in the Hellenistic period has in recent years been supplemented by material from two sites on the Euphrates, where a number of fortified settlements were founded to control and protect river transport, river crossings, and the fertile Euphrates river valley. At Apamea-on-the-Euphrates, on the east bank of the river (now flooded by the Bireçik dam), geophysical surveys and excavations (1996–9) offered detailed insight into the history and layout of the city (Abadie-Reynal and Gaborit 2003). The city wall, which could be traced over a length of 2,200 meters, surrounded a triangular area of c.40 hectares. That strong defensive measures were considered necessary is attested by the use of massive towers. The wall was built using a polygonal technique with the upper part made of mudbrick and the entrances to the towers made in an isodomic technique (Desreumaux et al.1999).

The orthogonal city plan is clear. Streets were of varying width. Those leading to the gates were c.10 meters wide. Two houses and a row of shops have been partly excavated. Pottery from the latest floors (including black-glazed and early shapes of Eastern Sigillata A) suggest that the settlement was abandoned in the middle or late 2nd century BC. A burnt destruction layer covers the site, reflecting no doubt the coming of the Parthians.

Jebel Khalid

Jebel Khalid is the most spectacular Seleucid site excavated in Syria in recent years. It is located just below the new Tishrin Dam and about 300 kilometers upriver from Dura Europos (see below). Since the mid–1980s, an Australian team has worked at the site, which is located on a rock outcrop extending for c.1.5 kilometers alongside the Euphrates (*Jebel Khalid 1*) and covering c.50 hectares, about 30 hectares of which show signs of occupation. Jebel Khalid is protected on the inland side and along the southern river frontage by a wall, and the acropolis was further protected by a separate inner wall. The outer wall had some 30 towers and bastions and a massive gate complex protected by towers built in the 3rd century BC. No traces of pre-Hellenistic occupation have been found, and finds from later periods, including those of a Late Roman camp, are rare. Thus the site offers the best possible conditions for the study of a Seleucid foundation. So far, the best dating evidence from the site is provided by the coins. The earliest are two posthumous Alexander silver issues and two bronzes of Seleucus I; the latest dates to the late 70s BC (Nixon 2002). Coin frequencies peak under the two first Seleucids and, as everywhere in the kingdom, under Antiochus III and again in the late 2nd/early 1st century BC.

A large building on the acropolis identified by the excavators as the governor's palace has been excavated (Clarke et al. 2002: 25–48; Clarke 2003). The building centers on a peristyle court (c.17 meters on a side) with a Doric colonnade. On the south side of the peristyle is an *andron* complex (area reserved for men) with two columns *in antis* at the entrance, clearly for audiences and other such occasions. The north wing also seems to have had an official function consisting of a large room surrounded by kitchens and storerooms. The entrance to the main room, situated directly opposite the *andron* complex, was flanked by two attached columns; the roof was supported by a column in the middle of the room, and the floor was covered with marble slabs and decorated with wall paintings in the so-called Pompeian First Style, imitating marble slabs, and also a kind of floral decoration. One unusual element in the building when considered in a Greek context is the two corridors that close off the peristyle from the suite of rooms on the south and the north side. This is undoubtedly a result of the influence of local Oriental traditions. The palace dates broadly to the 3rd century BC, or, more specifically, to the first half of the 3rd century.

Part of a domestic quarter has been identified in the northern part of the site (Jackson 2003, 2005, 2009). One *insula* (an "island" between four streets, consisting of residential buildings) has been completely excavated. The houses were mainly built of rubble, but mudbrick was used for the upper parts of the houses. A common feature is a courtyard. Most rooms contained two floor levels, the lower built directly on bedrock and the upper reflecting a time of radical renovations. The second floor levels can be dated by the appearance of early Eastern Sigillata A pottery to c.150 BC. The coins found in the *insula* date from the reign of Antiochus I (281–261 BC) to the first quarter of the 1st century BC, the majority dating to the 2nd century BC. Remains of painted wall stucco were recorded here. The remains of a small figured frieze with *erotes* in chariots drawn by goats – clearly attesting the continued close connection with the Mediterranean world – are particularly interesting.

In the saddle between the Acropolis to the south and the Domestic Quarter to the north, excavations have revealed remains of a Doric temple (Clarke 2005). Close to the temple a small fragment of a marble sculpture was found, probably from the cult statue (Harrison 2000). In front of the temple stood five altars of unusual shape, one of which was found in situ. The temple was so situated that it would have been visible from the main gate. In the same area are also remains of houses and what may have been a civic structure including a peristyle court or a *pi*-shaped stoa of Doric order.

The faunal material from Jebel Khalid allows us some insight into the diet and animal economy of the people living at the site (Steele 2002: 125–45). Animal husbandry was mainly based on sheep and goat, sheep being far more common than goat. Equids (ass/onager) and cattle apparently served a dual purpose, for transport and labor (as draft animals) and for food. In these groups the animals seem only to have been slaughtered at a late stage of their lives. Camel is also present. Pigs were quite common, whereas fishbones were comparatively rare. Since the condition of the bones is generally very good, the absence of fishbones is surprising at a site on the Euphrates, and may reflect the recovery techniques employed (cf. Ch. I.12). Hunted animals included young gazelles and deer.

Dura Europos

Dura Europos (or more correctly Europos Dura, since Europos was the Greek name taken from a city in Macedonia and Dura was the later Parthian name) was founded during the reign of Seleucus I (305–281 BC) on a rock plateau on the west bank of the Euphrates (Cohen 2006: 156–69). Only the west side offered natural and easy entry to the city, a fact reflected in the defensive measures on this side, including numerous towers. The walled area covered c.63 hectares. Since its excavation, Dura has often served as the model of a Seleucid colony, though the remains are mainly of the Parthian/Roman period. In particular, the

city walls and the general layout, with an orthogonal street plan and a main street running southwest–northeast through the city from the river to the main gate, have been considered part of the earliest settlement on the site.

The Citadel was situated on a separate plateau formed by the *wadis* and strongly fortified with a solid stone wall (McNicoll 1997: 93). It included a palace, the earliest parts of which are very scanty, whereas the second phase probably dating to the 2nd century BC is better preserved. A sounding (Leriche and Mahmoud 1994: 403; Leriche et al. 1997) behind the northern façade of the other palace at Dura (the Redoubt Palace), often identified as the Strategeion (originally, the meeting room of the generals, *strategoi*, in Athens), has yielded numismatic evidence that this façade, which belongs to a second phase of the building, cannot predate the early 2nd century BC (Leriche and Mahmoud 1994). Among the coins found there on the lowest floor level of room W is a small bronze denomination from the reign of Antiochus III, probably from 223 to 200 BC, struck at a western Seleucid mint (Augé 1988). The first phase of the building probably dates to the foundation of the settlement. The Strategeion is situated beside the Parthian temple of Zeus Megistos and it is possible that, already in the earliest phase of the settlement, the main temple of the city – probably also dedicated to Zeus – was situated there.

The city walls represent two different types: toward the west and the desert a type completely built of stone, and on the northern and southern sides a type constructed of mudbrick over a socle of stone and gypsum and/or mud-mortar.

In recent years our traditional understanding of the development of Hellenistic Dura Europos has been challenged by P. Leriche (2003, 2004, 2007), who interprets the result of his test trenches across the main street and along the inside of the western wall together with the fact that the archive building on the agora (Block G3) contained seal impressions dating to no earlier than year 184 of the Seleucid era – i.e., 129/8 BC – as proof that it was only at this time that the street grid was laid out. He assumes that before this date the site consisted only of a garrison in the citadel and some habitation in the adjacent area to the south and west of the citadel where the main street descends into the *wadi*. However, the evidence from the test trenches does not seem entirely convincing for such a radical re-dating of the layout of the city. It is also difficult to see why the settlement should then have had, from an early period, two palaces indicating the existence of an administration including two high-ranking officials. It is perfectly possible that during the early phase of the city's existence not all of the walled area and *insulae* within the street grid were inhabited.

From at least 141 BC, with the fall of Seleucia-on-the-Tigris to the Arsacids, the Seleucids must have invested massive resources in the defensive line that the Euphrates provided, concentrating their efforts on the west bank of the river. It is thus very likely that repairs and improvements – if not a completely new circuit, as suggested by Leriche – date to these years. Leriche considered Antiochus VII

Sidetes (138–129 BC) the possible "founder" of the new Dura Europos. Against Leriche's hypothesis, however, is the fact that most of the coins found at Dura date to the reign of Antiochus III (223–187 BC), with large numbers also from the reigns of Antiochus I (281–261 BC, 89 coins) and Seleucus III (225–223 BC, 80 coins). A smaller peak dates from the time of Antiochus VII (138–129 BC, 62 coins). This pattern is somewhat surprising if Leriche's re-dating of the layout of the city and of the city wall is correct. One would instead expect a stronger reflection of the economic activity connected with a completely new layout of the city and of the building of the walls. Thus, the coins clearly suggest major activities during the reigns of Antiochus I and Seleucus II (246–225 BC), culminating in the late 3rd and early 2nd centuries (for similar reflections, see Yon 2003).

Seleucia-on-the-Tigris

Seleucia-on-the-Tigris is still poorly known. Despite two long excavation programs, one in 1927–36 by an American expedition (Hopkins 1972) and one from 1964 onward by an Italian team, our knowledge of Seleucus I's eastern capital is still sadly meager. Situated on the Tigris, the city replaced Babylon on the Euphrates as the power center of Mesopotamia and was probably founded c.305/304 BC when Seleucus I assumed the royal title. It seems to have covered c.550 hectares. The Seleucid layers are overlain by thick deposits of the Parthian period. From ancient sources (e.g. Strabo, *Geography* 16.5.1) we know that the city was surrounded by strong walls, no traces of which remain today. The building material seems mainly to have been mudbrick on stone foundations. The layout of the city was the usual grid system found in most other new foundations (Invernizzi 1993; Messina 2007). The house blocks (*insulae*) were usually large (144.70 × 72.35 meters), and one such block (G6), dating to the Parthian period, was excavated by the American expedition.

A significant element was a canal running through the city from east to west. The Italian team uncovered a large building which was undoubtedly an official archive situated on what seems to have been the main square (Greek *agora*) of the city, opposite which the remains of a *stoa* (a covered, columned portico, often around a marketplace) were excavated. The American expedition concentrated part of their efforts on Tell Umar, where remains identified originally as a Parthian house were later dated to the Sasanian period. These may have been built on top of a theater dating to the Seleucid and Parthian periods. The most interesting finds made at Seleucia are probably the c.25,000 stamp seal impressions from bullae in the archive building (Invernizzi 2004), about 10,000 of which show the enormous variety of Hellenistic inconography in mainly Greek style, but often with a Mesopotamian flavor, e.g. in depictions of syncretistic gods such as Apollo-Nabu.

Ai Khanoum

Ai Khanoum is located in Bactria (northern Afghanistan) on the bank of the Oxus river. It was founded by Seleucus I in c.300 BC in what was then the easternmost part of his kingdom (Bernard 2008). A main feature of the layout of the city is a long, central street similar to the main streets at Antioch, Laodikeia, and Apamea in Syria. The street divided the city into a lower and an upper town, the upper part running up to the acropolis and citadel of the city. The natural stronghold of the site was further strengthened by a number of defensive mudbrick walls. Like Seleucia-on-the-Tigris, Ai Khanoum was founded on a previously uninhabited site. It was excavated by French archaeologists from 1964 until the Soviet invasion of Afghanistan in 1979, and the impressive results have contributed decisively to our understanding of a Seleucid royal city founded thousands of kilometers from the homeland of its Macedonian and Greek colonists. Excavations have revealed two of the most characteristic elements of Greek culture: a gymnasium (Veuve 1987) and a theater. A large palace and a number of sanctuaries, a single private house, and a mausoleum outside the city walls have also been excavated.

The palace was situated in the center of the lower city. Macedonians were familiar with their own type of royal palaces, but the plan of the Ai Khanoum palace was Achaemenid, consisting of a number of building blocks with long corridors and courtyards. The forecourt, at more than 100 × 100 meters, was surrounded by four colonnades with Corinthian capitals, typical of Greek architecture. The inner courtyard used columns of another Greek architectural order, the Doric. All the walls were built of sun-dried mudbrick. The roofs were flat, typical of the Oriental building tradition, but along the edges of the roofs Greek antefixes were erected.

The mixture of Oriental and Greek elements which the palace presents permeates the whole city. Thus the main sanctuary inside the city, the "temple with niches," has a layout quite unlike a Greek temple (Francfort 1984). Even if the niches belong to a later phase of the temple (the earliest phase had no niches and just one cella), the plan still differs significantly from that of a traditional Greek temple with its oblong shape and use of columns. Additionally, the fact that an altar with ash still in situ stood in the cella suggests a ritual far removed from normal Greek practice, where one would expect the altar to have stood outside the temple. The cella of the late phase (IV), with a corridor on each side, is clearly related to the Mesopotamian tradition. On the other hand, a fragmentary foot with thunderbolt on the sandal, and a left hand, both from a colossal acrolithic statue (a wooden statue with marble hands, feet, and head), are purely Greek in style and suggest that the cult was dedicated to Zeus, possibly fused with a local god. What is striking is the combination of the temple and some rituals reflecting an Oriental tradition with a purely Greek cult statue. Bernard has dated the initial phase of the temple (phase V) to around 300 BC, and phase IV to the early 3rd

century. In this later phase, two wooden columns placed on Attic Ionic bases of stone stood in the interior of the cella. Thus a trend toward more and more local elements is not obvious. Rather, hybridization characterized the temple from beginning to end (Hannestad and Potts 1990: 98).

Among the earliest buildings in the city is the so-called *heröon* of Kineas, a sanctuary built of mudbrick and dedicated to the city's founder (Bernard 1973: 85–102). Here the Greek elements are stronger. The *heröon* underwent four building phases, the earliest of which resembles Greek *heroa* in plan, such as those at Kalydon or the tomb of Lefkadia in Macedonia (Hannestad and Potts 1990). A sarcophagus, probably that of Kineas, was interred below the building in a pit lined with mudbrick antedating the building itself. This is thus a Greek type of sanctuary, but built mainly in the local style. In phase 2 the plan was changed to a more traditional Greek temple with two columns *in antis*, but the three-stepped *crepis* (the solid base of a structure) was transformed into a podium. Another burial was interred at this time and later two more followed.

The gymnasium, also built of mudbrick, underwent at least two construction phases, the earlier of which seems to have involved two large courtyards (pre-175 BC) while the later one dated to the reign of Eucratides (175–145 BC), when Bactria had become an independent Greco-Macedonian kingdom. The enormous building (388.5 × 99.9 meters) with a southern courtyard and a northern one with *exedras* (semi-circular recesses, semi-domed) is easily recognizable as a gymnasium for anyone coming from the Mediterranean world, despite differences due to the local building tradition and materials, and the apparent lack of a *loutron* (bath). Among the Greek traits are the *herm* (sculpture with a head on top of a rectangular lower portion) in the niche in the middle northern *exedra* with the dedicatory inscription of Triballos and Straton, sons of Straton, to Hermes and Heracles (the traditional protectors of the Greek gymnasium). The date of the inscription is uncertain, but is thought to be either mid-3rd (Robert 1968) or 2nd century BC (Bernard in Veuve 1987: 111–12), corresponding to phase 2 of the gymnasium.

In accordance with Greek tradition the necropolis was situated outside the city walls. Excavations have brought to light a mausoleum used over several generations (Bernard 1972a). Inscriptions on three of the jars where bones were collected for reburial are in Greek, as are two very fragmentary inscriptions found in connection with the mausoleum. One relief-decorated tombstone was found there, not intact but in fragments, which had been used to block the entrance to the mausoleum. The relief depicts a naked young man with a long cloak which clearly enhances the ideal of Greek male nudity, and a *petasos* (traveling hat) hanging on his shoulder. His distinctly non-Greek, long hair provides an interesting contrast to the use of Greek (language and names) in the inscriptions from the mausoleum. Greek was the most common language attested in inscriptions at Ai Khanoum, whether on stone, clay, parchment, or papyrus (Robert 1968; Rapin 1983; Bernard 2008) and Greek names were by far the most common as well.

The problem when analyzing the material culture of Ai Khanoum is that one very easily tends to stress either the Greek or the local elements. But what the city really represents is a true hybrid of the Hellenistic period. It is neither Greek nor Oriental/local, but a unique blend. What is perhaps the most interesting element in this hybrid city is the evidence of continued links to and mobility from the Mediterranean across thousands of kilometers. People traveled and so did ideas.

4 On the Borders of the Kingdom and Beyond

For a while the Seleucids had a keen interest in the Arabian coast of the Persian Gulf. They may have had at least one, possible more, naval bases in the area. As mentioned above, trade with Arabia was important. Here just one settlement, clearly built on the command of a Seleucid king, will be mentioned, a "fortified sanctuary" on the island of Failaka (ancient Ikaros) in the bay of Kuwait excavated in the late 1950s and early 1960s by Danish archaeologists. In its early phase the Failaka fortification seems to have protected a sanctuary with a temple very much in Greek style both architecturally and with respect to the rituals connected with it (Jeppesen 1960, 1989). Among the finds was one of the very rare stone stelae with a long Greek inscription found outside of Asia Minor. The inscription contains two letters, the first of which is from an official named Anaxarchos, probably a local administrator, who forwarded a letter from another high-ranking official, Ikadion. Ikadion instructed Anaxarchos about the King's wishes respecting the island of Ikaros (i.e. Failaka). This letter and stele, which was originally set up in front of the temple, mentions a sanctuary of Soteira, which must have been the temple excavated by the Danish expedition. The date of the letter is damaged and has been much debated by modern scholars (e.g., Jeppesen 1960, 1989; Sherwin-White and Kuhrt 1993; Hannestad 1994). Most probably the king in question was Seleucus II (246–226/5 BC) and the letter probably dates to either 243 or 241/240 BC. In a later period another temple was added, the fortress extended and a moat laid out around it. Gradually the sanctuary filled up with private houses. From that period, if not earlier, the fortress probably housed a Seleucid garrison. The finds, including coins, terracotta,s and pottery, all suggest that the settlement came to an end in the late 2nd or early 1st century BC, although some pottery in the larger temple may relate to either a squatter habitation or continued cultic practice in the late 1st century BC or 1st century AD. Many of the finds suggest close contact with southern Mesopotamia and Susiana.

5 Continuity vs Change: Tradition in a Changing World

The many new Seleucid foundations should not obscure the fact that across the empire many areas and already existing cities remained little affected by changing

political circumstances and the immigration of probably quite a large number of foreigners. An interesting example of this phenomenon can be seen at Uruk, an ancient city and religious center in Mesopotamia. More than 100 years of German excavations there allow us to study in detail the theme of continuity and change in material culture (Falkenstein 1941; Finkbeiner 1993b; Boehmer et al. 1995; Kose 1998; Lindström 2003). The period between c.300 and 125 BC actually seems to have been the most intense building period in the long history of the city, which then covered about 300 hectares. An ongoing discussion concerns the extent to which Greco-Macedonian settlers lived at Uruk (Sherwin-White and Kuhrt 1993: 149ff). Only a single Greek inscription – dating from after the region had been conquered by the Arsacids in 141 BC – has been found. The Greek names recorded on cuneiform tablets have often been taken as evidence of the presence of Greeks in the city, but in fact the situation was more complicated.

If we consider other cultural markers, it is striking that the material culture speaks strongly of a continued local tradition in most aspects of life and death. As an important Babylonian religious center, Uruk surely was the object of royal interest, not only for tax purposes but also with respect to royal propaganda and the display of power and wealth, as attested by the impressive building activity at the site. Two enormous temple complexes were built during Seleucid period, the Bit Resh sanctuary and the Irigal, as well as the largest *ziggurat* in Babylonia (Falkenstein 1941; Kose 1998). Building techniques are traditional Babylonian – without the use of stones or columns, but with mudbrick, glazed brick, and typically Babylonian plans. The enormous Bit Resh complex (217 × 167 meters) seems to have had an earlier, pre-Hellenistic phase, but most of the complex was built under the Seleucids (Kose 1998: 93ff). The construction was carried out under Anu-uballit Nikarchos (a characteristic double name – the Greek name being given to him by the king himself) (Doty 1988: 96) and was dedicated in 244 BC to the divine couple Anu-Antum. The king's direct involvement is attested by an inscribed clay cylinder (Clay 1915: no. 52) which states that the king gave the Greek name Nikarchos to Anu-uballit and that Anu-uballit built the temple for the sake of the lives of Antiochus and Seleucus, the kings. In a later phase, the main temple of the two deities was built of baked brick. Several of the bricks on the façade were stamped with a building inscription in Aramaic mentioning Anu-uballit Kephalon and the phrase "for the sake of the life of Antiochus, king (of the lands), my lord." This part of the complex dates from 201 BC. Anu-uballit Kephalon was also responsible for the building or rebuilding of parts of the Irigal, a sanctuary dedicated to Ishtar. The main cella there was decorated with glazed bricks above the cult niche bearing an Aramaic inscription which reads "Annu-uballit, whose other name is Kephalon" (Falkenstein 1941: 30–9; Doty 1988: 97ff).

The archives found in the Bit Resh included two types of records: clay tablets with cuneiform texts, a medium that was still alive in the city during the Hellenistic period, and texts written in Greek or Aramaic on parchment or papyrus

and sealed with bullae (Lindström 2003). The seal types used were new. Instead of Babylonian-style cylinder or stamp seals, elliptical seals in metal – usually mounted in finger rings – were now the rule. The ratio of bullae to tablets seems to have been 10:1 (640 bullae and 61 tablets). The iconography of the seal impressions points to various sources of inspiration: a significant number are in Greek style, among them all the official seals showing royal portraits, royal symbols or Greek gods and heroes. Among the private seal impressions the prevailing iconography is Mesopotamian, with winged bulls and mythological animals. However, they also include Greek motifs. A third and particularly interesting group is a new creation of the Hellenistic period which shows, for instance, motifs from the zodiac reflecting the continued role of the city as a center for astronomy and astrology.

Moving to more modest artifacts such as pottery, we note that Greek imported pottery was rare in the city. The most common type of fine ware was alkaline-glazed ware. Greek shapes, such as the fish plate, the bowl with angular profile and outturned rim, and the plate with thickened interior rim, were attested. Of closed shapes, the so-called West Slope Ware (named after a site opposite the Acropolis in Athens) amphora was popular. But in this type of ware and in other classes of pottery there remained a strong element of Babylonian tradition in the shapes used (Finkbeiner 1993b: 3–16).

Uruk also offers us the possibility of examining cross-cultural relations as evinced in burial practices. In this aspect apparently little changed: the burials found inside the city walls of Uruk from the Seleucid and Early Parthian periods continued the old local tradition of sub-floor burial under houses. Also the few grave gifts including the pottery show a strong link to older Babylonian practices (Boehmer et al. 1995: 152 ff). However, a very different picture emerges at two tumuli (at Frehat en-Nufegi) north of Uruk (Boehmer et al. 1995: 141–52). In the burial chamber of the western tumulus four vessels in traditional Babylonian style were discovered. Otherwise, the finds in the chamber point distinctly to some of the most characteristic traits of Greek culture, such as the golden wreath of olive leaves. The wreath was probably originally placed on the funerary urn of a male. Closest to this urn were also found four *strigils* (a curved metal tool used to scrape grease and dirt off the body), reflecting the Greek gymnasium tradition. The eastern tumulus shows a stronger Greek tradition with the body laid out on a *kline* (Greek funerary bed) and a golden wreath around its head, suggesting a symbolic representation of the Greek symposium. Among the grave gifts was a Greek wine amphora, possibly of eastern Mediterranean origin. The two tumuli and their burial customs raise the question of the identity of the deceased. Bearing in mind the names recorded at Uruk, were they of Greek descent or members of the local elite with Greek names or double names such as Anu-uballit Nikarchos or Anu-uballit Kephalon? Whatever the case, the tumuli themselves and the grave goods point to quite a strong hybridization of material culture amongst the city's elite. It must remain an open question, however, whether the

*strigil*s point to the existence of a gymnasium in the city, no traces of which have been found so far, or whether they should simply be taken as a symbol of "Greekness."

6 Conclusion

Our insight into the archaeology of the Near East during the reign of the Seleucids has grown exponentially in recent decades. We no longer depend solely on literary sources, coins, or assumptions based mainly on sites heavily overlain with Roman and later buildings. It is now possible to see in the material culture of the period that the Seleucid kingdom was characterized by strong regionalism with few overarching elements, such as coins, characterizing the entire empire.

The period under the first Seleucids, not least the years under Seleucus I, witnessed a large number of new settlements and an influx of new settlers bringing with them their own customs, but apparently also adapting to new ecological and cultural environments. Enormous investments were made by the early kings in the organization of their kingdom. The resources to some extent probably derived from Alexander's conquest and the seizure of the treasures accumulated by the Achaemenid kings. Continued warfare among the Hellenistic kingdoms was costly, but could of course – if won – also bring substantial gain. The running of the kingdom depended on an extensive taxation system and tributes.

The archaeological evidence collected so far suggests that the division of the kingdom into an eastern and a western part, which is clear from the two capitals (Seleucia and Antioch) and from Seleucus I making his son Antiochos I co-regent of the east, is also reflected to some extent in the material culture. Thus, from the very beginning, settlements as far east as the banks of the Euphrates have their strongest ties with the west. This is clearly attested by coins, most of which were minted at Antioch, even at Dura and Jebel Khalid. Pottery and lamps also show strong affinities to the west and thus to the Greek Hellenistic pottery tradition – a picture totally different from what is found in Mesopotamia. Western imports, such as Rhodian wine, seem to have been more common west of the Euphrates than in Mesopotamia. The overall pattern strongly suggests that the Euphrates may have formed a tax barrier between Syria (the western part of the kingdom) and Mesopotamia and the east (cf. Bikermann 1938: 115–18; Lindström 2003: 54) which drastically reduced the amount of trade in items of daily life. Alternatively, or in addition, the number of immigrants from Greek areas and from coastal Syria was comparatively small in regions east of the Euphrates from the early 3rd century onwards. The archaeological evidence also suggests that the western part of the empire experienced a peak in wealth by the mid–2nd century BC, as seen at Antioch, Jebel Khalid, and Dura. The political disasters that befell Antiochus III in his wars with the Romans and the rivalry for the

throne that later ensued still left the western core area of the earlier empire in a state of comparative wealth (Hannestad in press b).

GUIDE TO FURTHER READING

For general orientation on the subject of the Seleucids in the Near East, see, e.g., Shipley (2000) and Austin (2003). On Seleucid colonies and earlier settlements that continued to be settled, see Cohen (2006). The economy of the Seleucids is dealt with comprehensively in Aperghis (2004). For a more Near Eastern/Central Asian perspective on the Seleucids see, e.g., Sherwin-White and Kuhrt (1993) and Hansen and Lindström (in press). A comparison of a new foundation (Ai Khanoum) and an ancient city (Uruk) can be found in Hannestad (in press a).

CHAPTER FIFTY-THREE

The Arsacid (Parthian) Empire

Stefan R. Hauser

1 Introduction: Perception and Neglect

The Arsacid Empire was founded in the mid-3rd century BC and lasted until c.AD 226. Although the Arsacid family ruled over one of the most extensive and long-lasting political entities in Near and Middle Eastern history, this period is one of the least known in the region's history and archaeology. The traditionally used term "Parthian" is derived from the former Achaemenid province Parthyene, east of the Caspian Sea, where the eponymous Arsaces I assumed independence from Seleucid authority. "Parthia" thus refers to a geographical area and "Parthian" was used as an ethnic label in Roman sources. Nevertheless, there are no indications that ethnic "Parthians" ever settled throughout or controlled the empire, or that the multiethnic, multilingual population of the empire was "Parthianized" in language, customs, or behavior. Increasingly, therefore, "Parthian" is being replaced by the ruling dynasty's name "Arsacid" in historical and archaeological literature (Wolski 1993; Hauser 2005).

There are several reasons why the Arsacids have aroused comparatively little interest amongst historians and archaeologists. The first reason is the privileged role of cuneiform in Near Eastern studies, which has limited interest in the post-Alexandrian East. In many (not only early) excavations, these levels have been marginalized. On the periphery of the Greco-Roman world, the Arsacids were relegated to the margins of ancient (Western) history (Hauser 2001).

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Conceptualized as superficially Hellenized barbarians, they attracted little interest among Classical scholars.

A second reason for neglect is the limited number of written sources. Indigenous historical narratives and administrative archives have not survived. Notable exceptions are the astronomical diaries from Babylon and some archives from Babylon, Nippur, and Uruk, which offer succinct information on the early years of Arsacid rule in Babylonia (Oelsner 1986; van der Spek 1997–8, 1998). Approximately 2,500 ostraca found at Nisa mostly concern the distribution of wine during the 1st century BC, coincidentally providing information on Arsacid genealogy (Schmitt 1998: 168–170). A number of contemporary Greek inscriptions are known from Susa and Babylon, while Parthian Aramaic texts accompany rock reliefs at various sites in Iran (Vanden Berghe and Schippmann 1985). Finally, more than 500 building and honorary inscriptions in Hatrean Aramaic have been found at Hatra, Assur, and the vicinity (Ibrahim 1986; Beyer 1998). In addition, a multitude of coins provides the basis for the list of rulers.

Due to the scarcity of indigenous written sources, reconstructions of Arsacid history depend on Roman authors, although only a minor part of the extensive ancient literature known through secondary references has survived (Debevoise 1938; Wiesehöfer 1998). Important sources for the first three centuries of Arsacid history are Justin's *Epitome* of Pompeius Trogus' lost *Philippic History*, Tacitus' *Annals*, Strabo's *Geography*, and the geographical descriptions in Pliny the Elder's *Natural History*. Additional information can be gained from Plutarch's biographies of Crassus and Antonius and anecdotes reported by Flavius Josephus. For the last two centuries of Arsacid history, our sources are even more limited. The framework is provided by Dio Cassius, whose report is supplemented by references to Arrian's lost *Parthica*, the *Historia Augusta*, and Herodian's *Roman History*.

Sasanian and Islamic sources are limited in their value. Attempts to infer the state of affairs from the Sasanian example encounter the problem of incongruity and the Sasanian tendency to denounce their predecessors as petty kings. Only recently have the various sources, including reports by Chinese embassies to the west, been conveniently collected for the first time (Hackl et al. 2010).

Finally, the necessary reliance on Roman sources creates an awkward situation. While the accuracy of geographical information is by and large admirable, descriptions of the administrative or social organization of the empire are lacking. Sources report on events of interest to Romans and thus overemphasize military actions and periods of internal differences which invoked Roman (diplomatic) reactions. As a result, even the basic features of the structure of the Arsacid Empire remain a matter of debate.

This has resulted in the often uncritical acceptance of and generalization from the available information. Consequently, the Arsacid Empire has been treated as a barbarian foil of the superior Roman, western civilization. In connection with essentializing ideas about the (successively or conflated) nomadic, Oriental, or

Iranian character of "the Parthians," this view has created a negative image of the Arsacid Empire as a loosely or rather poorly organized entity with a weak central government which, even after centuries of being based in Mesopotamian and other metropolises, still adhered to ancient nomadic traditions (cf. Wolski 1993; Keall 1994; Koshelenko and Pilipko 1994; Olbrycht 2003). Only recently has the dubiousness of these often unstated biases been fundamentally challenged (Boyce 1994; Hauser 2005, 2006a). In the necessary re-evaluation of the Arsacid Empire archaeology gains specific importance, for, without it, it would be impossible to properly understand variations and changes within an empire that lasted 470 years and encompassed huge areas with different climates, lifestyles, social organization, and identities.

2 Arsacid Political History: A Brief Outline

Arsacid history can be divided into three phases. The early phase covers the beginnings of Arsacid rule from the mid–3rd century BC to the transition to empire in the mid- to late 2nd century BC. The middle Arsacid phase covers its development up to the mid-1st century AD. The later Arsacid period encompasses the years from the consolidation of Arsacid family rule in the 1st century, through the wars with Rome in the 2nd century and the replacement of the Arsacids by the Sasanians (Ch. II.57; cf. Debevoise 1938; Ziegler 1964; Schippmann 1980, 1987; Wolski 1993).

The beginnings of the "Parthian Empire" are connected with the successful secession of several Central Asian provinces, namely Bactria under its governor Diodotus, and Parthia, either under its satrap Andragoras or already under Arsaces, from the Seleucid Empire in the mid-3rd century BC (Wolski 1993: 37–65; Lerner 1999: 13–31). Arrian, Strabo, and Justin offer four conflicting versions of the ethnic and social origins of Arsaces, the events and their respective chronology. Despite many attempts to either reconcile these stories or to establish one as "the truth," it seems preferable to understand them as literary works which employ the typical rhetorical figures and *topoi* of foundation myths (Hauser 2005: 175–8). We can only conclude that shortly after the mid-3rd century BC the Seleucids lost control of their former province Parthia (Parthyene). According to Justin (41.5.1–2), Arsaces hastened to strengthen existing places and founded new cities in the previously settled areas of northern Iran and southern Turkmenistan, and to build fortresses against the nomads in the north. Despite several Seleucid attempts to reclaim these territories, Arsaces and his successors ruled over Parthia, Hyckania, and neighboring areas from their capital at Nisa (in Turkmenistan) for nearly 100 years until their kingdom was transformed into an empire.

The transition to empire was mainly connected to internal turmoil and the demise of Seleucid power following the death of Antiochus IV (175–164 BC). A

number of satraps in Media (central and western Iran), Elymais (southwestern Iran), and Mesene (southern Iraq) attempted to gain independence. The Arsacid Mithridates I (171–138 BC) took the opportunity and successively conquered the former Seleucid provinces of Media (148 BC), Babylonia (141 BC), and Elymais (139/8 BC). About the same time the Macedonian dynasty in Bactria was replaced by western Chinese tribal confederations called Yüechi. A common border was established in the reign of the Arsacid Phraates II (138–127 BC), who extended his territory eastwards into Margiana. This territorial division by and large remained stable even after the Kushan clan seized power in the east in the 1st century AD and lasted until the Sasanian conquests.

Arsacid rule between the Euphrates and eastern Iran was consolidated by Phraates II (138–127 BC) and Mithridates II (123–88 BC). Fighting with Elamite armies continued until 132 BC (Potts 1999: 387–91). The last battles with Seleucid armies occurred in 129 BC when the recapture of Media by Antiochus VII Sidetes was thwarted. The Arsacid conquests were completed, probably during the earlier reign of Mithridates II, when Assyria (now called Adiabene) and neighboring areas up to the Syrian Euphrates were incorporated. Probably in 109/8 BC, Mithridates II introduced the title "King of Kings" for the Arsacid ruler.

The empire's center shifted to the densely settled, economically strong areas of Media, Elymais, and, especially, Babylonia. The capital was moved from Nisa to Ecbatana (modern Hamadan, in western Iran) and finally to Ctesiphon, which originated as a royal winter residence across the Tigris from the populous, former Seleucid capital, Seleucia-on-the-Tigris. Even if there had been any specific nomadic residue in social practices or organization at this time, which is doubtful, it became overshadowed by the urbanized imperial setting.

In 96 BC Arsacid and Roman envoys met for the first time on the Euphrates, which was agreed on as the border between their respective spheres of interest. The first open hostilities between the Arsacids and Rome ensued with the invasion of Crassus, which ended with a devastating defeat of the Roman troops near Harran (Carrhae) in 53 BC. This initiated a period of nearly 100 years of repeated intervention in civil wars or contested successions by both sides, as well as occasional military incursions. Despite all the official rhetoric of a Roman *imperium sine fine* (empire without borders), it was well understood already in the Augustan age that the Arsacid Empire was the equal of Rome (Sonnabend 1986: 202–3, 214–15).

For the later 1st century BC and early 1st century AD, Roman sources (esp. Tacitus) repeatedly report on the internal struggle for the throne between members of the Arsacid family supported by different factions of nobles. In the absence of written Arsacid sources, such conflicts have also been reconstructed from the often poorly understood coinage of the later Arsacid period (1st–3rd century AD). In fact, with the exception of the inner-Arsacid conflict between the king of kings Vologases IV and Meredates, king of Mesene, in AD 150/1, there are very few indications of continued turmoil.

On the contrary, a long period of stability seems to have begun with the reign of Vologases I (AD 51–78). Following an earlier, inconsistently applied pattern, local dynasts were replaced by Arsacid family members. During the last two centuries of the Arsacid Empire all the important provinces were probably ruled by Arsacids carrying the title "king." But neither the title "king" nor the right to mint coins necessarily implied independence. Rather, they entailed submission with certain rights and duties under the aptly titled "king of kings" (Hauser 2005: 185–99). This was precisely the system taken over by the Sasanians after Ardashir's defeat of the last Arsacid ruler (AD 224–8).

Up to this time, despite a number of nomadic incursions in the north (by the Alans) and several wars with Rome, the Arsacid Empire remained more or less intact. Avidius Cassius (Dio Cass. 71.2.3) in AD 165 and Septimius Severus (Dio Cass. 75.9.2–5) in 197 or 198 AD led their forces to Ctesiphon. In 116 AD Trajan even conquered the whole of Mesopotamia for a few months before he was forced to retreat. But apart from the loss of Osrhoene to Rome in AD 165, the Arsacid Empire's borders with Rome in the west and the Kushans in the east remained stable.

The Arsacid family was brought down by the insurrection of a minor noble of the province of Fars. Quarrels between the Arsacid brothers Vologases VI and Artabanus IV might have paved the way for Ardashir I, grandson of Sasan. The reasons for his revolt and its success, leading to him being crowned king of kings at Ctesiphon in AD 226, are difficult to ascertain (Schippmann 1990: 10–19). But it seems important to note that, contrary to older research which followed Sasanian and early Islamic sources in emphasizing the differences between the Arsacids and their Sasanian successors, one could argue that in replacing kings from the Arsacid family with Sasanian family members, Ardashir perpetuated the Arsacid administrative structure. Resistance to the Sasanians continued until AD 240/1 when, after a siege lasting two years, they finally managed to conquer Hatra (in northern Iraq), the last Arsacid standhold.

3 Major Sites of the Arsacid Period

Arsacid-period architecture at Hatra and Nineveh, stucco and slipper-shaped glazed coffins at Uruk and Susa, as well as rock reliefs in Iran, were among the first archaeological remains documented in the Near and Middle East (Ross 1839; Loftus 1857; Flandin and Costa, 1843–54). Until World War II, extensive excavations in Arsacid levels were limited to a handful of sites in Iraq (Nippur, Assur, Hatra, Dura Europos, Seleucia-on-the-Tigris) (Andrae 1908, 1912; Cumont 1926; Baur and Rostovtzeff 1929–52; Andrae and Lenzen 1933; Hopkins 1972; 1979) and the former USSR (Nisa, Merv). Work in Turkmenistan and Chorasmia (Uzbekistan) intensified after World War II (cf. the summaries in Pugachenkova 1988; Baimatowa 2008: 3–14) and resumed at Hatra in 1951 (Safar and Mustafa 1974).

From the 1960s to the 1980s research at Arsacid sites multiplied and diversified in connection with surveys, rescue work in dam areas, and the resumption of excavations at major sites like Seleucia-on-the-Tigris, Nippur, Uruk, and Susa. This period was further characterized by the extension of research into the Gulf area (Potts 1990, 1996). In what follows, I attempt to identify essential chronological traits discernable at major excavated sites.

The earliest known capital was at Nisa in Turkmenistan. This consists of two independently fortified parts, a large settlement area (New Nisa) and Old Nisa (renamed Mithradatkert in the 1st century BC), which probably served as a royal citadel and possibly a ceremonial center for Arsacid royalty (Invernizzi 2001, 2007; Pilipko 2008). Large-scale excavations at Old Nisa since the 1930s have facilitated our understanding of early Arsacid culture as largely influenced by Hellenistic art and central Asian architecture. The monumental "Square House" furnished a splendid collection of c.40 ivory rhyta which display Greek mythological scenes and deities (Masson and Pugachenkova 1982). Likewise, a group of small metal figurines in gilded silver or bronze, including Athena, Eros, griffins, and eagles, displays Greek as well as Central Asian elements (Invernizzi 1999). Marble statues of Aphrodite (possibly identified with Anahita), Artemis, and Dionysus are purely Hellenistic in style.

References to Central Asian architecture are found in the "Round Hall," part of a complex structure of several buildings grouped around a central courtyard. The walls of a circular hall (dia. 17 meters) inside a 30 meter wide square building were standing to a height of 4 meters when excavated. Slightly incurving walls and comparisons with nearby monuments led the excavators to reconstruct a hyperbolic dome of a local style. On the floor multiple fragments of the architectural decoration and of painted, over life-sized clay sculptures were found. The latter certainly remind one of the Yüechi palatial structure at Khalchyan in Uzbekistan (Pugachenkova 1971; Nehru 1999–2000) from the late 2nd century BC. But the male and female statues at Nisa were probably placed on plinths on the floor, not on the walls. The monumentality of the "Round Hall" and the findings inside, including a clay portrait of Mithridates, has led to the hypothesis that it had a sacral nature (Invernizzi 2007). The unusual character of the complex is also suggested by the "Red Building" (42×42 meters), which displays a large central hall with four wooden columns bearing traces of gold leaf and stone bases surrounded on three sides by rooms and corridors and preceded, on the north, by a portico, 17 meters wide (Invernizzi and Lippolis 2007).

The taste for Hellenic-inspired sculpture recalls contemporary sites in Bactria, where cities like Ai Khanoum, which was already destroyed in the mid-2nd century BC, display the impact of Greek settlers with its theater, gymnasium, and Greek inscriptions. The local heritage is visible in the temple form and the huge palace with a room of many columns reminiscent of Achaemenid palatial architecture (Bernard 2007 with bibliography). At both Ai Khanoum and Nisa, sculpture and architectural decoration (antefixes, capitals) in Hellenic style were

produced locally in clay and limestone. The early Arsacid period at Nisa is thus characterized by architecture in a regional tradition showing Hellenistic influences in fittings and sculpture.

Another important early Arsacid capital was Hecatompylos. Mentioned by Strabo, Pliny, and Ptolemy, it has been identified with Shahr-e Qumis on the important east–west route south of the Alburz mountains. In the preliminary excavations of this enormous site, only a few structures, including a palace-like building (also interpreted as a temple) and a fortified complex with several towers were cleared (Hansman 1968; Hansman and Stronach 1974). The general layout of the city is unclear. The same applies to most cities mentioned in ancient texts as important (sometimes newly founded) places in Media and Media Atropatene – e.g., Rhagae (Rayy) and Aganzana (Zanjan). An exception is found at the Arsacid summer residence of Ecbatana. Excavations by the Iranian Center for Archaeological Research unearthed a perfectly regular city plan, of probable Arsacid foundation, with large building units (Sarraf 2003; Azarnoush 2007).

Impact on conquered regions

Following its incorporation into the empire in the 2nd century BC, Babylonia became the economic and political nexus of the Arsacid Empire. The large urban centers of Babylonia, Seleucia-on-the-Tigris, Babylon, Nippur, and Uruk provide ample evidence of Arsacid material culture. At first, the change in government found no immediately recognizable visual expression. Earlier differences observed between sites in northern Babylonia and those in the south continued as the main buildings of the earlier periods remained in use. According to the intensive survey of Uruk (Finkbeiner 1991), the Seleucid and early Arsacid periods there were among the most prosperous in its history. Nearly all of Uruk's 300 hectare area was densely settled. The enormous Babylonian-style temples build in the later 3rd century BC, the Bit Resh (Anu-Antum-temple; 213 × 167 meters) and the Irigal (205 × 198 meters), were maintained well into the 1st century BC (Kose 1998). Huge industrial areas in the north, hundreds of coins, and sarcophagi, which once had been below the floors of private houses, but now appeared on the surface of the site due to erosion, attest to the vitality of this metropolis (cf. Finkbeiner 1991: 211–13 with Beilage 32).

In the later Arsacid period, Uruk began to shrink in size. In the 1st century AD, private houses seem to have occupied much of the no longer functioning temple complexes, although smaller temples were still maintained. An entirely different architectonic character is displayed by the new Gareus temple which combines a small two-room cella and anteroom in the middle of a large, square courtyard framed by rooms with a western-style façade of half columns with Ionic capitals, niches, and a frieze with mythical creatures (Kose 1998: 291–335). Simultaneously with the decline of Uruk itself, the landscape in the south suffered

from the appearance of new swamps and marshy areas necessitating the relocation of settlements.

Nippur, on the contrary, expanded greatly in the 1st century AD. A large fortress with round towers was built around the Enlil *ziggurat* and a new Inanna temple was erected above the Ur III temple in the same architectural tradition. Nearly the entire city area was in use again, and nowadays it is littered with Arsacid period pottery and the fragments of thousands of glazed, slipper-shaped coffins (Keall 1970).

Changes probably starting in the 1st century AD also affected Seleucia-on-the-Tigris and Babylon. The traditional capital Babylon was long thought to have been in a state of decline and virtual abandonment after the foundation of Seleucia. The reanalysis of earlier excavations, however, revealed a city of c.120 hectares in the earlier Arsacid period with an interesting mixture of cultural traits (Hauser 1999). Texts confirm regular offerings by the Arsacid rulers at the temple of Marduk until at least 77 BC. Although the later Arsacid Bel temple has not been found, cuneiform texts probably originating in its offices are attested until AD 75. Private houses spread over the site of the former royal palace and continued north of the old city center. The presence of a Greek community is confirmed by inscriptions. The Seleucid theater was renovated in the 1st and 2nd centuries AD. Although the settlement's size had sharply declined by this time, Babylon was still marked as an important town on the late Roman map known as the *Tabula Peutingeriana* and by Cassius Dio (75.9.3).

The former Seleucid capital, Seleucia-on-the-Tigris, is one of the best-known Arsacid period sites (Hopkins 1972; Anonymous 1985a). The city encompasses c.550 hectares, and although Pliny's claim of a population of more than 600,000 (*Nat. Hist.* 6.122) seems grossly exaggerated, it was certainly one of the biggest cities in antiquity. The blocks of its Hippodamian urban layout, measuring 144.70×72.35 meters, are the largest known anywhere in antiquity.

At the site's northwestern limit the mound called Tell Umar was identified as a theater later transformed into a massive Sasanian tower. Several excavated house blocks provide a stratigraphy and pottery chronology for the entire Arsacid period (Debevoise 1934; Valtz 1984, 1991). South of Tell Umar, the ruins of a Seleucid archive building (Ch. II.52), destroyed in the last quarter of the 2nd century BC, yielded more than 25,000 clay sealings (Level V). The archive was discontinued after its destruction. Throughout most of the Arsacid period (Levels III–I) the area was converted into dwellings with intramural burials beneath the floors and some shops. Street Block B6, unearthed in the 1930s, is particularly interesting for the changes in architectural ideas that it illustrates. Level III (dated 143 BC to mid-1st century AD) displays some Hellenistic features in its open courts connected in the south to large halls fronted by *antae* (columns flanking the entrance to a temple). In Level II, which was probably destroyed by Trajan, the columns are replaced by a large opening. At least one of these might already be an *iwan*, a barrel-vault that was a hallmark of Arsacid architecture. In

the less well-preserved 2nd century AD Level I, the whole block was transformed into one building complex, the main court of which featured a huge *iwan*. Major changes are also visible in architectural decoration. Generally speaking, Hellenistic vine scrolls and *cyma* (molding with a double curvature), terracotta lion-headed spouts (*sima*), and palmette *antefixes* (vertical blocks concealing the joint between a row of tiles) in the earlier levels were replaced by locally inspired (Iran/Mesopotamia) stucco pattern-friezes on walls and *iwans* (Hopkins 1972: 127–48).

Despite the repeated description of Seleucia as a "Greek city," its population must have been mostly indigenous. The local descent of the inhabitants is suggested, for example, by the traditional, Mesopotamian pattern of intramural burial, something that would have been unfamiliar to Greek settlers. Nevertheless, the material culture displays an unusual closeness to the eastern Mediterranean, not only in Seleucid, but also in Arsacid times. In later Arsacid times many people might have moved to the new capital Ctesiphon, across the Tigris. Unfortunately, this city, called *al-ʿAtīqa* in Arab sources, has not yet been explored (cf. Negro Ponzi 2005; Hauser 2007a for the topographical situation).

A striking intensity of settlement connects northern Babylonia and Khuzestan, the most intensively researched part of Iran (Potts 1999: 384–409). Seleucid coins were minted at its capital Susa until the reign of Demetrius II (146–140 BC), thus overlapping with those of local dynasts (Le Rider 1965). From c.25 BC until AD 224 an Elymaean Arsacid dynasty was in power (van't Haaff 2007). The long-term, large-scale excavations at Susa have demonstrated that the Arsacid period was marked by substantial expansion and prosperity. Greek inscriptions and sculptures attest to the preservation of Hellenic traditions. While Arsacid material was rather poorly attested in the early campaigns, later excavations in Ville Royale A, the Apadana East/Ville Royale (Levels 4/3; Boucharlat 1987b) and Ville Royale II (Levels 3c–A, 2C–B; Miroschedji 1987a) offer an important starting point for the pottery chronology of the wider area (Haerinck 1983; Boucharlat 1993). No fewer than three levels of large private houses with interior courtyards and fragments of Greek architectural decoration were unearthed in Ville Royale A.

Further evidence for the later Arsacid period has been found at two temple complexes with numerous reliefs and life-sized sculpture in the round in the mountains east of the plain. At Bard-e Neshanda a four-pillared room (1st–2nd century AD) has been identified as a temple for Anahita and Mithra, who might be represented on pillars at the entrance of the building (Ghirshman 1976; for the coins, cf. Augé et al. 1979). Probably built in the 2nd century AD, the 2 hectare large stone terrace at Masged-i Solayman supported a centrally placed "great temple" and another temple possible dedicated to Heracles. The sculpted male figures are usually fully bearded and clad in richly decorated tunics, trousers, and shoes. Several heads with a tiara from Masged-i Solayman, dating to the 2nd–3rd centuries AD, have been identified as Elymaean kings (Ghirshman 1976;

Mathiesen 1992: 151–64). Rock reliefs at Tang-e Sarvak, halfway between Susa and Persepolis in the Bakhtiari mountains, depict rulers worshipping at a fire altar, enthroned, hunting animals or in combat (Vanden Berghe and Schippmann 1985: 40–80; Kawami 1987; Mathiesen 1992: 119–51).

Outside Elymais, evidence of the Arsacid period in Iran is surprisingly rare and uneven. In contrast to the rich evidence for early Sasanian architecture with stucco decoration and figurative capitals, the Arsacid period in Fars is mainly represented by coins issued by the local dynasts under Arsacid sovereignty (Wiesehöfer 2009). Recent rescue excavations in the Bolagi Gorge, near Persepolis, and numerous graffiti on the walls at Persepolis, including portraits of Arsacid rulers and popular Sasanian motifs (equestrian combat and hunting scenes) have shed new light on this period (Callieri 2003; Razmjou 2005c).

Further evidence for the later Arsacid period is found in western Iran at Qaleh Zohak (in Azerbaijan) and Qaleh Yazdigird (near Qasr-e Shirin), and especially in northern Iraq at Assur and Hatra. At Qaleh Zohak, a square room supported by four massive corner pillars, with four arches covered by a high barrel vault, still stands (Kleiss 1973). Dated to the 2nd century AD, this pavilion was built with alternating vertical and horizontal courses of brick, covered with plaster. This building technique, also employed at Assur, Qaleh Yazdigird, and other sites, is characteristic of the period.

One of the most impressive Arsacid sites known is Qaleh Yazdigird, situated on a hill overlooking the main route from Babylonia to the Iranian plateau on the western flanks of the Zagros Mountains. A huge enclosure surrounds the site. Residential units and a well-preserved palace have been partly cleared. More than 300 stucco panels, reliefs, and figurative capitals, dating to the late 2nd–3rd century AD, were recovered from the walls and columns of the palace. These have bands of repeated designs of interlocking meanders suggestive of textile ornament and stylized leaves, as well as brightly colored patterns of repetitive figural compositions in varying scales. The figural repertoire includes images interpreted as Dionysus and Aphrodite and their followers, humans – e.g., a frontal male bust, standing males in "Parthian" costume, and naked dancers – and animals and mythological creatures resembling the *sen-murw*, a mythological dog-headed bird (Keall et al. 1980; Keall 1982, 2002). The Qaleh Yazdigird stuccos foreshadow Sasanian décor, but the suggestion that the site was the stronghold of a rebel warlord is purely speculative.

The various regions of Arsacid Iran offer no uniform picture of Arsacid/Parthian material culture. On the contrary, in architecture as in tombs and burial practices, reliefs, and pottery, local traditions are clearly present and differences between strongly Hellenized city centers such as Susa and sites in the countryside are marked.

Further west the province of Adiabene shows its own distinct material culture. Excavations in the former Assyrian heartland remain limited, and the provincial capital Arbela (Erbil) is unexplored. No detailed surveys have been carried out

east of the Tigris. The early excavations at Nineveh provided plenty of local and imported Roman pottery and sculpture, but from undocumented contexts (Eiland 1998). At Kilizu (Kakzu) a number of burials were excavated. Ceramic sarcophagi with blue-green glaze and relief decoration, e.g. grapes alternating with a frontal nude female figure in an arched niche, find comparisons at Assur (Anastasio 2008), where the evidence is compelling. Two-thirds of the Assyrian city was covered with private houses. Settlement lasted from the 1st century BC until a fatal destruction around AD 230. These buildings uniformly include a southern *iwan* and show liberal use of plaster. A large complex around a court framed by four *iwans* which also features a *peristyle* was called the "Parthian palace" and considered the seat of local administrators. Such lords (*marja*) are attested by several inscribed reliefs in the city's main temple, which was devoted to Assur and his consort Seru'a. The temple was placed atop the older Assyrian Assur temple and represents remarkable continuity of cult (Andrae and Lenzen 1933; Hauser 2011). The temple's layout consisted of three large parallel *iwans* within a large *temenos* area covering 4 hectares that included a number of other temples – e.g., for Heracles-Nergal – and one in western Greek peripteral style. The whole assemble is thus architectonically closely related to the 14 hectare *temenos* area of Hatra.

A traditional meeting point for nomads in the steppe, Hatra was founded in the 1st century AD. In the 2nd century the city of the sun-god was enlarged to 310 hectares and served as economic, political, and religious center of the steppe. After the Arsacids lost Osrhoene to the Romans in 164 BC, the lord of Hatra was awarded the title "king of the Arabs" (Hauser 1998). Excavations since 1951 have concentrated on the centrally placed *temenos* with multiple temples constructed as parallel *iwans* and 15 smaller, probably tribal temples outside the *temenos*. Some 300 sculptures, most of them offerings devoted for the life of a ruler or noble, were excavated in these shrines (Safar and Mustafa 1974; Dirven 2008). The strong fortification walls resisted several Roman and Sasanian attacks before Ardashir I conquered the city after a two-year siege. The siege walls, the largest known in Near Eastern history, were recently rediscovered (Hauser and Tucker 2009). The siege of AD 238/9–40/41 was the final battle between the Sasanians and the last stand of the once glorious Arsacid Empire.

4 The Administration of Empire in Light of its Material Culture

Archaeological research has contributed in various ways to a re-evaluation of the Arsacid Empire's internal structure and diversity as well as its external contacts. Its internal structure is reflected in coinage, settlement systems, representations of officials, and military installations. Its diversity is illustrated by the various languages, economies, and religions practiced within this huge state. Finally, Arsacid material culture reflects external contacts, trade relations, local traditions, and Hellenistic influences.

Administration and power

Although awareness of Arsacid coinage dates to the early 18th century (Foy Vaillant 1728), the system and its implications are still not fully understood. The current reference system has been criticized for its unconvincing typology, dubious assignation of coins, and insufficient illustrations (Sellwood 1980; de Callataÿ 1994; Alram 1998). A long-awaited *Sylloge Nummorum Parthicorum* in nine volumes is currently in preparation. Coinage in the Arsacid Empire by and large followed the Seleucid system. In greater Mesopotamia and Elymais, silver tetradrachms predominated, while drachms were used in Iran. Various mints issued coins, most importantly the royal mints at Seleucia-on-the-Tigris and Ecbatana. Drachms and tetradrachms were also struck by the local rulers of Mesene, Elymais, Persis, and the eastern Indo-Parthian areas. Until recently, this was seen as evidence of their independence. Alternatively, it could be judged as an expression of a system comparable to medieval Europe, where the issuing of coins was one the rights and duties of certain noblemen without implying independence. While early central and regional Arsacid coins followed Seleucid models in their obverse portraits, from the first century AD onward these became less detailed and the traditional Greek legend was replaced in Iran by Parthian Middle Persian. In addition, silver content decreased, and provincial coinage, which in general followed the issues minted at Seleucia-on-the-Tigris, became debased.

Apart from coins, only a few rock reliefs preserve images of the king of kings. Three of these were carved at Bisotun. One badly damaged relief shows Mithridates II (in profile) receiving the obeisance of four dignitaries. A rather crude, life-sized, frontal image of a man making an offering at a small altar is identified in an accompanying inscription as "Vologases, king of kings, son of Vologases, king of kings, son of P. . . ." A third relief shows an equestrian combat between a victorious king accompanied by Nike carrying a diadem and his fatally wounded enemy. Because of a short inscription that reads "Gotarzes Geopothros" above the central figure, the scene has usually been interpreted as a depiction of the king of kings Gotarzes II defeating Meherdates in 49 BC, but no consensus has been reached (Mathiesen 1992: 174–5). Images of local rulers accompanied by inscriptions were also carved at Tang-e Sarvak and at Hung-e Nauruzi. Life-sized statues of rulers in finely embroidered tunics, trousers and shoes have been excavated at Masged-i Solayman and Hatra.

Settlement development

The workings of administration are visible in grandiose irrigation projects. As surveys have conclusively demonstrated, settlement and irrigation reached unprecedented levels in Babylonia during the Arsacid period (Adams 1965, 1981;

Adams and Nissen 1972; Gibson 1972; Gasche and De Meyer 1980). A mayor break in this development can be inferred for the mid-1st century AD. At this time Babylon was partly replaced as the economic center of Iraq by the yet to be identified site of Vologesias, which was probably on a different arm of the Euphrates. Likewise, Seleucia started to be no longer situated "on-the-Tigris" and ceded population and economic importance to Ctesiphon and a new city (later Sabat) further south.

Clearly, both rivers changed their courses. In the south this led to increased areas of swamp, which prompted new irrigation systems and a relocation of settlement. While Nippur witnessed considerable growth, in the long run Uruk and its hinterland were victims of this development and diminished in size (Adams and Nissen 1972; Finkbeiner 1991). Larger parts of the population must have moved north or east toward Elymais and its capital Susa. Settlement in Elymais expanded threefold. Almost the entirety of Khuzestan was brought under cultivation and wet rice cultivation and sugar cane were introduced (Wenke 1975–6, 1987). Weirs on all major rivers, provisionally described as "Roman," could be from the Arsacid period (Adams 1962). Study of the lower Diyala river shows very similar patterns to those in Khuzestan. The capital Ctesiphon became the center of a complex irrigation system (Adams 1965: 61–82). The enormous size of the artificially dug main arteries and the complex networks of smaller canals greatly exceeded all earlier systems.

These observations receive confirmation wherever surveys have taken place, in northern Mesopotamia and Osrhoene (Wilkinson and Tucker 1995; Ball 1996; Yardimci 2004) as well as in the upper Atrek valley (Venco Ricciardi 1980). In the steppe south of Hatra, a high number of settlements reflects the sedentarization of nomads ruled by the king at Hatra (Ibrahim 1986; Hauser 1998, 2000). Because of an expansion of the irrigated territory and the building of fortifications as protection against nomadic incursions, the Arsacid period has been called the golden age of Margiana (Gaibov and Koshelenko 2002: 51; Koshelenko 2007).

The military

It has long been noted that the Roman army in the east was reorganized, especially by the introduction of heavy cavalry, in response to the tactics of the Arsacid forces which were renowned for their mounted archers and their iron-clad *cataphracti* (Mielczarek 1993; James 2006). Contrary to older opinions it has been demonstrated that the empire possessed standing armies in garrisons and specifically on the borders under the control of the local kings. Only in times of crisis were territorial armies of reservists raised (Hauser 2006b).

While it has been shown that the famous Gorgan wall was a late Sasanian construction (Omrani Rekavandi et al. 2007, 2008), many fortresses in the region beyond this wall are probably Arsacid. This goes for sites like Toprak-Kale

in Chorasmia and Durnali in Margiana (Kiani 1982; Bader et al. 1998) which often show the same architectural features, especially the outlying corner towers, as examples in Babylonia (Bergamini 1987). While *castella* in present-day northern Iraq and Syria have generally been identified as Roman, dated inscriptions in Hatrean Aramaic at several such structures prove the existence of fortresses built against the Romans by the mid-2nd century AD, as indicated by Cassius Dio (79.26.3) (Hauser 1998: 517–19).

The impressive irrigation systems of Babylonia, Elymais, and elsewhere, as well as the fortifications, clearly indicate comprehensive, abstract planning. The design, organization, and maintenance of these large systems must have depended on strong supra-local administration. This view is in stark conflict with older ideas about the weak internal organization of the empire and represents a shift of research paradigm.

5 Trade

The Arsacid period witnessed an enormous surge in the intensity of the trade that connected Mesopotamia and the Mediterranean with China via the steppes and with India along the coast and across the Indian Ocean. Exchange along the Central Asian caravan routes, the "silk road," was supported by a favorable climate and the military protection of routes by Han China, as shown by research in Xinjiang (Wieczorek and Lind 2007 with bibliog.). The intense cultural exchange of the period is most impressively demonstrated at Begram, 60 kilometers north of Kabul. The site controls the main north–south route to Central Asia. Excavations in a small, 35 × 60 meter "palace" furnished a spectacular collection of artifacts. Ivories from India and lacquer work from China were found alongside painted and millefiori glass from the Mediterranean as well as finely executed gypsum *tondi* representing gods, humans, and animals from Alexandria in Egypt. While probably produced from the 3rd century BC onward, the objects are prime examples of long-distance cultural contact in the 1st and 2nd centuries AD (Hackin 1939; Ghirshman 1946; Mehendale 2005; Cambon 2007a).

At the same time, the long established sea trade with India along the Persian Gulf (Mare Erythraeum) also intensified (cf. Raschke 1978; Young 2001). The main port, "where the merchants of the east meet" (Acts of Thomas) was Spasinou Charax, capital of Mesene, which, although identified c.50 kilometers north of Basra, has never been excavated (Hansman 1967; Schuol 2000: 379–97). Thus, the various trading establishments established there, catering, e.g., for Ctesiphon, remain elusive. Only in the case of the Palmyrenes, who transported goods from the east to the Roman Empire, do we possess sources indicating the intensity and enormous profits of the trade (Schuol 2000: 47–90; Hauser 2007b).

Once the Arsacids had conquered Fars and Mesene, their influence in the Gulf area was felt (cf. Potts 1990, 1996). Like its predecessor, the Seleucid "satrapy

of the Erythrean Sea," the province of Mesene included part of the coast and islands in the Gulf. In the mid-2nd century AD, Mithridates of Mesene called himself "king of (the) Oman(i)" and established a governor on Bahrain (Potts 1997b), where archaeological evidence for the settlement currently ends with the 1st century AD (Hannestad 1983; Callot 1991; Gachet and Salles 1993). Trade across the Gulf in the later Arsacid period is reflected by finds of Roman glass, pottery from Baluchistan, India, and plenty of Babylonian glazed wares at ed-Dur on the coast of the United Arab Emirates. Excavations in this sprawling site revealed private houses, a temple, a small fortress, and burials (cf. Potts 2001b). The fortress with round corner towers and the subterranean tombs with barrel vaults show strong connections with contemporary Mesopotamian architecture. Further evidence of intense contacts and the securing of trade by military posts along the coast is provided by the city of Thaj (Potts 1993a) as well as burials and the fortress at Bahrain (Thiloua) (Herling and Salles 1993; Lombard and Kervran 1993). Despite these constant contacts, the areas of modern Oman and the UAE seem not to have been under direct Arsacid control.

6 Religion

Earlier periods in the Ancient Near East bear witness to the importance of local gods and their cults for civic identity. In Mesopotamia multiple efforts were made to merge them into a united pantheon. The situation in the Arsacid Empire was much more diverse and fragmented. In several Mesopotamian cities the traditional gods were revered. Theophoric elements in personal names attest to the continued importance of Bel, Nabu, Assur, Inanna, and Anu (Müller-Kessler and Kessler 1999). At Assur the ancient *akitu*-festival (New Year's celebration), entailing a procession from the Assur temple to the *akitu* house, was still celebrated and temples for traditional gods were renovated or rebuilt in various styles in the 3rd century AD (Hauser 2011). At Nippur the Inanna temple of the 1st century was modeled on the Ur III (2100–2000 BC) example, while the 1st–3rd century AD Assur temple displayed the new form of three parallel *iwans* (Downey 1988). Along with the sun god Shamash (Hatra) and the moon god Sin (Harran), Nabu and Nanaya gained particular importance. Nanaya became prominent from about the 2nd century BC in many parts of the Arsacid realm, most notably in Assyria and Elymais (Susa). Her cult is attested from Bactria to Greece and Egypt (Ambos 2003). Although not originally a moon goddess, Nanaya was transformed into a lunar deity. This may have been due to her identification by the Hellenized with Artemis, who was transformed into a moon goddess equal to Roman Selene.

The syncretism between local and Western gods was already attested in the Seleucid period when Nabu became identified with Apollo – e.g., in an inscription on a column in the Nabu temple at Nineveh, or at Borsippa, where Nabu and Tashmetum are identified with Apollo and Artemis in 268 BC (Dirven 1999:

128–56). The most popular god was Heracles/Nergal, also revered as Iranian Verethragna. His temples have been found at Assur, Dura Europos, Hatra, and Masged-e Solayman, and sculptural representations of him are numerous (Downey 1969; Safar and Mustafa 1974: 350–67; Tubach 1986, 256–68; Invernizzi 1989; Kaizer 2000). Like Heracles/Nergal, many traditional gods were now depicted in Mediterranean attire and style.

In the Arsacid period monotheistic religions steadily gained ground. The Babylonian Talmud attests to the existence of a large, flourishing Jewish community in the region with an *exilarch* living at Ctesiphon (Oppenheimer 1983). The ruling family of Adiabene converted to Judaism in the mid-1st century AD. Coincidentally, from about this time on Christianity spread in Mesopotamia. Allegedly, the first Christian bishop was ordained at Seleucia/Ctesiphon in the late 1st century (Jullien and Jullien 2002: 230–1). In the far east of the empire, Buddhism increasingly found followers.

The Arsacids themselves were probably Zoroastrians, but the role of Zoroastrianism is difficult to ascertain. It is commonly assumed that the *Avesta* was widely spread all over Iran and beyond during this time. The first collection of all written or oral testimonies of the *Avesta* and *Zand* was probably ordered by Vologases I (Hintze 1998). The immediate impact of this in religious life is nevertheless rarely traceable, since temples for Iranian gods like the supposed Anahita temple at Bard-e Neshanda (Vanden Berghe and Schippmann 1985: 20), are rare.

There is neither proof of the Arsacid rulers' religious orientation nor any indication that the kings of kings interfered with the various cults. The simultaneous reverence of such a diversity of traditional Mesopotamian, Greek, Arab, and Iranian, as well as monotheistic gods which is mirrored in the diversity of local temple architecture (Downey 1988), makes the Arsacid period a most interesting field for research.

7 Architecture, Regionalism, and "Parthian Art"

The material culture of the Arsacid Empire shows strong regional tendencies in pottery and burial customs (cf. Negro Ponzi 1968–9), while architecture and sculpture, although incorporating to various degrees influences of different heritages, show common trends. Encounters, mixtures, and coexistence between the earlier Seleucid Greek culture and local traditions form an overarching theme.

Architecture

The early to middle Arsacid period is mostly represented at Nisa and in former Seleucid Greek colonies. The intensity of Hellenization is visible in buildings foreign to the area, especially theaters with *palaestra* at Babylon and Seleucia-on-

the-Tigris. Nevertheless, even in these cities most of the population must have been indigenous, and the Hellenistic style might not be representative of the poorly researched areas outside these settlements. A typical, western feature is the use of columns. The only examples of columned streets occur at Babylon (Wetzel et al. 1957: 33). Peristyle buildings, a typical element of Mediterranean private architecture, have been found at various sites including Seleucia-on-the-Tigris (Block G6), Babylon (House I) and the manor house at Khorkhe, in Iran, which displays Ionic capitals (Hakemi 1990; Rahbar 1999a). Architectural elements such as flat tiles, palmetto roofings, or lion-headed *simas* are known from Susa and Uruk. The so-called "Parthian palaces" of Nippur and Assur, both built in the 1st century AD, show the persistence of peristyle architecture. On the other hand (pseudo-)peripteral temples with Greek *peristasis* are only known from the late Arsacid period at Uruk, Assur, and Hatra. They indicate the reception and integration of contemporary or earlier western influences. Other temples in Babylonia, Elymais, and Central Asia – e.g., Takht-i Sangin – seem to follow local traditions.

The hallmark of later Arsacid architecture is a parlor in the form of a barrel-vaulted hall open on one side, the *iwan*. If it opens to the north, it provides shade and admits cool breezes in the summer. South-facing *iwans* were built for use in winter to keep out cold winds, while allowing sunshine to enter. Although usually considered an Iranian feature, the earliest *iwans*, except for Khorkhe, appear in the early 1st century AD Mesopotamian "palaces" at Nippur, Abu Qubur, and Assur (Wright 1991; Lecuyot 1993). At Assur every house had at least one *iwan* in the south. The main court of the "Parthian palace" was framed by four complexes with a central *iwan*. At Assur and Hatra even the temples used this open form. The construction of *iwans* was made possible by another hallmark of Arsacid architecture, the generous use of gypsum mortar. The fast-setting mortar enabled the rapid building of large vaults. A third typical aspect of the later Arsacid period was the lavish use of stucco in rich residences (Assur, Seleucia-on-the-Tigris, Uruk, Susa, Qaleh Yazdigird).

Regionalism in commodity crafts

To a surprising degree many crafts are still poorly known. Glass vessels, found especially in graves at Kilizu, Assur, Hatra, Abu Skheir, and ed-Dur (Negro Ponzi 1972; Dorna Metzger 2000), were often considered Roman imports or assigned a Sasanian date. Only recently has the existence of a differentiated production of cast (especially ribbed bowls) and blown glass (bowls, balsamaria, jars, and ewers), some of them with mold-blown or appliqué decoration, been demonstrated for Seleucia-on-the-Tigris (Negro Ponzi 2002).

A comparable problem exists for Arsacid period seals which are difficult to distinguish from Seleucid or Sasanian examples. Phraates II bullae from

Göbekly-Depe in Margiana and sealings from Shahr-e Qumis allow rare insights into Arsacid seal-cutting and use (Gaibov 1996, 2007; Bivar 1982).

The development of pottery also reveals many regional variants (Haerinck 1983; Finkbeiner 1993b; Hauser 1994; Adachi 2005). At Susa, Seleucia, and other Babylonian cities, Seleucid trends continued. Many types of Hellenistic models, especially two-handled amphorae and fish plates, were produced in large numbers with green to blue glaze, a trademark of western Arsacid pottery. A second ceramic hallmark in Babylonia and beyond is the extremely thin eggshell ware used for small jars or amphorae. But even in Adiabene this ware is unknown and glazed wares appear less often. Instead, wavy lines and stamped impressions are common decorations. Connections to Roman forms are very rare. These differences confirm Haerinck's (1983) observation of strong regional trends in pottery production during this period.

"Parthian art"

Our understanding of representational arts in the Arsacid Empire is still limited. Often, sculptures and even minor arts like silver bowls have been considered a provincial offshoot of Greco-Roman art, dependent on the constant influx of new inspirations from the West (Mathiesen 1992: 13; Pfrommer 1993). Unfortunately, this view hinders an understanding of artistic expression as an act of communication and as part of societal and discursive practices within the Arsacid realm, as it constructs a continuous dependence upon the West and presupposes a common ideal in art. In fact, the use and production of representational objects was much more diverse.

Clearly imported marble statues of Venus, Hermes and other Greek deities have been found at Hatra, Nineveh, and Susa. Others were locally produced according to western norms – e.g., the Heracles from Mesene after Lysippus (Invernizzi 1989; Bernard 1990) or the city *tyche* from Susa. Alongside these Hellenic sculptures many statues of men were found, typically clad in long tunic, mantle, trousers, and shoes, often richly embroidered. They appear comparatively stiff and look frontally at the viewer. This frontal view is also found in reliefs where it is even used in scenes of communication between the persons depicted, who, nevertheless, gaze at the observer. This frontality is considered the most typical, formal aspect of so-called "Parthian art" as defined by Rostovtzeff (1938) in his attempt to understand Arsacid visual language in its own right. His definition was criticized for its inappropriate ethnic connotation "Parthian," as well as for being based largely on pieces from Dura Europos in Syria, a site just on the western fringes and after AD 166 even outside the empire's borders. Still, as a specific formal and symbolic quality which expresses immediacy, direct contact between the person or god depicted and the viewer was obviously considered more important than a naturalistic rendering of interaction and is characteristic

of the less-Hellenized Arsacid period art. Nevertheless, it is neither ethnically "Parthian art," nor official "Arsacid art," but just the most commonly used from of representation within the empire and in its vicinity.

Later Arsacid period reliefs and statues of the 2nd and 3rd centuries in Khuzestan as well as Hatra adhere to this form (Safar and Mustafa 1974; Vanden Berghe and Schippmann 1985; Dirven forthcoming). In contrast, the earlier and middle Arsacid sculpture represented by the life-sized terracottas at Nisa, reliefs of lords at Assur, or rock reliefs by Mithridates II at Bisotun or at Hung-e Nauruzi present the figures in profile (Mathiesen 1992).

The same difference between Hellenistic and local styles can been seen in terracotta. The locally produced terracottas at Seleucia-on-the-Tigris and Babylon attest to the continued intensity of Greek cultural influence into the late Arsacid period. Women and men appear draped in Greek dress. The traditional local subjects, such as nude females with their arms at their sides, were adopted to Hellenistic style and produced in a new technique using two molds (van Ingen 1939; Karvonen-Kannas 1995; Klengel-Brandt and Cholidis 2006). At Uruk and Susa, the new subjects and production methods are well attested, but the iconographic program remained much more tied to traditional topics – e.g., nude females and horsemen (Martinez-Sève 2002). At Assur, on the contrary, double mold and composite cast techniques were not employed, and the subjects remained traditional (Klengel-Brandt 1968).

The important conclusion is that, especially in the major cities of Arsacid Babylonia and Elymais, Hellenistic culture had become part of the local heritage. This is attested in terracottas and in commodities like pottery. The Arsacid period is thus a phase which shows a profound process of acculturation in which elements of Mediterranean, Mesopotamian, and Iranian material culture were fused into innovative and distinctive regional as well as context-specific, visual, and material forms of expression. These processes of cultural exchange and adoption, the diversity of religions, languages, and material expressions, as well as the intensification of long-distance trade and irrigation systems, make the Arsacid period a most intriguing subject for study. Particularly in view of the comparatively poor textual evidence available, archaeological research on the Arsacids contributes to a more differentiated picture of one of the most undervalued but successful empires of the ancient Near East.

GUIDE TO FURTHER READING

Literature on the Arsacid Empire is widely dispersed. A useful, but dated introduction into the material evidence is Herrmann (1977). More recent scholarship is reflected in Herrmann (2000), and in the short, but well illustrated volume 271 of *Dossiers d' archéologie* (March 2002). The latter provides some easy accessible synopses for research in Iran,

Margiana, and Northern Mesopotamia. History and archaeology of Elymais are best approached with the compendium by Potts (1999). Schuol (2000) provides résumés and bibliographies on the results from excavations in southern Mesopotamia and the Gulf. For a concise summary on the Gulf area, Potts 2009b should be consulted.

Particularly strong on the written sources for Arsacid history is the volume edited by Wiesehöfer (1998). Various Roman, Chinese, Armenian, and other authors and their contributions are discussed. The sources are now assembled and translated in the three volumes edited by Hackl et al. (2010).

Traditional prejudices created the idea of a weak king of kings barely able to rule. This image is explicit in Wolski (1993), less so in Debevoise (1938) or Schippmann (1980.) A nomadic heritage, an important question concerning the northern and western frontier areas, has been championed in eastern European research; cf. Koshelenko and Pilipko (1994) and Olbrycht (2003). Recently these concepts were summarized and critically evaluated by Hauser (2005 and 2006a). Still the best historical analysis of Romano-Arsacid relations is provided by Ziegler (1964).

Important resources are also available on the web. First of all, the *Encyclopaedia Iranica* (www.iranica.com) offers (sometimes outdated, but mostly reliable) discussions of persons, places, and events. A constantly growing bibliography is provided by E.C.D Hopkins at www.parthia.com. This website provides the best images of Parthian coins available today.

CHAPTER FIFTY-FOUR

Roman Rule in the Near East

Bettina Fischer-Genz

1 Introduction

The geographical boundaries of this study extend from the city of Seleucia-Zeugma (modern Belkis, Turkey) on the Euphrates in the north to the port of Aila (mod. Aqaba, Jordan) in the south. In the east, the boundary follows the military and political struggle for supremacy over Armenia and Mesopotamia between the Roman armies and the Parthian and later Sasanian Empire along the line of the Euphrates as far as Dura Europos (mod. Qalat es-Salihiye, Syria).

Generally, the geography of the Near East can be divided into five zones, differentiated by geology as well as the accessibility of water. In the west this includes the coastal strip with rainfall and melting snow from the adjacent Amanus, Jebel Ansariyeh, and Lebanon mountain ranges; and the Rift valley running from north to south with carstic groundwater and springs, as well as two rivers emerging in the Beqaa close to Baalbek, the Orontes running north and the Litani running south. The southern continuation of the Rift valley is the Jordan river, the Dead Sea, and the Wadi Araba down to the port of Aila (mod. Aqaba, Jordan). Another mountain range, the Jebel Zawiyah and the Anti-Lebanon, delimit the rift valley to the east, beyond which, to the east and south, the more arid steppe and desert zones of southeastern Syria and eastern Jordan appear. Transportation networks followed, on the one hand, the north–south coastal plains as well as the Rift valley, while, on the other, transversal routes connected the caravan routes from the eastern desert zones to the Euphrates and the Red Sea ports, and the inland

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regions to the Mediterranean ports along the coast, for example through the Homs Gap and various mountain passes.

Chronologically, this chapter examines the period between the annexation of the Near Eastern provinces by Pompey in 64/63 BC and the death of Constantine in AD 337, which marked the appearance of a new administrative structure in the eastern provinces. The political history of the Near East in the Hellenistic and Roman periods has been studied intensively through textual sources (Millar 1993; Butcher 2003; Sartre 2005) and provides a solid framework for archaeological research in the area. But when investigating the effects of political decisions and events on people, communities, and landscapes through material remains, archaeologists are frequently confronted with the contrasting narratives of Braudel's *longue durée* and the accounts of historical sources. The impact of Roman rule on the Hellenized cities and rural population of the Near East is difficult to trace in the archaeological record, since initially Roman rule did not entail a specific mode of political organization, language, or cult (Sartre 2005: 365). The archaeological record gives us building remains, funerary monuments, and stone sculpture, as well as the more mundane objects of everyday life such as pottery, glass, and metalwork. In addition, a growing number of inscriptions by individuals as well as officials can provide valuable information on different aspects of Roman rule and influence. Thus, archaeological research continues to yield new information on this vast region, but in addition to fieldwork and surveys a number of more general questions have also come into the focus of research. However, it must be stressed that the archaeology of the Roman Near East is highly complex and in the following only some of the more important issues and key examples will be touched upon.

The Eastern provinces were already part of the Hellenistic *koiné* before entering the Roman empire, and thus recent studies aim at understanding how the processes of Roman imperialism and the construction of provincial identity there might differ from the situation in the western provinces and North Africa, and whether, in some respects, the Near East might even be regarded as occupying a peripheral position within the empire. There is also a lively debate on the different concepts of identities of the local populations, opposing "Hellenizers" and "indigenizers" in defining ethnicity, culture, and identity (Butcher 2003: 63; Ball 2000: 3). It is not surprising that populations subject to different political structures such as the city-state, colony, or province probably employed different identities simultaneously, according to the context of social relations on a communal, regional, or provincial level. In light of these questions, a new assessment of the role of the Greek-style *polis* and city-state is also warranted: while it was certainly decisive in the formation of the political and cultural networks of the Near East during the Hellenistic period (Sartre 2005: 365), the diversity of systems used to govern the various regions of the Near East as well as their lack of uniformity demands more research on the relationship and interaction between cities and their rural hinterlands, and between sedentary and nomadic societies.

The foundation of cities continued throughout the region in the Roman period, particularly in Palestine and Arabia, thus providing us with comparisons between the already existing "Greek" cities and either newly founded cities or rural centers that achieved city status.

Finally, ever since the influential studies of Antoine Poidebard using aerial photography to map ancient structures in Syria (Poidebard 1934; Mouterde and Poidebard 1945), research has been undertaken on the question of what effect the military frontier situation of the Near East had on settlement structure, especially in the arid zones (Isaac 1992).

2 Political Framework and Provincial Administration

The different forms of political organization in kingdoms, tribes or city-states provided the framework for Roman provincial governance. While some parts of the Near East, such as the former Seleucid kingdom, were directly controlled by Rome, others were left in the hands of client kings. Generally it seems that centralized and strongly hierarchical political entities were favored (Butcher 2003: 79). Gaining the support of local elites through honors and privileges was crucial in the early Roman Empire, as the bureaucracy of the government was not yet as well established as the military administration. Client kings, especially in the province of Syria and Judaea, were left in power in the first century of Roman rule, and only when local disputes or internal problems arose did the Roman administration impose direct rule. These client kings had personal ties with the emperor and enjoyed a certain independence in taxation and their relationships in the dynastic networks of the region. It can be argued that indirect rule was an expedient way of administering the peripheries and rural areas (Butcher 2003: 89), and that only gradually was more direct control imposed on client kings and tribal states, often because of open belligerence or the failure of dynastic rule. This was not a linear development, for, in some cases, such as the kingdoms of Emesa (mod. Homs, Syria) or Commagene (in Turkey), dynasts were deposed and after a period of direct rule new ones nominated.

After the victory at Actium in 31 BC by Octavian (later honored with the name Augustus by the senate), the Near Eastern provinces became imperial provinces due to the four legions stationed there and the military significance of the Parthian border. Therefore the governors of Syria were usually highly experienced politicians and competent senators rather than just military men, and Augustus assigned as governor of Syria a legate with consular rank residing in Antioch-on-the-Orontes (mod. Antakya, Turkey). In the 1st century AD, the Syrian government, with its large number of wealthy cities, was far from being a peripheral position in the senatorial *cursus honorum* (Rey-Coquais 1978: 61; Sartre 2005: 56–7). Due to the mosaic of diverse and often independent political entities and the resulting geographical fragmentation of the province in the early

Imperial period, additional prefects under the authority of the provincial governor sometimes had to be delegated, e.g. in the administration of Judaea and the Decapolis.

For the creation of an effective provincial administration, new communication infrastructure had to be built, and a number of port installations, roads, bridges, and milestones are attested, including the coastal road through Berytus (mod. Beirut, Lebanon) to Ptolemais (mod. Akko, Israel) and the *via nova Traiana* (Goodchild 1949; Galliazzo 1994: nos. 813–815). These road networks were primarily built to facilitate communications as well as the movement of troops, and they served to connect forts, water sources, cities, and ports: the archaeological evidence for these dates mostly to the 2nd and 3rd centuries AD (see below).

A census of people and possessions as well as land had to be implemented for the collection of the two main taxes, the *tributum soli* (land tax) and the *tributum capitis* (poll tax). The land tax was probably restricted to agricultural lands and not extended to desert or steppe regions. Due to the many different monetary systems in the Near East (Butcher 2003: 212–23), money taxes were problematic and thus payment in agricultural goods or a mixed payment is probable. The best known census is certainly the one mentioned in the Gospel of Luke for Palestine (Luke 2:1–2), which actually took place in AD 6 under the authority of P. Sulpicius Quirinius (Millar 1993: 35, 46–8; Kennedy 2006: 112). An inscription of Aemilius Secundus puts the population of Apamea (mod. Qalat-Mudiq, Syria; Figure 54.1) in AD 6 at 117,000 citizens, which must include the city's hinterland, but presumably does not include non-citizens, slaves, and nomads (Kennedy 2006: 113–17). Archaeologically, this data can be compared to the actual space enclosed by the city walls of Apamea, which comprises 250 hectares. Although the density of housing inside the city area in the 1st century AD is unknown, a population density of 100–200/hectare would imply 25,000–50,000 inhabitants (Balty 1988: 96; 2003: 227–9; Kennedy 2006: 118). In order to explain the total figure of 117,000 citizens, rural settlements in the territory of Apamea need to be taken into account across an area measuring c.100 kilometers between Antioch and Palmyra (mod. Tadmur, Syria). On analogy with the Roman villages of the Jebel Ansariyeh, one can assume two-story houses and land holdings of 2–7 square kilometers in and around Apamea (Tchalenko 1953–8; Tate 1992; Kennedy 2006: 121). Another census for the province of Arabia is documented in the Babatha archive of AD 127 found in the Cave of the Letters at the Dead Sea, but many more censuses must have been carried out on a regular basis (Isaac 1991; Kennedy 2006: 112). The Babatha archive, like the Mesopotamian papyri and other archives from Dura Europos and Petra (mod. al-Batra, Jordan), contain mainly legal documents attesting to a very complex financial system for the cities and for the rural settlements as well (Butcher 2003: 143–4). Inscriptions also mention a number of senatorial legates employed in military and civil administration and a procurator nominated by the emperor who was in charge of managing the finances. Multiple administrators were probably in charge of specific taxes

Figure 54.1 View of the colonnaded street in Apamea (mod. Qalat-Mudiq, Syria).

and custom duties such as the *portorium* (a tax on traded goods) and other taxes mentioned in the tax law and caravan trade inscriptions of Palmyra from the 3rd century AD (Matthews 1984; Young 2001). After the administrative reforms of Diocletian (284–305) in the late 3rd century, governors continued to exercise primarily administrative and judicial functions, but were subordinate to vicars who were in charge of groups of provinces, in our case the diocese *Oriens.* The tax reforms of Diocletian also entailed important cadastral changes in Syria (Millar 1993: 535–44), again attested in inscriptions on border stones (Tchalenko 1958/III: 6–7).

3 The Geographical Expansion of Roman Rule

From historical sources it can be deduced that, following the campaigns of Pompey and his legates, the annexation of the large territory comprising the Near Eastern provinces was motivated by the need to prevent piracy and brigandage from re-establishing itself. Administration through different forms of direct and indirect government, from the established *provincia* structure to client kings, indigenous chiefdoms, and city-states, was expedient. Thus, while the Seleucid

rulers reinstated shortly before by Lucullus were deposed, most of the client kings and chiefs were confirmed in their positions. To name only a few examples, the Ituraean dynasty received the central Beqaa valley and the north of Mount Lebanon, while Sampsigeramos was confirmed further north in his realm around Emesa and Arethusa. Best known is certainly the case of the Herodian dynasty in Judaea, confirmed in their kingdom after Actium, which managed to enlarge their territory considerably to encompass the Hauran as well as the Beqaa. As such, the Herodians were intermittently in territorial conflict with the neighboring Nabataean kingdom that also remained independent until its annexation in AD 106.

During the ensuing 30 years of civil war, what with Parthian invasions and different Roman factions warring and pillaging, the region had to supply funds as well as war equipment to the different factions. Under Marc Antony, with the exception of a few years of direct rule from Egypt when Cleopatra VII was given Phoenicia, Coele Syria, and part of Cilicia in 37/36 BC, client kings continued to be favored. Although many cities were ruled by client-kings, the independent city-states were also consolidated and strengthened. Most were in the former Seleucid kingdom and Phoenicia, with groups in the Transjordan region and on the coast (Sartre 2005: 42). Pompey restored some destroyed cities and, after the reduction of the Jewish Hasmonaean kingdom, gave independence to a number of new city-states in order to ensure the continuous support of the "Greek" population, i.e. the descendants of colonists as well as Hellenized natives, probably to compensate for a lack of provincial administration.

After the victory of Actium, Augustus retained these different forms of government, and added the eastern part of Cilicia as well as Seleucia-Zeugma on the Euphrates to the province of Syria. Most of the client kingdoms were gradually annexed by the end of the 1st century AD, one of the last being the Nabataean kingdom in AD 106. The Decapolis cities were divided between the newly founded provinces of Arabia and Judaea, and after the Bar Kokhba revolt (AD 132–5) the latter was renamed Syria Palaestina. Under Septimius Severus there was a further subdivision between Syria Coele and Syria Phoenicia, and by the end of the 3rd century it was divided into three parts called Palaestina Prima, Secunda, and Tertia. In the east, Lucius Verus exploited a period of Parthian weakness to push the imperial border to the Tigris, and in AD 195 the new provinces of Mesopotamia and Osrhoene were created.

These reorganizations often entailed shifts in the number of legions stationed in the individual provinces, which led in turn to changes in the rank of the governor: under Trajan or Hadrian Judaea got a second legion and thus had to be governed by a former consul, while under Septimius Severus Syria Phoenicia had only one legion and was only governed by a former praetor. By the end of the 2nd century this system had started to change, as the province of Mesopotamia was governed by an equestrian prefect despite its two legions, and during the 3rd century more and more formerly senatorial appointments were held by equestrians (Butcher 2003: 85).

In AD 224 the Arsacid dynasty of Parthia was toppled by one of its vassal rulers, Ardashir of Fars, thus creating the Sasanian dynasty. During the 3rd century, incursions by the newly founded Sasanian Empire as well as the threat of Germanic tribes to the Rhine and Danube provinces, created a period of political instability and economic strain, necessitating the profound administrative reforms undertaken by Diocletian. He created a collegiate system with two senior emperors (*augusti*) and two junior successors (*caesars*) who shared the responsibilities and military interventions of the vast empire with the assistance of praetorian prefects. The provinces were divided into smaller units, and a new imperial official, the vicar, was appointed to supervise a diocese comprising a group of provinces. The number of legions was augmented and they were now put under the command of a *dux* and *magister militum*, effectively dividing administrative and military power in the provinces. Finally, a new taxation system (*capitatio-iugatio*) was introduced, which took into consideration livestock and agricultural land.

4 The Roman Military

The transformation of the eastern Roman frontier into a territorial border was a slow and gradual process. Until Lucius Verus managed to push it to the Tigris in the late 2nd century AD, the Roman and the Parthian empires were in direct confrontation. The *limes* (chain of frontier forts) facing Parthian territory ran along the Euphrates and branched south at the legionary camp of Sura (mod. Suriya, Syria), down through the Syrian desert along the old caravan route to Palmyra. In addition to legionary camps, there were numerous smaller *castellae* for *equites* or cohorts such as Callinicum (mod. ar-Raqqa, Syria) as well as fortified military posts such as Tetrapyrgium (mod. Qusair as-Saila, Syria), the plan of which (60×60 meters with a 2 meter high foundation of fieldstones and mudbrick walls) follows Mesopotamian-Parthian building traditions of the same type (Konrad 2001: 21–46). A typical plan can also be seen in the fort of Ayyas (mod. Qreiye, Syria) on the Euphrates near Deir ez-Zor. The outer fortifications had intermittent as well as corner towers, while the interior held a headquarters building (*principia*), rooms housing the archive, storage areas (*horrea*), and, most importantly, numerous barracks for the soldiers (Gschwind-Hasan 2008). As recent excavations along the *limes* have shown, this line of fortifications with different types of *castellae* and encampments seems to have been established as early as the Parthian wars of 61/62 (Konrad 2001: 114), and was enhanced with the establishment of the *via nova Traiana*, which ran through the new province of Arabia down to the Red Sea, in the early 2nd century AD (Parker 2007, 351). In periods of peace the *limes* lost some of its importance, but after the Sasanian incursions and the rebellion of Zenobia (AD 270–72) it was again fortified. Both milestones and building inscriptions date most of the constructions to the reign of Diocletian. A series of fortresses and military camps formed the *limes Arabicus*,

the most important one being the legionary fortress of Betthorus (mod. al-Lajjun, Jordan) established under Diocletian at the site of the key water source in the region.

Most of the *castellae* in this later phase seem to have been surrounded by fortified *vici* consisting of courtyard houses, 40–60 meters in width, which were planned according to an orthogonal system inside a rectangular outer fortification (Konrad 2001: 110–11; Parker 2007: 352). Military camps such as Raphanaea, located 35 kilometers northwest of Homs on the Orontes, were probably established in connection with the *strata Diocletiana*.

In the steppe and desert regions Roman military camps were established near waterholes or *wadis*. Large cisterns provided water for daily use and, when possible, for irrigation, enabling permanent agricultural settlements to thrive in their vicinity. But military tombstones indicate that the soldiers were not closely integrated into civilian society. Rather, they generally stayed apart, often not even speaking the same language (Butcher 2003: 399). Veterans who were given land in less Hellenized areas might have had an influence on local communities, as seen in Latin inscriptions and specific cults, and it can be assumed that they had some impact on agricultural production in remote marginal areas such as the Hauran or Jebel al-Arab (Butcher 2003: 402; Clauss-Balty 2008b: 43).

Especially after the Jewish revolt in AD 70, there was a good deal of shifting in the camps of the different legions in the 1st century AD. Originally, the Legio III Gallica was stationed in the north, the VI Ferrata near Laodikeia (mod. Latakia, Syria) and the X Fretensis in Cyrrhus (mod. Nebi Huri, Syria). In AD 56 the IV Scythica was sent to Seleucia-Zeugma at a crossing point on the Euphrates, and after AD 75 the XVI Flavia Firma arrived in Samosata (mod. Samsat, Turkey), capital of the annexed kingdom of Commagene (Sartre 2005: 61). At the end of the Jewish war, the X Fretensis was sent to Judaea, and after the division of the province under Septimius Severus the III Gallica stayed in Phoenicia, the IV Scythica and the XVI Flavia Firma in Syria Coele (the latter had replaced the VI Ferrata sent to Arabia under Trajan). The X Fretensis in Cyrrhus was sent in AD 18 to Seleucia-Zeugma in order to watch the Euphrates crossing, and was replaced under Vespasian by the IV Sythica. In AD 72 Commagene was occupied by the VI Ferrata, then under Trajan by the XVI Flavia Firma with its garrison at Samosata. Three different legions used Raphanaea as their camp, the last one being the III Gallica until the reign of Elagabal (AD 218–22). During the Parthian wars other legions, such as the XV Apollinaris with its camp on Arados/Antiochia-in-Pieria (mod. Arwad, Syria) under Trajan, and the II Parthica, which stayed repeatedly in Apamea under the Severans, were temporarily stationed in Syria. The numerous auxiliary units such as *alae* and *cohortes* are much more difficult to identify and trace, but may have numbered c.20,000 men in the 1st century AD.

Already in the 1st century AD, on the right bank of the Euphrates, a military zone divided in two sectors had been created under the command of a prefect

or curator (Rey-Coquais 1978: 69). In the 3rd century the Euphrates was placed under the command of a *dux* residing in Dura Europos. In general, the northwestern legions served to protect Antioch-on-the-Orontes and the Syrian provinces against an attack from the east, while the desert zone from the Euphrates to the Hauran was defended by auxiliary troops as well as the troops of the vassal kings, and later the militias of Palmyra. Some reinforcements were sent to the Hauran under Marcus Aurelius (AD 161–80) and Commodus (AD 180–92). Finally, under Aurelian (AD 270–5) and Diocletian the defenses and military organization of the Near East as a whole were reorganized, with the legio I Illyricorum newly established at Palmyra.

Thus the locations of military installations and legions were determined as much by availability of water and supplies as by their strategic position against an enemy attack, and the legions were distributed among the provinces in order to minimize the risk of concentrating too much military power under one single governor who might challenge the power of the emperor (Butcher 2003: 406).

5 The Development of the Cities Under Roman Rule

Weakened by the internal power struggles of the Seleucid dynasty, the political landscape of the Near East in the 1st century BC was anarchic and marked by the establishment of several Arab tribal kingdoms, such as the Ituraeans in Phoenicia and the Rhambeans along the Euphrates, as well as local tyrants in some of the cities. Thus in 64 BC Pompey was received by many cities as a liberator, but soon the Roman civil war created new conflicts that lasted until the victory of Octavian Augustus at Actium. These political upheavals can be traced in the different eras adopted after consecutive "liberations," such as the Pompeian era used in Antioch, Apamea, Byblos, Tripoli, and other cities along the coast, but especially in the cities of the Decapolis (Rey-Coquais 1978: 45). The coming of Caesar, Antony, Cleopatra, and finally Augustus' armies led to new eras in many cities. In general, however, city-eras were kept or reverted to after a period of using an era tied to a specific event, and they can be seen as a marker of civic identity (Butcher 2003: 123).

In the north, the most important cities constituted the Syrian Tetrapolis: Antioch-on-the-Orontes, Seleucia-in-Pieria (mod. Çevlik, Turkey), Apamea-on-the-Orontes and Laodikeia-on-the-Sea (Jones 1971). Apamea had been the former military base of the Seleucid dynasty and, along with Antioch, was one of the largest cities in the Roman Near East. In the 1st and 2nd centuries AD the imperial mint at Antioch was the most important one in entire the Near East.

A number of smaller cities such as Seleucia-Zeugma and Cyrrhus were important regional centers. The old Phoenician coastal cities from Arados/Antiochia-in-Pieria to Ptolemais adapted to the Hellenistic city model, as did the newly founded cities of the Decapolis, despite their mainly indigenous population

(Sartre 2005: 152). But the network of cities was rather sparse in central and southern Syria as well as in Transjordan and Palestine, and at the beginning of Roman rule most urbanization efforts by client princes were concentrated in this area, with cities such as Caesarea Maritima (mod. Caesarea, Israel), Samaria-Sebaste (mod. Sebastiya, West Bank), and Antipatris (mod. Tel Aphek, Israel) founded by Herod the Great, or Arca-Caesarea (mod. Arqa, Lebanon) established by the Ituraean client kings. At the beginning of the 2nd century AD, new cities were primarily founded in the Hauran, Transjordan, and Palestine. A network of cities was also established along the Hauran and the Transjordan plateau down to the Gulf of Aila. Except for Bostra (mod. Bosra, Syria), Petra, and Aila, the Nabataean kingdom had no real cities, and after its annexation inscriptions point to the establishment of civic institutions in Bostra and Petra (Sartre 2005: 445 n22). Aila was identified as a *polis* by Strabo in the 1st century AD (*Geog.* 16.2.30), and the archaeological evidence shows that it was not only a center of trade, but also of several industries such as pottery manufacture and copper-processing (Parker 2006: 228).

In general, the classical Greek *polis* was the model for the administrative institutions and infrastructure of the Roman cities in the Near East. Before the extension of citizenship to every free person in the empire in AD 212, only the leading families and veterans were given that privilege. Citizenship was not given to the rural population, freed slaves, or foreigners, and was considered an honor as well as an obligation. At the beginning of Roman rule, the cities generally retained their autonomy, as shown by their right to issue silver coinage. Taxes that had been paid to local dynasts since Hellenistic times now had to be paid to the Roman provincial government. Private benefactors therefore became essential for financing festivals and building programs, as in Asia Minor and elsewhere. Magistrates, elected by the city council (*boule*) or by popular vote, came mostly from the same wealthy families and were expected to cover major expenses. Although far fewer decrees and honorific dedications of civic institutions are preserved than for the Aegean world, municipal life was probably just as active, especially in the constant contest between leading families for recognition and advancement through the imperial administration. Monumental construction programs were financed by municipal elites, as in the case of Apamea and Gerasa; by direct sponsorship of the emperors, as at Antioch-on-the-Orontes; or by client kings, as Josephus reports for the donations of Agrippa I and Agrippa II to Berytus (Josephus, *Jewish Antiquities* 19.335–7, 20.211–12).

Competition between cities prompted the construction of imposing buildings, sometimes planned on such a monumental scale that they were often unfinished due to a lack of funds, rather than essential infrastructure such as aqueducts or streets. By the beginning of the 2nd century AD, civic finances had reached an alarming state as many cities had accumulated large debts, necessitating the appointment of curators (*logistai*) and requiring imperial approval for permission to erect public buildings using civic funds (Butcher 2003: 227).

Although there is much continuity in urban layout between the Hellenistic and Roman periods, rebuilding and shifts in settlement occurred as a result of demolition and the requirements of specific building programs. The Roman city of Palmyra seems to have been built north of the Hellenistic remains, reusing an already existing axis (Millar 1993: 319–36). Dura Europos is a special case, as it was partly transformed into a military camp and the area inside the city walls was later filled with private houses rather than additional public buildings (Butcher 2003: 259–61).

In general, the larger cities have a planned, axial layout, while smaller cities often have a more irregular plan of streets and buildings, but there is no standardized urban plan. Whereas, in the Hellenistic period, only a few large public buildings, such as the colonnaded portico at Apamea, were erected, in the larger cities the first two centuries of the Roman period were marked by the construction of baths, theaters, hippodromes, temples, and other monumental public buildings. In the 3rd century AD there seems to have been a shift toward the endowment of new civic festivals as a means of elite representation, rather than larger public buildings, either because most cities already had the required "set" of public buildings, or to reduce the financial risks involved in large building projects (Butcher 2003: 227–8; Sartre 1991: 343).

While there were many new city foundations throughout the first two centuries of Roman rule, true colonies of military veterans were established only in four instances. The first was the *Colonia Iulia Felix Berytus* established in the reign of Augustus for the veterans of the legio V Macedonica and the legio VIII Gallica, with a large territory that probably encompassed Heliopolis (mod. Baalbek, Lebanon; Figure 54.2) (Rey-Coquais 1978: 51). Under Claudius, Ptolemais was transformed into a colony with veterans from four legions. Veterans were settled in Caesarea Maritima under Vespasian, and at the beginning of the Bar Kokhba revolt Aelia Capitolina was founded on the ruins of Jerusalem. From the Severan period onward, no true veteran settlements are attested, while the promotions of existing cities to colonial status became more frequent. Especially early in their history, veteran colonies such as Berytus seem to have used more Latin inscriptions throughout their territory, as in the case of the *pagus Augustus* in the rural sanctuary of Niha or in Heliopolis, where at least some of the veterans must have lived (Rey-Coquais 1978: 52; Butcher 2003: 230). According to coins minted at Heliopolis under Septimius Severus, the city became an independent colony with *ius italicum* (an honorific title, suggesting in name that a colony was on Italic soil) in AD 193 and was called *Colonia Iulia Augusta Felix Heliopolis*, thus making it problematic to distinguish it in inscriptions from Berytus. It appears that the building program of the Jupiter sanctuary in Heliopolis was aimed at transforming the city into a cultural model of Romanization in the Beqaa valley already in the 2nd century AD. The urban development of Berytus experienced at least two phases, which are difficult to date at the moment (Rey-Coquais 1978: 51; Curvers and Stuart 2004). With several monumental baths and a

Figure 54.2 View of the Roman bath, the Bacchus temple, and the Jupiter temple in Heliopolis (mod. Baalbek, Lebanon).

Hippodrome (Butcher 2003: 230) comparable to those found at other coastal cities, Roman Berytus saw an extension of the Achaemenid-Hellenistic urban layout to the northwest, closer to the seashore. Its Latin character was later preserved in the famous center for the study of Latin literature and law. Under Septimius Severus, the title *colonia* became an epithet like *metropolis*, a mark of distinction and imperial patronage in the hierarchy of cities (Millar 1990: 8). In addition to Heliopolis, colonial status was granted to Laodikeia, Antioch, Seleucia-Zeugma, Emesa, Arca-Caesarea, Sidon (mod. Saida, Lebanon), Tyre (mod. Sur, Lebanon), Damascus, Palmyra, Samaria-Sebaste, Bostra, Petra, and Dura Europos, but the *ius italicum* was not given in all cases. Tyre is a good example of imperial strategies of reward and punishment: it was destroyed in the conflict between Septimius Severus and Pescennius Niger in AD 194 and reconstructed as a *metropolis* as well as colony with *ius italicum* after 197. But it lost these titles to Sidon after having sided with an enemy of Elagabal. Later, Neapolis (mod. Nablus, West Bank) and Philippopolis (mod. Shahba, Syria) as well as Gaza (mod. Gaza, Palestine), Ascalon (mod. Ashkelon, Israel), Gerasa (mod. Jerash, Jordan), and possibly Gadara (mod. Umm Qeis, Jordan) also became *coloniae* (Millar 1990). Philippopolis was founded by Philip the Arab in AD 244 and seems to conform more or less with the rectangular plan of the "ideal" Greco-Roman city, but a closer look reveals definite regional influences from the choice of building mate-

rial to specific monuments (Ball 2000: 204–6). Generally speaking, it seems that, after Severan times, neither the original veteran colonies nor the honorific *coloniae* differed in their monuments or culture significantly from the earlier Greek cities.

Some of the most vital engineering works were the aqueducts that provided cities with water. Their construction was connected to the establishment of public baths as well as fountains and latrines, but, as in the case of Heliopolis, water basins inside the courtyard of the Jupiter sanctuary were also supplied.

Large, unfortified cities seem to have been rare, but it is often difficult to date fortification walls (Sartre 2005: 168). In general, the main element was a monumental city gate or some other entrance monument, such as those at Gadara, Gerasa, and Heliopolis. City walls were costly and not always approved of by the imperial administration. Hence, ramparts such as those at Apamea and Palmyra might be interpreted as a prestigious symbol of independence.

The urban plan of the Roman period was by no means standardized, although two axial, main streets are a frequent feature in what is considered the Greco-Roman city. But a single main street, as at Gadara, appears to be just as common, and in the case of Bostra and Petra that single street did not cross the city, but led to its main sanctuary (Dentzer-Feydy et al. 2007; Freyberger and Joukowsky 1997). Long, colonnaded streets, serving as a processional way for religious festivals and delimiting a public area in front of shops and private businesses, were a prominent feature. Also common was a central, open space, the *agora* or *forum*, as for example at Palmyra, but oval spaces like the ones at Bostra and Gerasa served the same function.

6 Rural Areas and Communication Networks

Since Max Weber and Moses Finley the traditional dichotomy between the rural countryside as a place of agricultural production and the city as consumer has been at the heart of most economic models of the ancient world. But rural areas present a variety of settlements, from isolated farmsteads to hamlets and villages, some of them acting as regional religious and economic centers in their own right. The difference between a small city and a large village is a legal and constitutional one, but archaeologically only the presence of monumental public buildings and a civic center might indicate the category to which a settlement belongs. On the other hand, funerary inscriptions and archaeological remains demonstrate that the processing of marine and agricultural products, as well as the production of pottery, glass, and metal objects, were also done in urban centers. Thus, cities were consumers and producers, as well as being instrumental in the economic organization of their territory.

There are only a few examples of villa estates known from the Near Eastern countryside, and the main productive unit was the village (Sodini et al. 1980; MacAdam 1984: 51; Tate 1992; Anderson 2003: 452–3; Butcher 2003: 137).

Imperial estates were a common feature, but their exact location is difficult to determine on the basis of inscriptions alone. Whether, in general, land was owned by its inhabitants or by city elites cannot be determined on the basis of our sources (Villeneuve 1985: 82). There were also imperial domains and probably land owned by sanctuaries, as in Asia Minor. Surveys in the limestone massif and the Hauran, around Emesa and in the Beqaa valley indicate that there was a growth of settled population and a spread of rural settlements in the Roman period (Tchalenko 1953–8; Marfoe 1982; Fischer-Genz and Ehrig 2005; Newson et al. 2008–9). As the fertile lowlands, such as the Amuq plain, were intensively cultivated in close connection to the cities (Yener 2005) expansion was only possible into marginal regions such as steppe and mountain areas. It is not clear to what extent there was indeed demographic growth or if some of the nomadic population became sedentary. This may also be the reason why regular field systems can be observed in the limestone massif of northern Syria as well as the Orontes valley, for, according to Roman law, farmers were allowed to own and plant previously uncultivated land (Tate 1997: 57–8; Butcher 2003: 141). In the 4th century AD the *Codex Theodosianus* (7.20.3) granted privileges to veterans who were willing to farm deserted lands, and in the earlier periods centuriation was also connected to land plots for veterans. Some areas around cities are known to have been cadastrated already in the Hellenistic Period, but whenever they are regular and aligned with roads they were probably created by Roman surveyors.

The so called "Dead Cities" of the limestone massif in northwestern Syria, roughly between Antioch-on-the-Orontes, Apamea, and Beroea (mod. Aleppo, Syria), are the best preserved of more than 700 rural hamlets and settlements. The ceramic material from surface surveys indicates a first phase of development between AD 100–250, while the main remains are from the 4th–6th centuries AD (Butcher 2003: 146). Contrary to earlier beliefs, their economy was probably varied, with crops such as olive and grapes (for wine) supplemented by other fruit trees, grain, and livestock (Tate 1992: 254; Butcher 2003: 148). Olive and grape presses are the most common indicator of these kinds of crops, and are frequently found in marginal areas unsuitable for cereals, such as the Anti-Lebanon foothills (Fischer-Genz 2008). In the plains grain was the most important crop, since both the cities and the army consumed large quantities. Surpluses of olive oil and other crops were sold in city markets, and the distribution of storage containers such as the Late Roman I amphorae indicates that they might also have been exported overseas.

Rural buildings were mostly one-story structures built of undressed field stones. Often high towers, which might have served to supervise the fields as well as being defensive structures, are found integrated into buildings or free-standing in villages.

The area toward the Euphrates, called Chalcidice after the city of Chalcis-ad-Belum (mod. Qinnesrin, Syria), was viewed by Antoine Poidebard and René Mouterde as a frontier zone, the settlements and military installations of which

formed part of the Syrian *limes* (Mouterde-Poidebard 1945; Butcher 2003: 153). But this change seems only to have taken place in the late Roman period, while in the 2nd and 3rd centuries the evidence points to the presence of a semi-nomadic population raising livestock, as in the area of the Dead Cities. Archaeological markers for these would be stone water troughs or mangers, either in the settlement or in the countryside. Caves were also frequently used as shelters and may show some of these features. Water installations such as the *qanat* tunnels, as well as large reservoirs and cisterns, made farming possible, while further east crops could at least be grown alongside the *wadis*. Communal works such as dams at Emesa and Palmyra as well as the well system of Canatha (mod. Qanawat, Syria) in the Hauran are seen as measures aimed at providing the rural villages with a sufficient water supply for their agricultural needs, supplementing the cisterns common in all settlements (Tate 1997: 62–4; Butcher 2003: 140; Freyberger 2004).

In the basalt region of the Hauran, villages, often situated on rocky outcrops, were abundant. These were located so as to maximize the use of agricultural soils for viticulture and fruit trees, often in areas where the altitude prohibited the cultivation of olives. The same situation has been observed in the Anti-Lebanon foothills around Heliopolis (Fischer-Genz 2008) and in both cases there are indications of a close relationship between sedentary and nomadic populations.

Roman roads known in the Near East were visible markers of imperial presence and technological achievement, and the milestones on them usually recorded distances as well as giving the name of the emperor under whom the construction or repair of the road was done (Roll 1999; Butcher 2003: 127). These were constructed to facilitate the rapid movement of troops as well as for the *cursus publicus*, the imperial postal system. The network of Roman roads is not completely established yet, but the main ones connected the ports along the coast; another ran through the Rift valley all the way to Aila on the Gulf of Aqaba; and two lateral roads joined the Euphrates with the Mediterranean coast via Antioch-on-the-Orontes, and crossed the steppe from Emesa via Damascus or Palmyra. Only in cities or in difficult terrain were the roads paved with large stone slabs, and thus the main archaeological evidence of them consists of milestones, but unfortunately these are rarely found in their original location. Otherwise, the official roads with the legal status of *via publica* were packed dirt surfaces or covered with gravel on a foundation of densely packed stones with a width of 4–7 meters that required frequent repair (Roll 1999: 109; Butcher 2003: 128). The *strata Diocletiana*, although only a dirt road, is easily visible from the air due to the fact that stones from the surface were cleared to either side in order to create it. Construction dates, although difficult to determine, are crucial for an understanding of the motives and strategies involved in the construction of specific road segments. According to the epigraphy of the milestones, there seem to be peaks in construction activity related to the Parthian and Sasanian campaigns during the 2nd and 3rd centuries AD.

While a lack of sources makes the importance of riverine transport difficult to assess, seaports were of major importance for trade, and also used by the military. Under Vespasian (AD 69–79) Seleucia-in-Pieria seems to have been the main military port in Syria, and several ports such as Tel Dor (mod. Dora, Israel), Tyre, Sidon, Tripolis (mod. Trablus, Lebanon), and Laodikeia were probably used as ports of call and are connected to inscriptions mentioning a *nauarchos* (Rey-Coquais 1978: 71). The harbor built by Herod for the newly founded city of Caesarea Maritima consisted of three basins protected by two large breakwaters. All of the Mediterranean ports needed frequent maintenance and repair to protect them from silting up and from the damage of wave action.

7 Material Culture and Economic Development

Agricultural goods were often processed in stone installations such as water mills, basalt querns, or presses, all of which are abundant in the archaeological record both inside and outside settlements. At Chhim (a village on the slopes of Mount Lebanon), multiple olive presses were found inside one building, while simple lever or screw presses are scattered along roads in the rural countryside (Frankel et al. 1994; Waliszewski and Ortali Tarazi 2002: 53–6). The trade in olive oil and wine can be partially traced through the distribution of amphorae and other pottery containers, although wood or leather containers may have been used as well. According to the literary sources, some regions, such as the coastal areas around Gaza and Berytus, or the Orontes valley near Apamea, were famed for the quality of their wine.

While resin, papyrus, and balsam do not leave a lot of archaeological evidence, the extraction of purple dye from murex shells was a profitable and labor-intensive industry which left huge shell middens, such as the one near Sidon, as visual testimony. Important raw materials, for example timber for shipbuilding, were taken from the Amanus, Bargylus, and Lebanon mountains. Numerous rock-cut inscriptions in the Lebanon mountains, carved under Hadrian, reserved four types of wood for the emperor, probably cedar, juniper, oak, and spruce (Breton 1970; Abdul-Nour 2001). Unfortunately, we do not have enough evidence to determine to what extent deforestation was advancing during the Roman period, but the baths and industries of the cities as well as naval and architectural construction certainly required large amounts of timber. Some limestone quarries, such as the ones found near Heliopolis, have MER inscribed in large letters hewn into the rock. The meaning of this is unclear, but it was probably connected to them being under imperial administration. Traditional ashlar building techniques with dry masonry consumed resources in abundance. Mudbrick was less commonly used in the coastal regions, except for the construction of baths, but it was the normal building material in the steppe. Although mineral resources are not abundant in the region, iron

deposits are attested and important copper mines, complete with good archaeological evidence of slag from primary and secondary smelting (Hauptmann 2007), exist in the Feinan region (Jordan).

In northern Syria an intensification of olive culture is attested in the 2nd century AD between Antioch-on-the-Orontes and Apamea. This also led to a reorganization of the rural communities as recorded in G. Tchalenko's important study (1953–8). Under Trajan, many cities in that area received the right to mint coins, probably in reaction to the increase in trade and production (Rey-Coquais 1978: 54). The income of cities often came from fines and the collection of municipal tolls, such as those described in the famous tax law of Palmyra (Sartre 2005: 161).

Glass and pottery production was widespread, although in both cases the identification of workshops is often impossible. Textile production can mainly be deduced from the written sources, for almost no evidence is preserved in the archaeological record. According to the *Descriptio Totius Orbis*, the cities of Scythopolis (mod. Beth Shean, Israel), Tyre, Berytus, Byblos (mod. Jbeil, Lebanon), and Laodikeia exported linen (Jones 1974: 147).

The annexation of Arabia allowed direct access to the Red Sea ports, but caravan trade with the east had still to be negotiated with the Parthian Empire after the defeat of Trajan. Before the annexation of the Nabataean kingdom, the decline of Petra in the 1st century AD had led the last king Rabel II to transfer his capital to Bostra (Bowersock 1983: 72–5). But by favoring other trade routes Palmyra saw an increase in wealth and trade in the 2nd century AD, and may even have achieved a de facto monopoly of the spice and silk trade. It has been assumed that Emesa, Arca-Caesarea, and Tripolis were involved in this alternate trade route to the Mediterranean.

The crisis of the 3rd century AD was linked to political instability caused by conflict with the Sasanian Empire. Three consecutive Persian invasions, as well as the revolt of the Palmyrene queen Zenobia, caused severe destruction, especially in northern Syria, which seems to have been disconnected from the main economic networks from the middle of the 2nd century to the victory of Aurelian over Zenobia in AD 272. The eastern trade with Persia was taken over from the destroyed cities of Dura Europos and Palmyra by Nisibis (mod. Nusaybin, Turkey), and desert tribes arose as new political forces in the region.

Long-distance trade was in evidence long before the Roman period, as attested by the close connection between Byblos and Egypt. In the Roman period, the coastal sites in particular benefited from intensive sea trade and routinely received imported tablewares as well as fish sauce and wine from abroad. Some of the imported pottery types might reflect changes in culinary practices, more commonly amongst the soldiers, but possibly also amongst the inhabitants of the coastal cities who adapted to new culinary fashions. The secondary cargoes of pottery not used as containers increased the trade in perishable agricultural goods and display a distribution pattern, particularly of imported cooking pots, even at

remote rural sites. The standardizing tendency observable in the material culture of the Roman period was due to the mass-production of specific goods such as Eastern Sigillata tableware, and reflects close commercial interchange between the provinces. But also at a regional level amphorae or Nabataean fine wares provide evidence of widespread local exchange. All marble and granite had to be imported from Egypt, North Africa, or Italy, but brick and tile were imported from overseas as well, thus indicating that the costs of long-distance trade were not prohibitive (Butcher 2003: 183). Half-finished stone sarcophagi were imported from Asia Minor, and local imitations in limestone show very distinctive decoration analogies (van Ess and Petersen 2003).

Caravan trade in exotic goods is not easy to pinpoint in the archaeological record, although clearly spices, cloth, and other goods were imported from China, India, and Sri Lanka via the Persian Gulf and up the Euphrates or from Arabia and the Red Sea via Petra and Bostra. The conflict with Sasanian Persia led to several trade embargos and certainly affected the caravan trade. It is difficult to quantify this trade in luxury goods in comparison to the Mediterranean sea trade, but it was probably less important to the economy of the cities than the latter (Butcher 2003: 184). Palmyrene inscriptions reveal a close connection between the merchants and nomadic tribes, whose cooperation was essential for the safe passage of caravans.

8 The Impact of Roman Rule on Cults and Religion

The most important impact of Roman rule is certainly to be seen in the introduction of the imperial cult in the Near East. This is first attested in an inscription from Apamea dating to the reign of Augustus (27 BC–AD 14) that refers to a certain Dexandros as the first high priest of the Imperial cult in Syria (Rey-Coquais 1978: 47–8). This points to its widespread introduction as an expression of unity and loyalism early on. In the Julio-Claudian era (AD 14–70) three eparchies were created for the imperial cult, one in the south with its center in Tyre, one in the north with its seat in Antioch-on-the-Orontes, and one in Cilicia. A fourth one was created under Hadrian (AD 117–38) in Coele Syria (Rey-Coquais 1978: 53). Geographically speaking, this was an unusual division and was not retained in AD 134 when the new province of Arabia was created and Judaea became Syria Palaestina. The title of *metropolis* held by Antioch and Tyre was linked to the imperial cult and thus was also a source of revenue and prestige, but it remains unclear whether the metropolis title of Petra implied this as well. The residence of the "high priest of the four eparchies," or head of the imperial cult for the whole province, was located at Antioch (Sartre 2005: 58).

Some local cults gained wide recognition far beyond their areas of origin, such as the cult of Jupiter Heliopolitanus or Jupiter Dolichenus, who was espe-

cially favored by Roman soldiers (Butcher 2003: 337). Soldiers were probably also responsible for the introduction of some Egyptian cults into Bostra and the spread of the Mithras cult, although eastern in origin. Research on the famous sanctuary of Jupiter Heliopolitanus at Heliopolis has revealed, on the one hand, clear western influences in architectural decoration, while the cultic infrastructure, including the raised altars and the interior layout of the *cella*, reflect Near Eastern influences. The monumental size of the building project as well as representative features such as the Trilithon podium were beyond the financial scope of the local or even regional economy, and invite speculation about direct imperial sponsorship. When looking at the numerous Roman temples in the Beqaa valley, it appears that Heliopolis might have been used in the rural areas to showcase Roman influence through monumental religious representation (Aliquot 2009).

Religious syncretism was a common feature in the Roman Empire, and is widely attested in the iconographic association of Atargatis with Cybele and Astarte with Aphrodite, to name just a few deities (Butcher 2003: 344). Other deities such as Bel were imported from the Babylonian pantheon and were given major cults in Apamea and Palmyra. The architecture of new sanctuaries generally followed the Roman podium temple type, but a great variety of architectural types, such as the "Nabataean"-style temple of Baalshamin at Sia (in the Hauran, Syria) or the Great Temple in Petra, occur as well.

9 Conclusion

From a military and economic point of view, the Near East certainly does not merit being regarded as occupying a peripheral position in the Roman Empire. The cities, whether founded in the Hellenistic or in the Roman period, were instrumental in organizing and distributing the agricultural revenues of their rural territories, and the striking expansion of rural settlements in the Roman period attests their economic success. The archaeological record does not give a lot of information on the origin of the expanding rural population, but it seems logical to assume that nomadic or semi-nomadic societies formed part of it, and were otherwise closely connected to the sedentary population in a mutually beneficial symbiotic relationship.

Some of these developments were only possible through the infrastructural engineering works such as the building of roads, dams, and aqueducts initiated by the Roman provincial administration and the military. The culture and identity of the populations in the Near East under Roman rule differ according to the context of social relations on a communal, regional, or provincial level. Religion certainly formed an important part of Roman influence and was showcased in some monumental as well as numerous rural sanctuaries, and especially in the spread of the imperial cult.

GUIDE TO FURTHER READING

A valuable introduction is given in Millar's influential volume (1993). Butcher's thorough study of Roman Syria and the Near East (2003) incorporates numismatic evidence and Sartre (2005) is the English translation of parts of his excellent source book published originally in French (Sartre 2001). For the south, Bowersock (1983) remains a useful starting point in terms of historical data. For Palestine, Anderson (2003) is quite useful. The role of the military is approached in Isaac (1992). Jones (1971) remains a good general introduction to the cities, while Alcock (1997) contains articles on the rural settlements.

CHAPTER FIFTY-FIVE

The Red Sea and Indian Ocean in the Age of the Great Empires

Steven E. Sidebotham

1 Introduction

Since the 1970s and 1980s, we have seen a quantitative and qualitative leap in knowledge about states and peoples bordering the Red Sea and northwestern Indian Ocean littorals between the end of the 4th century BC and the early 7th century AD: from Alexander the Great to the advent of Islam. Archaeological explorations have added significantly to our understanding of these polities, their *modus operandi*, their cultures, peoples, and interactions with others. Re-examination of ancient textual sources in light of newly documented archaeological evidence addresses issues of state and empire formation, especially in South Asia, Southern Arabia, and the Red Sea coast of Africa south of Egypt, and commercial, diplomatic, military, and cultural contacts among the disparate governments and peoples located along these littorals.

2 The Political Situation: The Ptolemies, the Seleucids, the Nabataeans, and Other African and Arab States

The oldest state within our parameters was Egypt, unified as a relatively sophisticated polity by c.3000 BC. From the Old through the New Kingdom Egypt had maritime and overland (via the Nile) contacts with other points in the Red Sea, especially Punt (location undetermined), via ports/roadsteads at Ayn Sokhna

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and Wadi Gawasis (Abd el-Raziq et al. 2006; Bard and Fattovich 2007; Bard et al. 2007).

Alexander the Great briefly unified much of the Near East, northwestern parts of South Asia, portions of Central Asia, and northeastern Africa during the 330s–320s BC, but by the end of the 4th and early 3rd centuries BC his empire had fragmented into a number of major and lesser Hellenistic states. The most relevant here was the Ptolemaic Egyptian Empire which, at its height, included, in addition to Egypt, parts of Libya, Cyprus, coastal Asia Minor, the Levantine coast, and some of the Aegean islands (Bagnall 1976). Diplomatic and military wrangling among the Ptolemies, their Seleucid adversaries (in Asia Minor, Syria, portions of the Levantine coast, and areas to the east), and the kingdom of Nabataea (in Jordan, southern Syria, sections of the Sinai, Negev, and northwestern Saudi Arabia) were frequent.

Although the Seleucids exercised no control over the Red Sea, they held sway over portions of the Persian Gulf and viewed much of it as within their sphere of influence. Via the Persian Gulf and overland routes, they engaged in commercial, cultural, and diplomatic exchanges with states along the shores of the Gulf itself and in South Asia (Salles 1988, 1992, 1993; 1996: 260–3; 2005; Potts 1990: 10–22; Sherwin-White and Kuhrt 1993: 91–113).

The Ptolemies dominated the northern end of the Red Sea and intermittently battled Nabataean "pirates," privateers or the Nabataean navy there (see below) (Tarn 1929: 13, 15–16, 21, 22; *OGIS* 132 (130 BC); Diodorus Siculus 3.43.4–5; Strabo, *Geog.* 16.4.18 on piracy), undoubtedly for control of maritime routes. The Ptolemies maintained commercial and diplomatic contacts with the African coast of the Red Sea where Ptolemaic government-sponsored expeditions founded ports on the coast of Sudan and Eritrea to transport elephants and ivory by ship to emporia in Egypt, especially Berenike (Scullard 1974: 126–33; Casson 1993; Burstein 1996; Sidebotham 2011). None of these Ptolemaic Red Sea ports outside of Egypt, however, has ever been precisely located or excavated (Cohen 2006: 305–343).

The Ptolemaic government acquired gold from the central and southern portions of the Eastern Deserts of Egypt and northern Sudan (Castiglioni et al. 1998; Klemm et al. 2001, 2002; Gates 2005). There were also Ptolemaic contacts with southern Arabia and, likely, the Horn of Africa to obtain aromatics (Wilhelm 1937: 148–50; Wilcken 1963: 92–4; Fraser 1972/I: 175; 1972/II: 295 n334; Préaux 1978: 377–8; 1979: 364 and n4). By the 2nd century BC these relations were important enough that the Ptolemaic government created several offices specifically to deal with them (*Papyrus Cairo Zenon* 59001, 59009 and *PSI* 628; Otto and Bengtson 1938: 1–22; Bernand 1969: 306–11, no. 352; 311–14, no. 353; 319–21, no. 356; Fraser 1972/I: 182; Thomas 1975: 121–2; Mooren 1972: 127, 132; Sidebotham 1986: 6 and n31; *SB* 2264 and 8036). Ptolemaic contacts with South Asia, however, were sporadic and mainly diplomatic rather than commercial. The 3rd century BC Mauryan King Aśoka's Thirteenth Rock

Edict (Thapar 1997: 166–8), a dearth of literary references and the few "western" Hellenistic coins, including Ptolemaic ones, found in India (Krishnamurthy 2000: 1–56) all combine to suggest that these connections were of no great significance, either for the Ptolemies or their South Asian contemporaries.

The most important state bordering the northern end of the Arabian Red Sea coast in the 1st century BC-first and very early 2nd centuries AD was the kingdom of Nabataea. Although there are references in the annals of Assurbanipal (668–627 BC) to the north Arabian "Nebayot" (Retsö 2003: 168–9), the Nabataeans first appear in a Classical, "western" literary source in the 1st century BC (Diodorus Siculus 2.48.1–5; 19.94.1–95.2), in presenting, however, a context datable to the 4th century BC. Agriculture and animal husbandry were both important for the Nabataean economy (Gawlikowski 1997; Markoe 2003). During the 1st century BC/1st century AD Nabataean power, exercised from the capital at Petra, reached its zenith due to wealth generated by overland caravan traffic from South Arabia to Gaza and other southeastern Mediterranean ports and onward to Syria that necessarily passed through Nabataean territory (Groom 1981: 165–213; Crone 1987: 3–50; Gatier and Salles 1988; Salles 1988; Macdonald 1994: 134 and n18; al-Saud 1996; Maigret 1997, 2004; Wiesehöfer 1998: 16, 18; Goren 2000; Kitchen 2001; Beeston 2005: 53, 54, 59, Fig. 2; Jasmin 2005). The Nabataeans often led or protected and taxed overland caravans, as well as operating ships in the Red Sea, Indian Ocean, and Persian Gulf (Tarn 1929: 13, 15–16, 21, 22; *OGIS* 132 [of 130 BC]; Diodorus Siculus 3.43.4–5; Strabo, *Geog.* 16.4.18). Despite having a port on the Red Sea at Leuke Kome (see below) and indications of naval clashes with the Ptolemies (noted above), we cannot, however, determine how important maritime commerce was overall to the Nabataean economy.

Evidence is also inconclusive about how deep into the northwestern portion of the Arabian peninsula Nabataean political hegemony reached, and the same goes for that of the Roman province of Arabia (Provincia Arabia) that supplanted it in AD 106 (Sartre 1981; Bowersock 1983: 90–9; Gatier and Salles 1988). Nabataean inscriptions (which mention diplomatic exchanges) and pottery found along routes to southern Arabia, in South Arabia itself, and along the Persian Gulf littoral attest to commercial interests in these regions (Groom 1981: 165–88; al-Ansary 1982: 22, 63, nos. 2–6; al-Kabawi et al. 1989: 43, 47–8; Macdonald 1994: 134; Mildenberg 1995, 1996; Gerlach 2005: 39, Fig. 8 for a bilingual Sabaean-Nabataean inscription, but note the 7th–6th century BC date in the caption is incorrect; Sartre 2005: 268; Hashim 2007: 102–22; Schmid 2007: 62–5; Salles and Sedov 2010: 201, 204–5 [nos. 855–859], 525 [Pl. 97].)

The Nabataeans also traded throughout the Roman world. Inscriptions, graffiti, and pottery confirm their activities in Egypt along the Nile, in the Delta, in the Eastern Desert, and on the Red Sea coast (Clermont-Ganneau 1919; Winkler 1938: 4 [site nos. 1 and 6], 5 [site no. 12D], 7 [site nos. 24B and 24N], 10; Tregenza and Walker 1949; Littmann and Meredith 1953, 1954; Jomier 1954;

Hammond 1979; Fiema and Jones 1990; Zayadine 1990: 151–3; Toll 1994; Briquel-Chatonnet and Nehmé 1998; Ruffing 2002: 373–4; Cuvigny 2003a: 276; Fournet 2003: 428; Reddé and Brun 2003: 80; Sartre 2005: 268; Schmid 2007: 66). Epigraphic evidence indicates their presence throughout the eastern Mediterranean and Near East at Gaza, Sidon, Beirut, Salamis in Cyprus, Rhodes, Kos, Miletus, Priene, Delos, Rhene Island near Delos, Tinos, Athens, Kourion (Cyprus), and Dura Europos in Syria (Graf and Sidebotham 2003: 71; Schmid 2007: 71–3, 74). Nabataean inscriptions and artifacts also appear in Italy at Puteoli, Ostia, and Rome as well as Aventicum (modern Avenches, Switzerland), and Carnuntum (mod. Petronell, Austria). Possible Nabataean sherds have been recorded on Sri Lanka. The Nabataeans were also in contact with Palmyra, a caravan trading state in Syria (Teixidor 1984; De Romanis 1993: 64–5; Roche 1996: 86–95 [nos. 15–23]; Zayadine 1996; Bowersock 1997; Graf and Sidebotham 2003: 71; Schmid 2007: 66, 72–5). We have little information about which political powers exerted control over long strips of the Arabian coastline of the Red Sea in this period.

3 Early to Late Roman Activities in the Red Sea and Indian Ocean

The Roman Empire acquired portions of the Near East especially during the 1st century BC and 1st and early 2nd centuries AD. With the annexation of Ptolemaic Egypt in 30 BC and the kingdom of Nabataea in AD 106, the Roman Empire came into direct contact with, and held political-military control over, much of the northern end of the Red Sea, which was maintained, at least in Egypt and in Provincia Arabia (later known as Palaestina Tertia), until the AD 630s–40s. For a very brief interlude, toward the end of the reign of the Emperor Trajan (AD 98–117), the Romans also occupied the northernmost end of the Persian Gulf; this, however, played no role in Rome's relations with states bordering that body of water or beyond.

Rome's commercial, cultural, diplomatic, and military contacts with other polities and peoples along the Red Sea and northwestern Indian Ocean littorals – including much of East Africa, Southern Arabia, southern and western India, and Sri Lanka – were more extensive, intensive, and enduring than those of the Ptolemies. Roman-era activity in the Red Sea and Indian Ocean was more commercially driven by private entrepreneurs, promoted by the Roman government and its proxies. In addition to private businessmen and some government officials, the Roman provincial and imperial governments and their representatives also profited handsomely by levying taxes and tolls on the commerce. The Roman military protected, monitored, and promoted these economic exchanges by stationing garrisons on some Red Sea islands at least as far south as the Farasan Archipelago (Villeneuve et al. 2004a, 2004b) and along roads in Provincia Arabia

and the Eastern Desert of Egypt (Bowersock 1983; Sidebotham 1986, 2011). In addition to private entrepreneurs, states in southern Arabia and South Asia also profited from this trade (Palmer 1951; Doe 1971: 215 and Pls. 112–113; Groom 1981: 181–2; Casson 1989: 271–7; Seland 2005). Less is known, however, about Axumite government involvement in this commerce.

Reasons for heightened, Mediterranean-wide interest in acquiring primarily civilian consumer goods beginning in the late 1st century BC/1st century AD included greater demand for commodities by denizens of the wider Mediterranean basin and Western Europe, obtained from regions beyond the eastern and southern limits of the Roman world. Successful exploitation of the monsoon winds in the northwestern Indian Ocean, which facilitated more rapid sea voyages, was also important. Optimal use of the monsoons, long known to Indian Ocean mariners, but only "discovered" by a Ptolemaic helmsman or sea captain, probably in the late 2nd century BC and only first exploited on a substantial scale after the Roman annexation of Egypt, increased the speed and volume of commercial contacts and resulted in some moderation of prices, which further stoked consumer demand (Raschke 1978; Sidebotham 1986, 2011; Young 2001; Tomber 2008; McLaughlin 2010).

Roman activity waxed and waned in the Red Sea and Indian Ocean, primarily due to political and economic conditions throughout the Mediterranean basin and secondarily as a result of the relative power of Axumite, South Arabian, and South Asian states and entrepreneurs in contact with the Roman world. Roman commercial, cultural, diplomatic, and, less often, military relations with these other polities peaked between the late 1st century BC and the 2nd century AD, again from about the middle of the 4th into the 5th centuries, and finally in the 6th century – especially during the reigns of Justin I (518–27) and Justinian I (527–65). At other times (3rd–4th centuries, and after the 6th) Roman activity, power and prestige in the region declined. Some of the South Arabian kingdoms and the African kingdom of Axum exercised varying degrees of political and economic influence throughout the first six and a half centuries AD. Both the later Roman Empire, from the early 4th century onwards, and the kingdom of Axum had important Christian religious, diplomatic, and commercial ties, and both states flourished in the 4th and 5th centuries (Munro-Hay 1996; Peacock and Blue 2007). This bond was especially evident when Rome and Axum united in a war against the South Arabian kingdom of Himyar in the AD 520s (*Martyrium Sancti Arethae* 27, 28, 29; Cosmas Indicopleustes, *Christian Topography* 2.56 in Wolska-Conus 1968: 368–9; Kobishchanov 1979: 91–108 in general for the 517–37 wars; Rubin 1989; Eide et al. 1998: 1185–8 [no. 327]; Desanges 1978: 272–307). Though ostensibly religiously driven (the Jewish king of Himyar had martyred Christians at Najran), there were certainly economic and political motivations behind the proposed, joint Roman-Axumite expedition: expelling or at least containing Sasanian Persian (Ch. II.57) political and economic interests in the region.

4 Kingdoms of Southern Arabia

During peak periods of "international" contacts in the 1st–2nd and mid-4th–6th centuries, the most important kingdoms of southern Arabia were Saba, Hadramaut, and Himyar. These and other South Arabian states lay on or near the Red Sea and Indian Ocean in the southwestern part of the peninsula (modern Yemen). Other South Arabian kingdoms of less importance during the zenith of international contacts considered here include Ma'in. The kingdom of Awsan dates to c.800–500 BC, thus prior to our period of interest. The histories of Saba, Hadramaut, Himyar, and Ma'in, as well as their interactions with one another and with other polities and peoples both in and beyond the Arabian peninsula, are not well understood (de Maigret 1996).

The diplomatic and commercial contacts of South Arabian kingdoms with northern Arabia, the Persian Gulf, the Mediterranean, the Red Sea, the northern Indian Ocean coasts of Africa, and South Asia were primarily due to trade in aromatics (especially frankincense and myrrh) or the trans-shipment of products between the Red Sea and the Indian Ocean coast of Africa, on the one hand, and south Asia, on the other. Some products of Mediterranean, Red Sea, and African provenance found in the Persian Gulf region were trans-shipped via major ports on the Indian Ocean coast of Arabia, especially Kané (Qani') in Yemen and Sumhuram/Moscha Limen (Khor Rori) in Dhofar (southwestern Oman); other items of Mediterranean origin likely arrived in the Persian Gulf via overland caravan routes.

Sabaean inscriptions first mention the kingdom of Ma'in in northwestern Yemen with its capital at Qarnaw. Although not a producer of frankincense or myrrh, important overland caravan routes linking southern Arabia and the Horn of Africa to the wider Mediterranean world passed though Ma'in between the 4th and 2nd centuries BC. Ma'in became part of the kingdom of Saba in the 2nd century BC, before the zenith of commerce in the region beginning in the late 1st century BC and early centuries AD. Minaean inscriptions indicate a transit trade until the 2nd century BC. Minaean texts have been documented at Dedan (al-'Ula) in northwestern Saudi Arabia, on the Aegean island of Delos, and on a sarcophagus in Egypt (Beeston 1984; Sayed 1984; Seipel 1998: 293, 295 n164; Groom 2005: 108). At least one, likely 2nd century BC, Minaean graffito has been recorded in Egypt's Eastern Desert (Luft 2010: 178–9). In the mid-3rd century BC the Ptolemies used both Minaean and Gerrhaean (Gerrha was a trading emporium in northeastern Arabia) weights, which suggests the influential role that the aromatics' trade played in their realm at that time (Beeston 2005: 55).

Along with Qataban and Hadramaut, Saba was one of the important states in southwestern Arabia in this period (Robin 2005). Biblical, Assyrian, and Classical Greek and Roman literary sources, as well as archaeological evidence from the

c.8th century BC to the 5th century AD attest to Saba's importance; traces of Sabaean civilization date back to the 12th/10th centuries BC. Saba's best-known city and capital was Marib. The Sabaean kingdom, alternately, had alliances and fought wars with other states in the region, most notably Qataban and Hadramaut, both of which it dominated during the course of the 3rd century AD.

The Sabaeans engaged in both terrestrial caravan and maritime trade. For centuries they controlled the Bab el-Mandeb, the strait separating the Arabian peninsula from Africa and the Red Sea from the Indian Ocean; they also colonized portions of the Horn of Africa (modern Eritrea and Ethiopia). By the end of the 3rd century AD, Saba had become the dominant power in the southwestern Arabian peninsula. Although the kingdom of Axum seems to have held political sway over Saba in the mid-4th century AD, by the end of that century Saba had regained its autonomy. In the early 6th century Sasanian Persia briefly controlled the region, and during the course of the 7th century it was conquered by the Muslim Arabs (Crone 1987).

The earliest references to the kingdom of Qataban, with its capital at Timna, appear in Sabaean inscriptions (Avanzini 2005). Qataban existed from the 4th century BC until the early 3rd century AD and seems to have been independent until at least the 2nd century AD. Like Ma'in, Qataban does not appear to have been a major producer of frankincense or myrrh, though overland trade routes through the kingdom supplemented the government's revenues and enriched some of its entrepreneurs.

The kingdom of Himyar, with its capital at Zafar, operated from the 2nd century BC until about AD 525. At its zenith Himyar controlled southwestern Arabia, the southern reaches of the Red Sea and the Gulf of Aden, as far east as the Persian Gulf, and north to the Arabian desert. References to the kingdom of the Himyarites – *Homeritai* in Greek, *Homeritae* in Latin – appear in Greek and Latin authors (cf. Casson 1989: 149–51) including Pliny the Elder (*Nat. Hist.* 6.32.161) in the mid- to third quarter of the 1st century AD and in the contemporary, but anonymously authored, *Periplus Maris Erythraei* or Periplus of the Erythraean Sea (hereafter *PME*) §23.

The earliest references to the kingdom of Hadramaut, with its capital at Shabwa, appear in inscriptions of the 8th century BC. Hadramaut occupied southern and southeastern Yemen and Dhofar (southwestern Oman) and was politically independent until conquered by the kingdom of Saba in the late 3rd century AD. During the mid-1st century AD, at the least, Hadramaut also controlled the Indian Ocean island of Soqotra (ancient Dioscurida/Dioscurides: *PME* §§30–31), which lies about 350–400 kilometers south of Ras Fartak (southern Arabia) and approximately 240 kilometers east–northeast of Cape Guardafui (in the Horn of Africa). Soqotra exported frankincense to the mainland, especially to the port at Kané where there was a warehouse (*PME* §27), presumably belonging to the king. In addition to Kané (Salles and Sedov 2010) the kingdom of Hadramaut also possessed the Indian Ocean port of Moscha Limen/Sumhuram

(mod. Khor Rori, Oman) (Avanzini 2002, 2007, 2008). Through these Indian Ocean emporia and by overland caravan routes Hadramaut maintained contacts with the Mediterranean and Red Seas, the Persian Gulf, the northern Indian Ocean coast of Africa, and western and southwestern India.

During the 3rd century AD, the South Arabian kingdoms were in frequent conflict with one another and with the kingdom of Axum, a political and military dissonance mirrored in the contemporary Roman world. This turmoil resulted in a decline in commercial and cultural contacts throughout the Red Sea and Indian Ocean at that time.

6. The Red Sea: Northern End Outside Egypt – Ancient Sites

Emporia in the Red Sea played varying roles in commercial, diplomatic, and cultural exchanges in the Ptolemaic and Roman periods. Ampelome (or Ampelone) was probably founded by Ptolemy II Philadelphus (285/282–246 BC) as part of a broader initiative to establish ports throughout the Red Sea, especially along the African coast. Though Ampelome has never been located, it likely lay somewhere along the eastern (Arabian) coast of the Red Sea or, possibly, on one of the Red Sea islands. Pliny the Elder (*Nat. Hist.* 6.32.159) noted that colonists from the Aegean city of Miletus, while under Ptolemaic control, founded Ampelome (cf. Tarn 1929: 21–2; Fraser 1972/I: 177; 1972//II: 301–2 n352; Cohen 2006: 44–5, 307, 329 n3, 400). There is no record of Ampelome's role in Ptolemaic exchanges with Arabia.

Leuke Kome/Albus Portus ("white village" in Greek and Latin, respectively) – another port still unlocated, but possibly around Khuraybah/Aynunah near the Straits of Tiran, on the Arabian coast of the Red Sea (Cohen 2006: 329–330) or al-Wadj (Nappo 2010) – was initially under Nabataean control. Strabo (*Geog.* 16.4.23–24) and the *PME* (§19) indicate that the Leuke Kome was active in Nabataean/early Roman times both as a terminal and transit point for caravans connecting southern Arabia to the Mediterranean and also as a port for smaller ships sailing to and from Egypt and along the Arabian coast of the Red Sea, though not, apparently, into the Indian Ocean.

It may have been from Leuke Kome that the Nabataeans engaged in naval activities (noted above) that adversely affected the Ptolemies. The Roman Emperor Augustus ordered a military expedition against Arabia Felix in 26/25 BC that passed through Leuke Kome (*Res Gestae Divi Augusti* 5.26; Strabo, *Geog.* 16.4.22ff; Pliny the Elder, *Nat. Hist.* 6.32.160; Josephus, *Jewish Antiquities* 15.317; Dio Cassius, *Roman History* 53.29.3–8). Though a military failure, Augustus clearly viewed the foray as a political-diplomatic success (Jameson 1968; von Wissmann 1978; Sidebotham 1986: 120–30; Buschmann 1991; Marek 1993; Luther 1999). The fragment of a bilingual Greek-Latin inscription from Baraqish (ancient Yathil) may be the tombstone of a Roman soldier who perished

during this operation (Costa 1977; Marek 1994). This is the only example of a Roman attack beyond imperial boundaries with overtly commercial objectives.

Strabo (*Geog.* 16.4.23) and the *PME* (§19) report that a heavily used caravan route linked Leuke Kome to Petra (cf. al-Ghabbān 2007). The *PME* says that freight arrived at Leuke Kome from Arabia in small ships and that a customs officer collected a 25 percent (*tetarte*) duty on imports (Millar 1998: 124–5; Young 2001: 95–6; also Bowsher 1989 on the Nabataean army in general). In the 6th century Cosmas Indicopleustes (*Christian Topography* 2.62 in Wolska-Conus 1968: 376–7) suggested that Leuke Kome continued to operate in his day.

A settlement at Iotabe, which remains unidentified and unlocated but was likely in the area of the Straits of Tiran, seems to have operated, perhaps as a customs house, for only about 60 years in the 5th century AD before being abandoned (Mayerson 1994b).

Aila/Aela/Aelana (modern Aqaba) lay at the northeastern-most point on the Red Sea in the Gulf of Aqaba. Despite literary evidence for a port here or in the vicinity in Hellenistic times and the 1st century AD (Josephus, *Jew. Ant.* 8.163; Strabo, *Geog.* 16.2.30, cf. 16.4.18; Pliny the Elder, *Nat. Hist.* 5.12.65), archaeological evidence does not suggest much activity prior to the Roman annexation of the kingdom of Nabataea in AD 106 or the early Roman occupation as Provincia Arabia (cf. Claudius Ptolemy, *Geography* 5.16.1). Excavations have uncovered late Roman and Islamic settlements including evidence of contact with other ports in the Red Sea, especially Berenike and Adulis, between the 4th and 6th centuries (Eusebius, *Onomasticon* 6.17–20 and 8.1; *Martyrium Sancti Arethae* 27–29; Procopius, *History of the Wars* 1.19.3, 1.19.24; Antonius of Placentia: cf. Vasiliev 1950: 364–5; Wilkinson 1977: 88 [40.v186]).

Axumite/Adulis-made pottery and Axumite coins found at Aila indicate contacts with that African kingdom (Tomber 2005: 42–7 for pottery; Whitcomb 1994: 16–18 for coins). Yet, little or nothing of Indian origin has been documented in excavation at Aila. Parts of a city wall, a possible church, an amphora kiln, and other structures have been excavated; no harbor has yet been found (Parker 1996, 1997, 1998a, 2000, 2002), but areas of early Islamic Aqaba have been excavated (Whitcomb 1989a, 1989b, 1994, 1995, – and 1990 for the debate on the date of the fort as Diocletianic/Tetrarchic or early Islamic).

7 The Red Sea: Egyptian Ports

Expanded archaeological investigations over the last few decades – especially in the Eastern Desert and Red Sea coast of Egypt (Sidebotham et al. 2008; Sidebotham 2011); South Arabia (Avanzini 2002, 2005, 2007, 2008; Sedov 2007; Salles and Sedov 2010); the kingdom of Axum, especially at the eponymous capital city (Phillipson 2009) and the port of Adulis (see below) (Peacock and Blue 2007); India, especially, but not exclusively along the Coromandel

(southeastern) (Begley 1996; Begley et al. 2004) and Kerala/Malabar (southwestern) coasts (Cherian et al. 2007); and Sri Lanka (Hannibal-Deraniyagala 2000; Schenk 2000; Weisshaar and Wijeyapala 2000; for urbanization of the island, see Coningham and Allchin 1995) – have yielded abundant data on the explosion of commercial, cultural, and diplomatic contacts among these regions during the first six centuries of the Christian era.

The Ptolemaic era was one during which Egypt had expanded contacts with other areas on the African coast of the Red Sea, especially, as noted above, for the acquisition of elephants used in warfare and ivory (Sidebotham 2011). The acquisition of frankincense and myrrh either directly from southern Arabia or trans-shipped via southern Arabia from the Horn of Africa was the main commercial interest. During the early Ptolemaic period, especially the reigns of Ptolemy II Philadelphus (285/283–246 BC) and Ptolemy III Euergetes (246–222 BC), the creation of infrastructure in both Egypt between the Nile and the Red Sea coast (roads, caravanserai, a canal) and along the Red Sea shore of Egypt itself indicate a concerted and sustained policy not previously seen in the region (Gates 2005; Sidebotham 2011). Based on literary, etymological, and archaeological evidence, the ports founded along the Red Sea coast at this time included Arsinoë/Cleopatris/Clysma (near and under modern Suez); Philoteras (location unknown); Myos Hormos (Quseir al-Qadim); Nechesia (at Marsa Nakari?); and Berenike. A late Roman fort built in the early 4th century lay on the coast between Arsinoë and Myos Hormos at Abu Sha'ar. Foundation of ports along the Red Sea coast of Africa south of Egypt also reflects expanded Ptolemaic interest in the region (Cohen 2006: 313–16, 341–3). While there is some evidence that contacts in the Ptolemaic era were not solely government-driven and involved some private entrepreneurs, most interaction between Egypt and the rest of the Red Sea/Indian Ocean littorals was state sponsored or under some degree of state control.

French excavations in the 1930s identified Arsinoë/Cleopatris/Clysma as a significant emporium in late Roman and Islamic times, but documented little from the Ptolemaic and early Roman periods. The terminus of a canal linking the Red Sea with the Nile (at various locations throughout its history) contributed to Arsinoë's importance (Cooper 2005; Cohen 2006: 308–9; Sheehan 2010: 35–53; Cooper 2009).

A Latin inscription excavated at Abu Sha'ar indicates the foundation of a fort there in the early 4th century. Created as part of the *limes* (Roman administered frontier area) and housing a mounted cavalry or dromedary unit, the inscription also mentions merchants. The army abandoned the installation in the late 4th/early 5th century and a Christian monastery replaced the military garrison. The fort lay close to the junction of the *via nova Hadriana* and the road leading from the fort, past the quarries at Mons Porphyrites, to the Nile at Qena (Kainepolis/Maximianopolis) (Sidebotham et al. 1989; 2008: 53–60, 145–6, 241–2; Sidebotham 1993, 1994a, 1994b). Philotera(s), however, has never been identified

or located (Cohen 2006: 339–41), it probably lay somewhere between Abu Sha'ar and Myos Hormos.

Myos Hormos and the more southerly emporium at Berenike were the largest of the Ptolemaic-Roman Red Sea emporia in Egypt. They have been more extensively excavated than any other Hellenistic-Roman-era ports in the Red Sea and, as a result, are the best known. Myos Hormos was excavated by both American (1978–82; Whitcomb and Johnson 1979, 1982) and British (1999–2003; Peacock and Blue 2006) expeditions. There is a hint of Ptolemaic activity here, but the zenith of the emporium was in the 1st and 2nd centuries; by the mid-3rd century AD the port lay abandoned. During the Roman era, Myos Hormos had contacts with the Nile valley and the wider Mediterranean basin as well as with other areas of the Red Sea (Aila and Axum, via Adulis), southern Arabia, and southern and western India. Myos Hormos revived as Quseir (al-Qadim) in the medieval Islamic period. In Roman times, if not earlier, a trans-desert route lined with forts (*praesidia*) provided with wells (*hydreumata*) and watchtowers (*skopeloi*) linked Myos Hormos to its Nile counterpart at Coptus/Koptos (Cuvigny 2003a; 2003b).

Nechesia has never been located and identified (Cohen 2006: 338–9). Nevertheless, limited American excavations in 1999, 2000, and 2002 documented a small, walled settlement at Marsa Nakari, the location of which corresponds approximately with that given for Nechesia by Claudius Ptolemy (*Geog.* 4.5.8). Excavations recorded early and late Roman activity and some indication of a Ptolemaic presence as well (Seeger 2001; Seeger and Sidebotham 2005; Sidebotham et al. 2008: 166–7). There was, however, no evidence that the settlement engaged in extensive long-distance maritime commerce on a regular basis. A road linked Marsa Nakari with mines and quarries along or near the route to the Nile at Contrapollonopolis Magna/Apollonopolis Magna (modern Edfu) (Sidebotham 1997: 388–90; 1999: 364–8).

Berenike was the southernmost Ptolemaic-Roman Red Sea port in Egyptian territory. Excavations, begun by an American-Dutch consortium (1994–2001) and continued under the aegis of an American-Polish team (2008–10), have recorded much about this emporium. Founded before the mid-3rd century BC and abandoned by the mid-6th century AD, Berenike played a pivotal role in contacts between the Mediterranean basin, Egypt, and the Red Sea and Indian Ocean for about 800 years. Artifacts indicate a trade network extending as far west as Spain and Gaul, as far north as Europe and Asia Minor/Syria, and as far east as Java. Excavations have documented 12 written European, African, and Asian languages. Berenike was also a local and regional economic hub (Sidebotham 2011).

8 Trog(l)odytes/Ichthyophagoi

Other groups dwelling along the African coast of the Red Sea included the *Trog(l)odites* (cave-dwellers) and *Ichthyophagoi* (fish-eaters). We have some

information about these peoples from Agatharchides, Diodorus Siculus, Strabo, Pliny the Elder, and the *PME* (cf. Casson 1989: 97–100; Thomas 2007; Burstein 2008; Winnicki 2009: 373–8). The Classical Greek and Roman sources written between the 2nd century BC and the 1st century AD report on the passive, feral nature of these people, their physical appearance, and various aspects of their lives. The sources, however, provide little or no indication that they – or other contemporary groups living, apparently, slightly away from the coast (including the *Agriophagoi*, "wild animal eaters," or the *Moschophagoi*, "eaters of shoots and stalks") – formed coherent polities and little indication of the type or extent of commercial or cultural exchanges maintained by the Ptolemies, Romans, Axumites, or others with these groups. There must have been some contact, even if fleeting, with these peoples, but they did not form an important component in the political-diplomatic-economic network of the Red Sea/Indian Ocean regions.

9 The Red Sea: Kingdom of Axum

The other major state in this period along the Red Sea coast of Africa was the kingdom of Axum (centered in modern Ethiopia and Eritrea). Cosmas Indicopleustes (*Christian Topography* 2.58 in Wolska-Conus 1968: 370–3) remarked on a throne and inscription of Ptolemaic date from Adulis (Fauvelle-Aymar 2009). Certainly in existence by the 1st century AD, Axum's rise to prominence and zenith occurred during the late 3rd/early 4th to the 7th century. Through its major Red Sea emporium of Adulis (Gabaza) the eponymous capital city of Axum was an 8 (*PME* §4) to 12–15 day overland trip (Procopius, *History of the Wars* 1.19.22; Nonnosos section 2b). There were two separate sites in the region of Adulis, one from the early centuries AD (cf. *PME* 4, 17, 24) and another from approximately the 4th–7th centuries (Peacock and Blue 2007). Axum had diplomatic and commercial-cultural contacts with Egypt and southern Arabia (Pliny the Elder, *Nat. Hist.* 6.34.173; *PME* 4, 6, 17, 24; Cosmas Indicopleustes, *Christian Topography* 2.49, 2.54–56, 11.15, 11.17, 11.19 in Wolska-Conus 1968: 358–9, 364–9; Wolska-Conus 1973: 346–51; Stephen of Byzantium in Billerbeck 2006: 56–7) both of which were especially significant, and also with India and areas of the Indian Ocean coast of Africa. The latter, however, seem to have been less important. Axum's rise to political and commercial prominence in the late 3rd/early 4th century coincided with the appearance of the earliest coins minted by the kingdom, suggesting that commerce played a key role; Christianity also arrived in Axum from Egypt in the 4th century.

A military expedition launched in 524–5 AD by Axum against the Himyarite Jewish king Dhu Nuwas had the support of the Roman emperor Justin I (518–27). The pretext was Dhu Nuwas' persecution of Christians, but there were also political and commercial considerations involving the Sasanians, Axumites, and Romans (*Martyrium Sancti Arethae* 27, 28, 29; Cosmas Indicopleustes, *Chris-*

tian Topography 2.56 in Wolska-Conus 1968: 368–9; Rubin 1989; Eide et al. 1998: 1185–8 [no. 327]; for Axumite-South Arabian Wars in AD 517–37 and the 524/525 campaign, see Kobishchanov 1979: 91–108; for dates, see Fauvelle-Aymar 2009: 135).

Justinian I (527–65) proposed an alliance with the kingdoms of Axum and Himyar to fight the Sasanians; we are unsure, however, what became of his initiative (McCrindle 1897: vi–vii with notes; Kobishchanov 1979: 78–9; Munro-Hay 1982: 116–17). Procopius and Cosmas Indicopleustes record – and the recovery of Roman artifacts at Adulis and of Axumite finds at Berenike and Aila, and to a lesser extent at Myos Hormos, confirm – trade contacts, in early Roman times and increasing in the later period, between the Roman world and this African state. Cosmas Indicopleustes spent time in Axum and was apparently there in 524/525 when the expedition against Himyar was launched. A 4th–7th century shipwreck has been identified and partially excavated near Adulis (Pedersen 2000).

10 Indian Ocean: Kingdoms of South Arabia

Several polities dominated southern portions of the Arabian peninsula in this period. The South Arabian kingdoms most in contact with India and the Red Sea, either directly or as intermediary stops between India and the Red Sea (by sea and overland caravan routes), included Saba (capital Marib), the oldest and most important of the South Arabian kingdoms; Qataban (capital Timna); Ma'in (capital Qarnaw); Hadramaut (capital Shabwa); and Himyar (capital Zafar). At the southern end of the Red Sea the Himyarites dominated through their Red Sea ports of Mouza (*PME* §§7, 16, 17, 21, 22, 28, 31) and Ocelis (*PME* §§7, 25), both of which remain unlocated, though the former may be beneath the modern port of al-Mocha (Yemen) and the latter on the Arabian side of the Bab al-Mandeb). Both maritime and overland caravan routes linked these states, though the latter seem to have been more important.

The Hadrami-controlled island of Soqotra (noted above) had cemeteries and settlements (Shinnie 1960; Raschke 1978: 645, 853 n839; Doe 1992: 41–112; Naumkin and Sedov 1993; Beyhl 1998; Weeks et al. 2002; Biedermann 2006; Cohen 2006: 325–6; Tomber 2008: 108–9). A cave at Hoq, on the northeastern coast, produced ancient documents, including one written on a wooden tablet in Palmyrene, likely from the 3rd century AD. Other texts from this cave indicate the presence of Nabataeans, Indians, Ethiopians, and other "foreigners" (Dridi 2002; Dridi and Gorea 2003; Lévêque 2002; Robin and Gorea 2002; Villeneuve 2002, 2003; Strauch and Bukharin 2004). In antiquity, Soqotra was a crossroads for traffic between the Red Sea, India, and coastal sub-Saharan Africa south of the Horn of Africa. These multilingual texts are, therefore, a reflection of Soqotra's position on the trade routes.

Though Pliny the Elder (*Nat.l Hist.* 6.32.153) and Claudius Ptolemy (*Geog.* 6.7) mention Soqotra, the *PME* (§§30–31) provides the most information about it, reporting that the few inhabitants dwelt on the northern side of the island and that comprised Arabs, Indians, and Greeks engaged in maritime commerce. The island was poor, barren (no farm products, vines, or grain) and damp with rivers, crocodiles, vipers, and huge lizards. It exported tortoise shell and Indian cinnabar. At the time of the *PME* Soqotra was under the control of Hadramaut, whose main port was at Qani'. Shippers from Mouza, Limyrikê (Kerala, the southwestern coast of India), and Barygaza (Broach, in western India) traded with the island sporadically bringing rice, grain, cotton cloth, and female slaves.

Early Roman authors, including Dioscorides, who penned his *Materia Medica* c.AD 65, noted that the best-quality aloe came from Soqotra. Aloe had a number of medical applications, one of which was as a laxative for both humans and animals (Scarborough 1982: 138–41; Groom 2005: 110). In the 4th century Ammianus Marcellinus (23.6.47) referred to the island as Dioscurida and considered it, erroneously, a city on the Arabian coast. The latest ancient Classical reference to Soqotra was in the 6th century when Cosmas Indicopleustes (*Christian Topography* 3.65 in Wolska-Conus 1968: 502–5) mentioned that Christian clergy from Persia inhabited the island and that some of its residents, who were descendants of Ptolemaic colonists, spoke Greek (Bengtson 1955: 155–6).

Undoubtedly the two most important and best-known South Arabian emporia lay on the Indian Ocean. They were Kané (modern Qani'), near Bir 'Ali in Yemen and, about 800 kilometers farther east along the coast, Sumhuram/Moscha Limen (modern Khor Rori) in the Dhofar Province of Oman. According to the *PME* (§§27–28), Kané and Moscha Limen (32) were ports of the kingdom of Hadramaut in the 1st century AD. They were trans-shipment points for domestic products, particularly frankincense coming from Soqotra, conveyed by overland caravan routes to points north in the Mediterranean and Persian Gulf. Sea routes linking Kané and Moscha Limen to emporia in the Persian Gulf, the Red Sea in Egypt and Adulis, as well as to entrepôts in the Horn of Africa and on India's west coast also bore frankincense, as well as products in transit between India and the Red Sea. Both Qani' and Khor Rori also moved Roman products, including glass and fine ceramics, from the Red Sea to the Persian Gulf, especially ed-Dur (in modern Umm al-Qaiwain, United Arab Emirates), in the late 1st century BC/1st century AD.

Roman merchandise, particularly glass and fine pottery excavated at ed-Dur and from a high-status, collective grave excavated at Dibba (Sharjah, UAE), arrived either by sea via one of the southern Arabian ports on the Indian Ocean (cf. Rutten 2007) or overland from the Middle East via Mesopotamia (cf. Bukharin 2007). Possibly, too, some of these items and other objects (such as intaglios) of Mediterranean provenance may have come via Indian ports such as Barygaza (Broach) (*PME* §§14, 27, 31, 32, 36, 40–48, 50–52, 56–57, 64)

and Barbarikon (near Karachi) (*PME* §§38, 39) in the Gulf of Cambay and mouth of Indus Delta, respectively.

At the time of the *PME*, Qani' traded with Barygaza, Scythia, Omana, and Persis. Ships sailing between the Red Sea and India often stopped at Qani'; epigraphic evidence indicates the presence of a royal Hadrami shipyard there (Beeston 2005: 58, 62 n11). Frankincense, an imperial monopoly, was brought to Qani' from Soqotra, which was also under Hadramaut control, for storage in a warehouse there. This was the port's major export. Aloe, as noted above, was also exported and may have been transshipped to Qani' from Soqotra. Qani' imported wheat from Egypt, and also wine, copper, tin, coral, and embossed silverware, a great deal of money (coins?), horses, statuary, and fine clothing. Pliny (*Nat. Hist.* 6.26.104) and Claudius Ptolemy (*Geog.* 6.7) also knew the port. There have been both land excavations (Sedov 1992, 1996, 1997, 2007; Mouton et al. 2006; Salles and Sedov 2010) and underwater surveys of the harbor (Davidde 1997a: 354–5; 1997b: 86–7; 1998: 8; Davidde et al. 2004). Excavations unearthed storage magazines, a temple, likely dedicated to the god Sayin, and a synagogue (for temple, see Sedov 2005: 162–5; for synagogue, see 165, 166 [Fig. 77], 169–71; cf. Bowersock 1994b; for temple and synagogue, see Sedov 2007: 74, 88 [Fig. 4.15], 92, 99 [Fig. 4.24], 103; Salles and Sedov 2010: 87–122). Also recovered were numerous Egyptian, Nubian, Black Sea, and Mediterranean-made amphoras, especially from Campania (Bay of Naples region of Italy) and from Kos, Laodikeia (Syria), Spain, and Gaul; excavations also documented Eastern Sigillata wares made in the Roman Near East and fine pottery made in Aswan (Egypt), attesting a lively commerce with various Red Sea ports in Egypt in the 1st century AD (for Mediterranean amphoras at Qani', see Ballet 1998: 47–50; Sedov 2007: 77–8; for Roman fine wares, see Davidde et al. 2004; Rutten 2007: 12, 13 [Fig. 5], 14, 18, 20; also see Salles and Sedov 2010). Indian and Nabataean ceramics were also recorded (Sedov 2007: 78; Salles and Sedov 2010: 201, 204–25, nos. 855–859). There were three main phases of occupation with the most significant being the 2nd–5th/6th centuries (Davidde et al. 2004; Sedov 2007). In later times Qani' had little or no contact with India (Sedov 1996; Mango 1996: 154–155).

About 800 kilometers by sea east of Qani' along the southern coast of Arabia is Moscha Limen (*PME* §32; Claudius Ptolemy, *Geog.* 6.7), the South Arabian name of which was Sumhuram (mod. Khor Rori, Oman). Excavations (Avanzini 2002, 2007, 2008; Avanzini and Sedov 2005) in this fortified settlement have unearthed residential areas, temples, and palaces (Sedov 2005: 171–84; Avanzini 2007: 25). Moscha Limen was founded in the 3rd century BC and functioned until at least the 5th century AD (Avanzini 2007: 23, 25–6). The harbor itself has not yet been found. The city flourished in the 1st century AD; finds include Roman amphoras and fine ceramic wares, some perhaps destined for onward shipment to the Persian Gulf (Rutten 2007: 12, 13 [Fig. 5], 14, 18, 20). A graffito carved on wall plaster depicts a two-masted sailing ship (Avanzini 2007: 27,

28, Fig. 4) similar to those on coins minted by the Sātavāhanas/Andhras between the 2nd/1st century BC and 2nd century AD. This doodling may represent one of the ships that put into Sumhuram.

11 Indian Ocean: Parthian and Sasanian Persia

A spin-off from the Hellenistic kingdom of the Seleucids was the Persian-centered polity of Parthia. The Parthians (247 BC–AD 228) at times in their history controlled sections of the coastline adjacent to the northwest Indian Ocean (Potts 1990: 197–348; 1996). They were major political and military competitors of the Romans straddling important land routes between the eastern Mediterranean, Central Asia, and India. By the mid-1st century BC, the Parthians and Romans had completely absorbed the former Seleucid empire. Another Persian dynasty, the Sasanians, supplanted the Parthians, ruling the Iranian plateau and adjacent areas until the Islamic conquest in the mid-7th century. The Sasanians were more aggressive toward the Romans than the Parthians had been. Both the Parthians and Sasanians had substantial levels of military, diplomatic, and commercial interaction with neighbors. Their maritime commercial outlets were primarily through the Persian Gulf to the northwestern Indian Ocean, especially with states in the Persian Gulf, kingdoms in southern Arabia, polities along the western coast of India, and, to a much lesser extent, the Red Sea (Potts 1990: 197–348; Whitehouse 1996). There is debate about the level of Sasanian hegemony over the Persian Gulf. A recent re-evaluation of the extant archaeological evidence from the region suggests that Persian control over eastern Arabia had slipped badly during the Sasanian era (Whitehouse 1996; Kennet 2002, 2007).

12 Indian Ocean: States in Western and Southern India

The Mauryan Dynasty (c.321–185 BC) of India, with its capital at Pataliputra, chronologically parallels the period of Alexander the Great and the Hellenistic period in the West. The Thirteenth Rock Edict of Aśoka (Thapar 1997: 255–7), third monarch of that dynasty (c.273–232 BC), records diplomatic contacts between this large Indian kingdom and at least five Greco-Macedonian, Hellenistic-era kings to the west, including the Seleucid Antiochus II (261–246 BC), Ptolemy II Philadelphus, Antigonus Gonatas of Macedonia (276–239 BC), Magas of Cyrene (c.258–250 BC), and an unidentified Alexander – either Alexander of Corinth (252–244 BC) or Alexander of Epirus (272–255 BC). Pliny the Elder (*Nat. Hist.* 6.21.58) said that a man named Dionysus was Ptolemy II's ambassador to the Mauryan court; the Seleucid ambassador was Megasthenes, fragments of whose description of India survive in later sources. Unfortunately, we cannot gauge the nature and frequency of these exchanges or who initiated

them (Rostovtzeff 1932: 743; Cunningham 1961: 84–8, 125–6; Gokhale 1966: 34, 52, 79; Fraser 1972/I: 180–181; Raschke 1975; McEvilley 2002: 368–9). In any event, these contacts seem to have been of little practical importance to any of the parties concerned; their significance was, most likely, in enhancing the prestige of the monarchs involved.

Mauryan hegemony never seems to have extended south of the Narmada River and it was in those southernmost reaches of the subcontinent that contemporary and later polities developed. The earliest references to those groups (Cholas, Cheras, Pandayas, and Satiyaputras) appear in Aśokan inscriptions. These later developed into the Tamil kingdoms of the Cholas, Cheras, and Pandyas. The histories of these chieftains, later kingdoms, can be partially reconstructed from megalithic burials in the region, Tamil inscriptions written initially in Brahmi script, Tamil poems in S(h)angam literature (mainly dating c.300 BC–AD 300) and authors writing in Greek and Latin from the 1st century BC on.

These Tamil states had extensive commercial, cultural, and, likely, diplomatic contacts with West Asia and the Indian Ocean coast of Africa, especially at the turn of the Christian era and in the early centuries AD. The Cholas ruled the eastern (Coromandel) coast and the Pandyas the southernmost tip of the subcontinent, while the Cheras dominated much of the Malabar (southwestern) littoral, bordering the Pandyas to the south and the Cholas to the east. Chera rulers engaged in frequent warfare with the Pandyas and Cholas. The Cholas undoubtedly also had commercial, cultural, and diplomatic contacts with parts of southeast Asia. There has been scholarly debate about the role regional and "international" commerce and religious establishments (especially monasteries) may have played in the formation of some of these smaller states in southern India (cf. Ray 1986). Much debate has focused on the role local, regional, and "international" contacts between these south Indian and Sri Lankan states, on the one hand, and "Western" kingdoms and empires, on the other (Parthian, South Arabian, Roman, and later Axumite) had in the formation and consolidation of the Cholas, Cheras, and Pandyas in southern India (cf. Turner 1989; Turner and Cribb 1996; McLaughlin 2010: 48–57) and the kingdom of Anuradhapura in Sri Lanka (Thapar 2002: 245–53).

After the demise of the Mauryan Empire, several states appeared. Aśokan documents mention the Satavahanas (Andhras), an empire that ruled over southern and central India from about 230 BC with administrative centers at Junnar (Pune), Prathisthan (Paithan) in Maharashtra, and later Dharanikota or Amaravati and Kotilingala (Karimnagar) in Andhra Pradesh. Sātavāhana rule lasted perhaps as long as 450 years until it finally ended in c.220 AD. The Satavahanas were thus contemporary with the Parthians (Pahlavas). There are depictions of single and two-masted ships in India Sātavāhanas/Andhra coins of the early centuries AD as well as representations in paintings in the Ajanta caves of about the 6th century. The appearance of ships on Sātavāhanan/Andhran coins suggests that maritime contacts may have been of some significance to them.

The Kushan Empire arose in the 1st century AD in ancient Bactria around the middle course of the Oxus River (Amu Darya) in northern Afghanistan, southern Tajikistan, and Uzbekistan. The port of Barbaricum/Barbarikon, at the mouth of the Indus River (on the Indian Ocean) was their major maritime outlet. The *PME* (§39) notes that Barbarikon imported glassware and other commodities of Mediterranean provenance from the Red Sea ports and similar items have been documented at sites in Afghanistan (Hiebert and Cambon 2008: 168–75 for imported glass), Central Asia, and China (Brill 1991–2; Kinoshita 2009 for 4th–12th centuries AD) along the "Silk Road".

The last of the important states in India in the period considered here was the Gupta Empire, with its early capital city at Pataliputra and later one at Ujaini (Thapar 2002: 281–7). Controlling much of the Indian subcontinent, the Gupta Empire lasted from c.AD 320 to 550. The period of peace and prosperity that this engendered led to important intellectual contributions in the scientific and artistic literary fields. The Guptas had commercial-cultural contacts with southeast Asia and East Africa, but evidence of links between the Mediterranean world and the Guptas is not as strong. The government seems to have been laissez-faire, with respect to the economy, and there is little evidence of government interference.

Periodic excavations at Arikamedu (ancient "Poduca emporium"/Podukê) on the southeastern (Coromandel) coast of India (Begley 1996; Begley et al. 2004; *PME* §60; Claudius Ptolemy, *Geog.* 7.1) and other emporia (e.g., Alagankulam) along the Coromandel coast and at Pattanam (likely ancient Muziris) (Cherian et al. 2007; cf. *PME* §§53, 56; Pliny the Elder, *Nat. Hist.* 6.24.104; Claudius Ptolemy, *Geog.* 7.1; *Peutinger Table*) on the Malabar/Kerala coast have revealed substantial material remains, mainly in the form of thousands of Mediterranean-made amphora fragments, documenting Red Sea/India contacts. According to the *PME* (§§53–55) another important emporium was located south of Muziris at Nelkynda (unlocated). Clearly, well-organized and regular interaction at many levels reflects a sophisticated land and sea communication network linking these disparate regions of India together.

13 Indian Ocean: States in Sri Lanka

Western sources from the 1st to 6th century AD, including Strabo (*Geog.* 2.1.14; 15.1.14–15), Pomponius Mela (*De Chorographia* 3.70), Pliny the Elder (*Nat. Hist.* 6.24.81 and 6.24.84–85), the *PME* (§§59, 61), Claudius Ptolemy (*Geog.* 7.4.11), and Cosmas Indicopleustes (*Christian Topography* throughout his Book 11 in Wolska-Conus 1973: 314–57), among others, write about Taprobane/Serendip (modern Sri Lanka) (De Romanis 1988; Rosenberger 1996; Bopearachchi 1996; Faller 2000: 135–88). The most significant state in this era was the kingdom of Anuradhapura, whose capital of the same name lay in the northwestern part of the island.

The results of excavations at Mantai at the extreme northern end of Sri Lanka have not been fully published. Settled initially in the Mesolithic period and then abandoned, the site was reoccupied sometime during the second half of the 1st millennium BC and continued in use until the 10th century AD (cf. Begley 1967; Silva 1985; Carswell 1991: 198). Ancient authors allude to the region around Mantai while Claudius Ptolemy (*Geog.* 7.4) calls the site Modutti/Modurgi Emporium. Mantai was a major glass bead manufacturing center exporting as far afield as East Africa and Korea; pearls were also a major export (Carswell 1991: 200).

Another important emporium in the Indian Ocean/Red Sea nexus lay in southern Sri Lanka at Tissamaharama, which functioned between the 4th/3rd century BC and the 9th century AD. Excavations there have produced considerable evidence of contact with the Mediterranean basin, likely via the Red Sea and Persian Gulf, in the Roman period (Weisshaar and Wijeyapala 2000; Hannibal-Deraniyagala 2000; Schenk 2000; for urbanization of the island, see Coningham and Allchin 1995).

GUIDE TO FURTHER READING

A good overview of "international" contacts within the Mediterranean/Red Sea/Indian Ocean region and beyond is the now dated Raschke (1978), who also discusses land routes through Asia. For a more recent treatment emphasizing pottery as an indicator of Mediterranean trade via Egypt and the Persian Gulf with India, see Tomber (2008). McLaughlin (2010) discusses the sea routes between the Mediterranean world and India as well as the Central Asian Silk Road. Sidebotham (2011) focuses on the port of Berenike in the ancient commercial-cultural network and its relationship with partners in Egypt, the Red Sea, and Indian Ocean in Ptolemaic and Roman times.

CHAPTER FIFTY-SIX

Byzantium in Asia Minor and the Levant

Basema Hamarneh

1 Byzantine Archaeology: Subject and Main Tools

Owing to growing interest in the Late Antiquity of Asia Minor (Anatolia) and the Levant (modern Syria, Lebanon, Israel, the Palestinian Territories, and Jordan), a wide range of subjects has recently been brought to scholarly attention, enriched by an increasing number of excavated and surveyed sites. In chronological terms, it is widely accepted that the term "Byzantine archaeology" applies to the post-Constantinian epoch, or, more appropriately, to lands ruled by the Byzantine emperors, from Constantine (307–37) to Heraclius (610–41). In some cases, "Byzantine archaeology" equals "Christian archaeology". The official recognition of Christianity by Emperor Constantine (307–37) transformed what had been formerly remote lands of the Empire into an area of prime importance. This was due initially to the establishment of a new capital at Constantinople, the New Rome, and secondly to the force of attraction of the Holy Land, the place where the events of the life and passion of Christ had taken place.

There were sharp contrasts within the Byzantine Empire, but the cultural basis was common: the gradual withdrawal of paganism in the face of the new Christian religion imposed by the new ruling dynasties caused significant changes in the organization of urban space. Temples were gradually replaced by churches, thanks to the generous endowments of the imperial court and local donors (*evergetes*) and, leaving aside the maintenance of defensive systems, public spaces were reorganized to meet new demands. Moreover, provincial and local administration

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

was completely reorganized, church officials emerging as the new holders of ecclesiastical and civic power (Saradi 2006: 151–60). During the Roman period, cities had attracted the local aristocracy by offering social and political advantages; the elite reciprocated by lending financial support and patronage. This relationship was mutually advantageous, as the cities' prosperity reflected that of the local elites (Fiema 2002: 218). The stagnation and decline of the Later Roman Empire was characterized by the gradual diminishing in importance of central government and the redirection of power toward ecclesiastical institutions. As episcopal dioceses were created in the 4th–5th centuries, civic administration was taken over by church officials. The bishop's authority in urban administration was formalized by a law promulgated in 505 for the East: the *defensor civitatis* (a judicial official) was to be appointed by the bishop, the clergy, the *honorati* (those with municipal honors), the *possessores* (landlords), and the *curiales* (hereditary members of the assembly, *curia*, often charged with duties like tax-collection). This power to protect the weak and to ensure the food supply of the city was granted to the bishop in view of his spiritual authority. During the reign of Emperor Justinian (527–65), numerous laws recognized the bishop's authority in civic administration, along with his fiscal responsibilities over cities and their districts. Bishops in fact assessed taxes from land owned by the church and promoted the construction of churches in urban and rural centers as well as civic structures. In addition, particularly under Justinian, the 6th century witnessed a gradual growth of the economic potential of the area both in agriculture and trade. Oil, wine, and cereal crops circulated from the hinterland to the ports on the Mediterranean shore. Economic prosperity reached its peak at this time, as evidenced by a densely populated landscape with a large number of cities, towns, villages, and farmsteads that overshadowed in number their Roman predecessors (Jones 1964: 713; Russell 1986; Cameron 1993: 180; Millar 1993: 251–3; Morrisson and Sodini 2002: 219–20). The gradual and catastrophic decline that hit some regions prior to the Arab conquest was due to earthquakes, Persian attacks, and the Great Plague that struck Constantinople in 542 and spread to Gaza, Antioch, Syria, and Asia Minor. When the Arab conquerors finally overran large areas of the Byzantine East in 636, the combined effect of these factors was a recession, and the abandonment or contraction of urban and rural life over the whole area.

2 Byzantine Archaeology of Palaestina I, II, III (Israel and Palestinian Authorities)

When Christianity prevailed, the territory of Palestine received primary attention, becoming the cultural focus of the new Empire. The major transformations included the building of churches within the street grid of the old Roman towns. In this way, the established centers retained many of their Classical features even though temples were replaced by churches. From the 4th century onward the

newly embellished holy shrines represented a major attraction for large groups of pilgrims, causing the development of auxiliary structures such as hospices and monasteries as well as devotional art objects (*eulogiae*) that exhibited, impressed upon them, representations of sanctuaries and saints (Vikan 1982).

The Holy Sepulcher

The discovery of the True Cross by Helen, the mother of Emperor Constantine, caused fundamental changes to Jerusalem, starting with the site of the death, burial, and resurrection of Christ to the north of the Roman forum. According to Eusebius, Bishop of Caesarea, Hadrian covered the site with an embankment so as to erase from view the *loca sancta* of the passion and tomb of Christ. A temple of Aphrodite-Venus was erected over the Golgotha, while the Capitolium, dedicated to the triad Jupiter, Juno, and Minerva, was erected over the holy tomb (Bagatti and Testa 1978: 31–4). Constantine ordered the destruction of all pagan buildings, while an excavation revealed the exact position of the tomb. A few months later, he ordered the erection of a monumental complex consisting of five buildings accessible from the *cardo maximus* (major north–south street and axis of commercial activity in Roman cities), which was dedicated on September 14, 335. The entrance was through a *propylea-atrium* (monumental gateway leading to a courtyard surrounded by columned porticoes) on the western side of the *cardo maximus*, with stairs leading east decorated with marble and embellished by an exedra (semi-circular recess, often set into the façade of a building and sometimes covered with a semi-dome) (Brenk 2007: 113–14). These led to the main church – the *martyrium* – with three doors giving access to an apsed, five-aisled basilica with galleries. In the presbytery (that part of a church reserved for clergy), 12 columns were arranged in a silver ring around the altar. Beyond the basilica, a large triportico-courtyard linked the *martyrium* to the Anastasis (resurrection) Rotunda, allowing the spur of the Golgotha topped by a cross to be visible. According to the pilgrim Egeria, who visited the complex in the 4th century, the name *martyrium* was given to the church in memory of the Lord's suffering in his Passion. To the west stood the tomb of Christ, the Anastasis (resurrection). The monument had 8 portals and 8 elongated windows, 12 columns inside and 3 sets of alternating pilasters which supported a tunnel topped by a dome with an *oculus* (circular window). From this opening, daylight illuminated the shrine of the resurrection (Piccirillo 2008: 57–8). The Holy Sepulcher was visited by many pilgrims, who gave detailed accounts of the aspect of the original church and of the liturgy, besides mentioning that the complex also included the bishop's palace and a baptismal font (Egeria in the 4th century; the Bordeaux pilgrim in 333; the Anonymous Piacenza pilgrim in 570; see Hunt 1982: 28–49; Peters 1985: 131–9; and the Madaba Mosaic map, Piccirillo 1993). Destroyed by the Persians in 614, the Constantinian basilica was restored by

Patriarch Modestus, who had been the abbot of the Monastery of St Theodosius on the edge of the Judean Desert. Reconstruction work was completed by Patriarch Theodore when the relic of the Holy Cross was triumphantly reinstated in Jerusalem in 630 by the Byzantine Emperor Heraclius (610–41).

Constantine also built two other basilicas: that of the Nativity in Bethlehem in 339, consisting of a central nave and four aisles, with stairs to the east leading downward to the sacred grotto identified as the birthplace of Christ (Bagatti 1971b: 175–84; Walker 1990: 171–98); and the Eleona Church on the Mount of Olives, erected over the cave believed to be the site of the Ascension (Bagatti 1971b: 184–90; Walker 1990: 199–209). Two more churches were added in Gethsemane and Bethany at the end of the 4th century (Bagatti 1971b: 192–206; Piccirillo 2008: 62–3).

In the first half of the 6th century, Palestine reached an acme in terms of population and number of settlements all over the country, including the Negev Desert (Dauphin 1998/I: 77–121). This expansion reflected relative stability with intense territorial occupation and extraordinary technological quality of building. The 5th–6th centuries were characterized by fervent and feverish building activity, since most of the pagan temples were demolished or replaced by churches, causing a physical change in the urban structure of many cities. Imperial endowment also played a crucial role: Empress Eudoxia built a church over the Marneion in Gaza around 400, while Emperor Justinian rebuilt the Church of the Nativity in Bethlehem and founded the Nea Ekklesia with two pilgrim hospices in Jerusalem as well as the Katholikon of the Monastery of St Catherine in Sinai (Piccirillo 2008: 103–7). In the reign of Emperor Justinian, the Church of St Sergius in Gaza was decorated with outstanding mosaics celebrated by the rhetor Choricius of Gaza (*Laudatio Marciani* I.17–76; Saliou 2005). Most urban centers expanded beyond their city limits in the Roman period, showing that the Byzantine quarters were built within and outside the core of the former Roman centers. Houses literally spilled out of the defensive walls, notably in Scythopolis (modern Bet Shean), capital of Palaestina II (Tsafrir and Foerster 1997: 100–2; Patrich 2011), where a monastery was dedicated to Lady Mary in the mid-6th century within the city and close to the walls, while a large circular church, erected on the summit of the *tell*, eradicated the memory of the former temple of Zeus Akraius (Piccirillo 1989b: 465–468; Tsafrir and Foerster 1997: 111). Two other churches in Tel Iztaba were dedicated, respectively, to a martyr and to the metropolitan Andreas (Tsafrir and Foerster 1997: 104). The city of Hippos (mod. Sussita, Israel), on the eastern shore of the Sea of Galilee, also afforded a well-organized Roman city grid, with three churches to the north of the *cardo* and one to the south dedicated to St Cosmas and Damian (Piccirillo 1989b: 477–8). Recent excavations to the northwest of the city have brought to light a basilical complex, richly adorned with imported marble and mosaics, dated to the 6th century (Młynarczyk and Burdajewicz 2005: 40–7; Burdajewicz and Młynarczyk 2006). Caesarea, the capital of Palaestina I, had at least 10 churches, including

an elaborate, hexagonal one dated to the 5th–6th centuries which replaced a Roman temple (Tsafrir and Foerster 1997: 111; Patrich 2011), and a basilical *martyrium* dedicated to Procopius that was erected over the ruins of Herod's temple (Holum and Hohfelder 1988: 176–9). Several large, suburban villae were discovered near Caesarea and at Ascalon (mod. Ashkelon, Israel), while numerous well-organized farmsteads and villages developed in the Golan Heights (Dauphin 1995: 667–73; Dauphin et al. 1996: 305–40; Urman 2006), in Judea, along the coast between Dor and Gaza, in the Samaria hills, and in the Negev (Hirschfeld 1997). Some, like those at Horvat Zikhrin and Horvat Migdal in Western Samaria, Gelilot on the coastal plain, and Capernaum on the shore of the Sea of Galilee, included small bathhouses (Hirschfeld 1997: 65). In the Negev desert, several cities and large settlements developed, notably Mampsis (Kurnub), Oboda (Avdat), Subaita (Shivta), Nessana (Nizzana), and Rohoba (Ruheibe). Monasteries flourished, particularly in the hinterland of Jerusalem – the Judean Desert – and in southern Sinai along the main pilgrim routes from Sinai to Jerusalem. In addition, a large number of monasteries were founded near rural villages (Hirschfeld 1990; Patrich 2004: 426–33; Bar 2005).

3 Byzantine Archaeology in Anatolia/Asia Minor

Constantinople

Some months after he had defeated his rival Licinius, Constantine embarked on an ambitious project: the establishment on May 11, 330 of a new capital for his Empire on the site of ancient Byzantium. New city walls were erected about 3 kilometers to the west of the Roman ramparts, enclosing c.700 hectares (Strube 1973: 131–47; Dagron 1974: 401–8; Mango 1980). The eastern promontory, sloping sharply to the shores of the Propontius, was chosen to host the main buildings: the Senate, the Imperial Palace, and the Hippodrome with an imperial loggia (Dagron 1974: 329; Mango 1985: 24). These projects required great feats of engineering because of the geological conditions of the area. In particular, the Hippodrome was erected on a massive substructure (Dagron 1974: 312; Barsanti 1992: 119). The Imperial Palace consisted of an articulated complex enclosed within a boundary wall and raised on terraces formed by containment walls and vaulted structures on several levels. It included the Palace of Daphne, the Augustus (or boardroom), and the guard Scholae, only a monumental portico of which today survives east of the Agora (Miranda 1983: 41–9, 196–204). The Agora, the Roman Tetrastoos, was named Augustaeum after the column erected by Constantine in honor of his mother Helen. It was a colonnaded square adorned with statues of the Emperor, his children, and other imperial personages. The second Senate house was built on the eastern side; it included a large basilica, its stoa adorned with the most representative works of Classical antiquity (Barsanti

1992: 121). On its southern side, the public baths of Zeuxippus were restored and embellished by Constantine. Subsequently, the maintenance of these baths was regulated by Honorius and Theodosius in 424 (Saradi 2006: 334). The structure was severely damaged by fire during the Nika riots of 532. To the west of the Augustaeum ran the city's monumental avenue: the Mese, which led to the Thracian Gate. It was bounded by Constantine's Forum, the Forum Tauri (Barsanti 1995), the Forum Bovis, and the Forum of Arcadius. At the point of convergence of the Roman Stoa, stood the Milion/*miliarium aureum* (lit. "golden milestone"). The forum was located in front of the Senate house, with a *nymphaeum* (shrine dedicated to the water nymphs with a fountain, reservoir, flowers, sculpture, and wall paintings, used for weddings) on the opposite side. It was circular, adorned with the emperor's statue on a porphyry column dedicated in 328, perhaps on the occasion of the consecration of New Rome. The forum porticoes were damaged by the fires of 465, 498, and 532 during the Nika riots. Constantine also built the Church of the Holy Apostles where he deposited in 356–7 the relics of Saints Andrew, Timothy, and Lucas.

Theodosius II (408–50) contributed to the transformation of Constantinople into a magnificent capital. He first turned his attention to improving its defensive capacity by building a new, double land wall that included towers of various shapes (Meyer-Plath and Schneider 1943; Tsangadas 1980; Foss and Winfield 1986: 41–77; Ahunbay and Ahunbay 2000: 227–39). This was probably linked to the already existing Constantinian wall with 10 main gates. The latter were repaired by Emperor Justin II (565–78). The most important landmarks of the city were erected under Emperor Theodosius: the Great Palace and the Church of St Sophia. The Great Palace dominated a large terrace overlooking the Sea of Marmara (Brett et al. 1947; Talbot Rice 1956). This consisted of a labyrinth of halls, courts, gardens, and porticoes, each with its own function: halls of audience, private apartments, chapels, churches, and administrative buildings (Dark 2007). To the north stood the Chalke, a rectangular building communicating with St Sophia through a bronze door; in its domed, central hall were exhibited many works of art brought from all over the empire (Mango 1959). Through the Chalke, a passage led to the guard Scholae, and then through halls to the Palace of Daphne in which the Imperial Throne stood. Emperors Justin II and Tiberius I (578–82) completed the construction and decoration of a domed, octagonal aula that hosted the main symbols of imperial power. The Great Palace included several churches dedicated to the Holy Virgin, St Demetrius, and St Elias. Official delegations and foreign ambassadors were received in the Magnaura, to the northeast, also lavishly decorated. Little of this palace survives today except for the extraordinary mosaic pavement of the peristyle, set around a rectangular court. Though the exact date of this pavement is still debated, it has been ascribed to the 6th century (Bardill 1999, 2006; Barsanti 2009). The church of St Sophia, built over a Roman necropolis, originally had a basilical plan and was dedicated in 360 in the reign of Emperor

Constans. It was destroyed by fire in 404 and reconstructed by Theodosius II in 415. Other churches were founded in the 5th century, such as St John Studios to the southeast (Mango 1974: 61) and the Theotokos Chalkoprateia to the west of St Sophia.

The city's commercial potential was improved by the construction of port facilities and harbors on the Propontid coast (Mango 1985: 37–40). Theodosius II built a harbor south of the mouth of the River Lykos, in the IXth region, well equipped with warehouses, such as the *horrea Alexandrina* and *horrea Theodosiana*, where cereals and other crops brought from Egypt were stored (Mango 1985: 40; Asal 2010: 152–5). Recent archaeological excavations at Yenikapi in the western part of the inner harbor have uncovered the land walls made of large stone blocks and the beginning of a pier on the west but reaching out to the east and northeast. The masonry of the north–south quay included well-dressed blocks used to anchor boats. The Port of Theodosius was protected by the tower of Belisarius, which stood on the sea, near the harbor entrance, and probably served as a lighthouse. The excavations also revealed a shipwreck, dated to the 9th century, which has contributed valuable information on naval construction in the Byzantine period. Moreover, it has provided a variety of traded items and naval equipment, such as amphorae, baskets, pulleys, hoists, ropes, rope loop, stone, and iron anchors; and, personal items, such as combs, leather sandals, wicker baskets, wooden bowls, and other objects of organic or inorganic matter (Kocabaş and Özasait-Kocabaş 2010: 143–7).

A crucial issue concerned the maintenance of the water supply system: the aqueduct of Valens provided running water for the baths and the fountains, while a system of water storage with huge cisterns was the main source of drinking water for the population. Responsibility over these as well as over other public works, such as harbors, streets, bridges, and walls, was entrusted, according to Justinian's Novellae, to bishops, governors, and community leaders (Saradi 2006: 344–5).

In the 6th century, Anastasius I (491–518) and Justinian I (518–27) did not alter the aspect of their capital, but contributed in improving its structures. Justinian made great efforts to maintain existing structures, such as the vestibule of the Great Palace, the Senate, and civic complexes, in addition to the founding of new churches. In the central part of the city, the Church of St Polyeuctos was built, probably around 524–7 (Harrison 1985; Hayes 1992); it communicated with the adjacent church of SS Peter and Paul and was connected to the Hormisdas Palace, Justinian's private residence. As the result of the Nika riots, the church of SS Sergius and Bacchus required restoration, and again in 558 after the original dome had collapsed (Mango 1974: 106–23). Similar was the situation of St Irene, burnt down in 532 and then rebuilt. Two other churches, St Euphemia and Basilica A, were discovered during excavations in the Beyazit quarter of Istanbul. One of the major churches was a cross-shaped building dedicated to the Apostles.

4 Anatolia

Set geographically on the cross routes that connected Europe to Asia and to the countries of the Mediterranean shore and the Black Sea, the Province of Asia was, from its early development, one of the richest and most populated of the Roman Empire (Foss 1996; Zah 2003). There, two different cultural traditions met: the Oriental or Asiatic that flourished inland, and the Graeco-Roman that dominated the coast. This duality conditioned and left its mark on settlement patterns, which remained of urban character in the coastal areas and near the main trade routes, while inland, agricultural and rural settlements prevailed, particularly along the Eastern *limes* (the line of defensive forts on the Roman frontier). The archaeological record indicates a great number of Byzantine sites: surveys conducted in the central part of Lycia around Kyaneani have brought to light farmsteads, villages, and traces of farmed terraces (Foss 1994: 1–52). In the territory of the Meander River, a network of economic exchange linked the cities to their hinterland characterized by villages of independent farmers or small landowners (Morrisson and Sodini 2002).

The strategic value and the position of the southern Oriental cities in frontier areas necessitated the construction of massive fortifications in the reigns of Anastasius, and later of Justinian. The walls of several urban centers were reinforced: Sardis (Foss 1996), Dara (Zanini 1990; Forlan 1995), Amida (mod. Diyarbakir), Edessa (mod. Urfa) (Guidetti 2009), Martyropolis, Theodosiopolis (mod. Erzerum), Melitene (mod. Eski Malatya), and Carrhae (mod. Harran). The maintenance of public services was increased under Justinian, primarily the land communication network; bridges in Tarsus, Misis and Amida, aqueducts in Nicaea, and Trebizond; and public baths in Nicomedia, Nicaea, and Pithiae/Bithyinia. Imperial munificence was also directed toward the re-edification of entire cities damaged by earthquakes, such as Anazarba, as well as the foundation of churches and sanctuaries. Several churches were built, such as the Panagia in Antalya, the episcopal basilica of Hierapolis (mod. Pammukale), and that of Alaşehir in Phrygia (Buchwald 1981), and many others in Lyconia, Caria, Bithynia, Tur Abdin, and the Pontus. Several other churches in Cappadocia and Nicaea are dated to the second half of the 6th century. Offering an important variety of shrines, the most prominent of which were probably in Ephesus, Asia Minor had long been also the destination of pilgrimage.

The gradual decline of urban structures started in 615 as the result of the Persian invasion, which was followed by the Arab Conquest. During this period, several towns were sacked and destroyed (Vryonis 1971). Those that survived these catastrophic events were forced to limit the habitat to the fortified summits of their acropolis, as at Cesarea of Cappadocia (Kayseri) and Ancyra/Ankara (Foss 1977), while Sardis Pergamum, Miletus, Priene, and Magnesia became small fortresses (Foss 1996). Constantine II (641–68) added new fortifications to

Sardis (Foss 1977), Ankara, Ephesus (Foss 1979), and Miletus, paying particular attention to those cities near major crossroads.

Ephesus

Before the Byzantine period, Ephesus was already one of the greatest cities of Asia Minor. Its nucleus had developed on a small plain near its harbor around important public buildings dominated by the shrine of Artemis, which was considered one of the wonders of the ancient world (Foss 1979). In the Byzantine period, the city underwent important transformations: its main colonnaded street, the Arkadiana, which connected the city to the harbor, was repaved, subsequently four columns were added by Justinian, and it was adorned with the statues of the Evangelists. In the 4th century, the Museion, which rose to the north of the colonnaded street and had been damaged by fire, made way for a large elongated cathedral dedicated to the Virgin, with a baptismal domed chapel, and the bishop's residential quarter to the west. The cathedral hosted two important Church Councils in 431 and 449. Though the exact date of its construction is debated, epigraphic evidence indicates that the building was renovated under Justinian. According to tradition, the tomb of St John the Evangelist was located on a hill to the north of the city and was one of the holiest sites of Asia Minor. Under Emperor Constantine, the tomb was in a simple quadrangular building. In the 5th century, the *martyrium* assumed the aspect of a cruciform building covered by a wooden roof (Verzone 1982) and to which was attached a baptismal font (Castelfranchi 1981). It was rebuilt under Anastasius, and again under Justinian in 548, who donated to the sanctuary precious marble adornments brought directly from Constantinople. Thus the *martyrium* developed into the new cathedral of the city. Amongst the Christian shrines of the city, pride of place should be given to the Cave of the Seven Sleepers, built in the Panayr Dağ mountain range probably under Theodosius I (379–95), but which reached its greatest development with the edification of the mausoleum of Abradas. Pilgrims also visited the tombs of Mary Magdalene, St Timothy, and St Hermione (Foss 2002: 130–1). The archaeological record shows that after the Persian attack of 614, several areas of the city were abandoned, notably the agora and the embolus, and many dwellings were leveled, this triggering the city's decline (Foss 1990).

Edessa

Bisected by the river Skirtos/Kara Koyun, Edessa in southeastern Turkey was dominated by a fortress built to the south on a hilltop, the fortifications being connected to the city wall which was rebuilt under Justinian after the river had overrun its bed in 525, causing major destruction and alluvial silting. In the 6th

century, its name was changed to Iustinianopolis. Dedicated to St Thomas, the most ancient church of the city was described by the pilgrim Egeria in the 4th century. The cathedral, probably cross-shaped and including a baptistery, held the relic of the sacred Mandilion on which were imprinted Christ's facial features. It was rebuilt by Justinian after the 525 disaster (Grabar 1947). Another 6 churches rose in the city and a further 30 in the Edessa countryside are mentioned in the historical sources (Segal 1970).

Amida (mod. Diyarbakir)

An outpost on the southeastern edge of the Empire, the late Antique city of Amida experienced continuous political instability. The city fell to the Persians in 359, was reconquered by the Byzantines in 363, taken again by the Persians in 502, and two years later was back in Byzantine hands. In 602, the Persian ruler Chosroes took the city; Heraclius recaptured it in 628, but nearly 11 years later it fell definitively to the Arabs. The original core of the Late Antique city of Amida was enclosed by a "chain" of fortification walls under Constans II between 324 and 327 (Gabriel 1940; Van Berchem 1954). These often needed repairs, especially after each military campaign. Massive repairs were undertaken by Anastasius, while to Justinian may only be attributed restoration and maintenance work (Maffei 1985). In the 5th–6th centuries, the city had a well-defined Christian character which included auxiliary and charitable structures, such as a xenodochion built in the 5th century, several churches, and five monasteries (Mango 1982; Guidetti 2009).

5 Byzantine Archaeology in Syria

A rich and important province, Syria experienced major development in the 4th century thanks to the endowment of the imperial house that gave impetus to the transformation of the urban and rural topography. Eusebius mentions an octagonal church covered by a golden dome built by Constantine near the imperial palace in Antioch and dedicated to Christ in 341 by Constans II. In Damascus, Emperors Theodosius and Arcadius built the Church of St John the Baptist inside the *temenos* of the pagan sanctuary of Zeus (now the Umayyad mosque), while a second basilica was erected within the temple of Zeus in Heliopolis-Emesa/Homs. Likewise, the temple of Apollo in Daphne (a suburb of Antioch) became the church of the Archangel Michael. Further importance was given to churches as a result of holy relics and bodies of saints being deposited in them. Thus, the body of St Babila was laid to rest in a cruciform church in Qaousiyah-Daphne in 351/4 (Levi 1947: 283–5, 423–6). Theodosius II (405–50) transformed the Tychaion (the temple to the city's Tyche or goddess

of fortune) into the Church of St Ignatius by translating the saint's relics from the cemetery near Daphne. Similar is the case of the shrine of St Sergius in Rusafa/Sergiopolis, which became an episcopal see in the first half of the 5th century and the main center for the Ghassanid tribes allied to the Emperor. Great was the influence of local saints believed to be invested by God with the power of healing and foreseeing the future, as St Simeon the Elder (386–459) who spent much of his life atop a column, and St Simeon the Younger, native of Antioch, who dedicated his life to an analogous form of asceticism on Mons Admirabilis (521–92).

West of the Euphrates were the following administrative provinces: Syria I, with its capital Antioch (later called also Theopolis), Syria Salutaris (Apamea), Theodorias (Loadikeia/Latakia), Euphratensis (Ierapolis/Menbij), Phoenicia I (Tyr), and Phoenicia Libanensis (Emesa/Homs). Urban centers continued to flourish during the Byzantine period, some being rebuilt, such as Leontopolis (Callinicum/ar-Raqqa) and Justinianopolis (Burqush), while others displayed a remarkable continuity, in particular those in the Orontes valley, such as Antioch, Apamea, Epiphanea, as well as Bosra in the Hauran. One of the major undertakings of Anastasius and Justinian in Syria was the reorganization of the defense of the northern frontier along the Euphrates, which was largely exposed to Persian attack (Ulbert 1989: 283–96). The cities of Rusafa (Karnapp 1976), Halabiye (Lauffray 1991: 15–26), Dara (Zanini 1990), Chalchis (Fourdrin and Feissel 1994), Barbalissos (Meskene), Neocaesaria (Dibsi Faraj), and Antioch were literally transformed into strongholds.

Antioch

Antioch was one of the most fascinating cities of the Eastern empire, a patriarchal see and the capital of a district. The city boasted 15 churches and 20 temples. Besides being the home of wealthy landowners, it was chosen as imperial residence during the eastern campaigns against the Persians led by Constans II from 337 to 350, Valens from 371 to 378, and Julian in 362. Gradual decline set in during the 6th century as a result of a series of disastrous events: a fire in 525, followed in the next year by an earthquake that destroyed all major churches (Downey 1961: 521–6). A second quake in 528 literally demolished the city, calling for the urgent rebuilding of cultural and private edifices. This restoration, however, was unable to replace the city's earlier splendor. Valuable proof of this restoration was unearthed in the excavation of the great villa at Yakto, which yielded important stratigraphic evidence of both reconstruction and definitive abandonment (Foss 1997: 194). This recovery did not last long. In 540, Antioch was captured and put to the torch; its population was deported by the Persians. An extensive second restoration, under Justinian, encompassed the walls, public porticoes, markets, water conduits, fountains, theaters, and baths in an attempt

to resurrect the city's splendor (Saradi 2006: 252–3). Two years later the plague, and another earthquake in 551, followed by further pandemics, heralded the city's final collapse as it fell to the Arab conquerors.

Apamea

The city of Apamea was endowed with an extensive circuit of walls and maintained its Roman plan in the Byzantine period. There, in the 6th century, resided most of the great landowners, forming an aristocratic caste (Le Strange 1890: 384). The city was privileged to own one of the most sacred relics: a fragment of the Holy Cross (Procopius, *Historia Ecclesiastica* 4.26). Under Justinian, major reconstruction work was undertaken: the main streets were paved anew, a tetrastylon (a monument with four columns crowned by capitals) was added, and new shops built along the decumanus (Foss 1997: 208–10). To the south of the main artery, three large churches were constructed under Justinian: the Rotunda, the Atrium church with several reliquary chapels (Lassus 1972a; Foss 1997: 212), and the cathedral.

Epiphanea

Epiphanea's role was different: it was a road station and a bishopric. The city's main acropolis was encircled by walls under Justinian, while the building of residential quarters was followed by that of a monumental cathedral beneath the acropolis in the first half of the 5th century (Piccirillo 2007a: 599–607). In the suburbs of modern Hama, the Church of the Holy Martyrs at Tayyibat al-Imam was built in 442 and paved with mosaics of extraordinarily high quality of workmanship (Zaqzuq and Piccirillo 1999: 443–64).

Bostra

In Bostra (Bosra), capital of Provincia Arabia, the cathedral was erected in the eastern part of the city probably in the 6th century (Dentzer 1989: 229), while the church of SS Sergius, Bacchus, and Leontius was an important center of pilgrimage (Farioli Campanati 1992: 173–8).

The landscape of Byzantine Syria was predominantly one of rural settlements. Most of these were on the limestone plateau of Northern Syria, in the fertile plains, particularly around the cities of Antioch (Haines 1971: 10–13), Apamea, Beroea (Aleppo), and Chalcis, and in the mountains – Jabal Samn, Jabal Halaqa, Jabal Berisha, Jabal Ala, Jabal Dueili, Jabal Wastani, and Jabal Zawiye (Foss 1997: 232–7). Archaeological excavations have demonstrated that these villages

developed in close proximity to each other, had well-marked and well-evidenced territorial limits, and predominantly practiced dry-farming. The local economy was based on the production of olive oil, fruit, cereal crops, and vegetables (Tate 1992: 191–271). These settlements, with well-preserved structures of well-dressed masonry, were mostly inhabited without interruption from 350 to 550 (Tchalenko 1953–8; Foss 1997: 200; Gatier 2005). Some villages were particularly wealthy, as may be surmised from the hoard of 56 extraordinary silver objects discovered in Kaper Koraon. The silver objects were the gift of local notable to the village church and to its saint, Sergius between 540 and 640 (Mango 1986).

6 Byzantine Archaeology in Phoenicia (Lebanon)

In the cities of Phoenicia, churches were integrated into the Roman urban centers, especially along the coast as in Berytus/Beirut, Byblos/Gibelet, Sidon, and Tyre, as well as in Baalbek in the Beqaa. These centers were connected to the Roman road network that led from the coast to the Beqaa and on to Aleppo, Homs, and Damascus and beyond (Walmsley 1996; Morrisson and Sodini 2002). In the 6th century, several churches were built, as in Ma'ad (near Batrun). On the coast, Byzantine Khan Khalde was a large city with many churches paved with mosaics. Similar elaborate mosaic pavements were unearthed in Khalde, 'Awza'i, Jenah, and Zahrani (Donceel-Voûte 1988). Near Tyre, the church of Qabr Hiram exhibits a spectacular mosaic floor. In Baalbek, the temple of Zeus was converted into a church dedicated to St Peter.

7 Byzantine Archaeology in Arabia and Palaestina III (Jordan)

The undeniable prosperity and the outstanding development of the territory of Provincia Arabia and of the three Palaestinae, within the ecclesiastical jurisdiction of the Patriarchate of Antioch and Jerusalem (Devreesse 1945: 213–14; Piccirillo 1989b: 461), with their large urban and multitudinous rural centers, is well evidenced by recent field studies (Walmsley 2005). Excavations have shown an intensive exploitation of the landscape, which reflects the favorable political and economic conditions of development of that area in that particular period. The roots of this remodeling may be traced back to the 4th century, as imperial policy encouraged private ownership of land by promulgating laws that remained in force at least until the end of the Byzantine period. The demographic expansion, due probably to increased security experienced in marginal areas or as a result of climatic improvement, resulted in a large number of villages concentrating around major urban centers (Hamarneh 2003). The gradual transformation of the modes of territorial occupation was twofold and probably began in the second half of the 5th century, as local tribes shifted from a nomadic to a sedentary lifestyle,

either reoccupying abandoned Roman military structures or establishing new settlements in the fertile areas in the hinterland of cities (Hamarneh 2003). Nomadic populations provided a reliable agricultural workforce, besides militarily policing the *limes* frontier zone. Thus, the new settlement policy was correlated to a process of Christianization and may have started under Emperor Constans 337–61 and his successors: Sozomenos, in his *Historia Ecclesiastica*, mentions the conversion of large groups of *foederati* represented by their own Bishop of the Arabs at the Church Councils of Seleucia in 359 and Antioch in 363 (Devreesse 1945; Shahid 1989). The formation of the episcopal dioceses attested in the 4th–5th centuries was also due to the decline of provincial administration (Liebeschuetz 1997: 113–25; Saradi 2006: 181). The formal recognition of the bishop's authority in urban administration was sanctified by several Justinianic laws. The bishop thus procured both ecclesiastical and civic functions that persisted into the 7th century (Dagron 1979: 44–47; Walmsley 1996: 129). In Provincia Arabia, such involvement is attested by a lintel inscription discovered in Gerasa (mod. Jerash) which mentions the building of a prison for the accused by Bishop Paul of the same city in 539–40 (Gatier 1985; Piccirillo 2002: 133–5). Urban centers, as in other provinces, maintained their regular Classical plan, which, however, was rapidly modified owing to the ascendancy of Christianity (Whittow 1990). It must be stressed that the process of Christianization in the area is well documented by mosaic dedicatory inscriptions on church pavements that attest the continuity of the local Christian tradition long after the Arab Conquest (Di Segni 1999; Hamarneh 1996). Most churches exhibit a basilical plan, some an octagonal (Gerasa/Jerash and Gadara), centralized (Gerasa and Madaba), or cruciform plan, as in Gerasa (Duval 1994; Michel 2001). Christian churches were erected either in vacant lots over ruined pagan temples, or on land plots donated to the church, as was the case of the Hippolytus Hall in Madaba, which was subsequently converted into the entrance vestibule of the Church of the Virgin in the 8th century (Piccirillo 2007b). In Madaba, the cathedral and its baptistery were built in the 5th century, the main *cardo* was flanked in the 6th–8th centuries by several churches and houses, reusing building materials from adjacent pagan temples (Piccirillo 2002; Piccirillo 1989a). Dated to the second half of the 6th century, the church to the north of the *cardo* displayed a mosaic representing the biblical lands to the east and west of the Jordan river, from the Lebanon to Egypt (Piccirillo 1993). Gerasa, Pella, Abila, and Gadara also kept their original urban plan, although it was modified by Christian monuments constructed between the 5th and the 7th centuries (Piccirillo 1981; Piccirillo 2002).

From an archaeological standpoint, excavations have demonstrated that agricultural settlements in Arabia and Palaestina Tertia were mainly villages that rose within *castrum* enclosures (Haldon 1999; Fiema 2002: 211; Hamarneh 2003). Most of these settlements illustrate an important building policy which reflects the key position of the church. The cases of Umm el-Quttein, Umm

el-Jimal, Khirbet es-Samra/Haditha, Rihab (in the bishopric of Bosra), Jiza/Zizia/Zizium, Dhiban/Libona, Nitl and Umm er-Rasas/Mefaa (in the bishopric of Madaba), Khirbet al-Mureigha, Zodocatha/Kastron, Zadakathon/Sadaqa, Kastron Ammatha (mod. al-Hammam), Khirbet Nahas, Arindela/Gharandal, and Huana/Humaima show the habitat expanding outside the enclosure walls, this presuming that no military actions were taking place at the time. Not only is the number of ecclesiastical foundations in each locality – up to 15 – impressive, but most are dated by inscriptions which bear witness to the patronage of local bishops and lay donors (Hamarneh 2003). In the 6th century, the gradual shift in social and economic importance toward villages, which is traceable in the structure of the Byzantine tax system, confirms the strength of the local rural economy and implies the decrease of international trade in Arabia, the population relying increasingly on local resources.

Archaeology has shown that Arabia was not targeted by the Persian invasion of 614. Several dated church inscriptions prove that intense building activity occurred under Polyeuctos (594–623) and Theodoros (634–37), archbishops of Bosra, before and after the Arab Conquest, in the villages of Rihab, Khirbet es-Samra, Sama, and Yasilah, alongside other rebuilding or restoration projects (Piccirillo 1981, 2007b). Some churches were rebuilt on a smaller scale, as in Khilda, in the vicinity of Amman, in 687. Similar remodeling is attested in al-Quweismeh (Amman) and Khirbet Daria (Pella). Fervent activity was also present at Rihab: a church dedicated to the Martyr Philemon was rebuilt in 663, followed in 691 by the construction of the basilica of St Sergius. At any rate, construction activity is attested in the countryside under the Umayyads in the bishoprics of Madaba and Pella. As in Umm er-Rasas, where the Church of St Stephen was built in 718 and a new pavement was added in the presbytery in 756 (Piccirillo and Alliata 1994), a church was built in 719–720 in Ma'in/Belemounta (Piccirillo 1989a). The mosaic floors at Umm er-Rasas and Ma'in/Belemounta displayed a series of towns flanked by donors; in the frame of the pavement of the central nave, cities in the Nile delta, Arabia, and Palaestina were depicted probably to emphasize the Christian identity and prosperity of the settlements under the new Umayyad rule. The lower Church of al-Quweismeh was erected in 717, the monastery of the Theotokos near Ain al-Kanisah was decorated in 762, and a mosaic-paved room was added to the south wing of the large cenobitic Monastery of Mar Liyas near Ajlun in 775–6 thanks to the generosity of the pulse merchant John and his family (Piccirillo 2007b). On the other hand, urban churches dated to the same period are extremely rare; the only case so far is the Theotokos Church, built in Madaba in 767 (Piccirillo 1989a).

Important information is contributed by the papyri recently discovered in the Church of Petra, which cover property rights, tax responsibilities, several types of negotiated contracts, and methods of settling disputes. Though the texts discuss mainly family business, one may surmise that the higher classes of 6th century Petra were not very different from their contemporaries in other cities of

Palaestina and Arabia (Fiema 2002). The papyri show evidence of a vital economy that included farmhouses, gardens, vineyards, orchards, and several agricultural installations, such as cisterns, threshing floors, stables, and water channels. Produce included wine, grain (mostly wheat), and fruit, while farming methods include the intensive use of terracing and *wadi* cultivation. The territories of Arabia and Palaestina Tertia had important cenobitic monasteries connected to holy sites and located along pilgrim routes. Such were the monasteries of Mar Liyas dedicated to the Prophet Elijah (Piccirillo 2007b), the Memorial of Moses on Mount Nebo (Piccirillo 1992, 1998), and the monastery of St John the Baptist at Ainon-Saphsaphas (Hamarneh and Roncalli 2009), St Aaron near Petra (Fiema and Frösén 2008), and the Sanctuary of Lot at Deir Ain Abbata (Politis 2010). The earliest of the above-mentioned monasteries is probably that of Ainon-Sphsaphas, built on the eastern shore of the Jordan river and connected with the traditional site of Christ's baptism. According to the pilgrim Theodosius, who visited it in 530, a church was erected there by Emperor Anastasius I (491–518).The care of the shrine and of the needs of pilgrims were assured by a monastic community that had received from the imperial treasury five golden *solidi* (Roman and Byzantine gold coin weighing c.4.5 grams) as an endowment (Piccirillo 2000: 84–85; Hamarneh and Roncalli 2009: 199).

GUIDE TO FURTHER READING

For general orientation on late Roman history, see Jones (1964). Kaplan (1992) is a general overview of economy and society in Byzantium from the 6th through the 11th century, while Mango (1986) and Saradi (2006) present surveys of Byzantine architecture and cities, respectively. More specific regional studies include Foss (1990) on the history and archaeology of Byzantine Asia Minor, Sivan (2008) on Byzantine Palestine, and Piccirillo (2002) on the Christian population of the Roman province of Provincia Arabia. Bowersock (2006) provides an excellent review of the use of mosaics as historical sources.

CHAPTER FIFTY-SEVEN

The Sasanian Empire: An Archaeological Survey, c.220–AD 640

Ali Mousavi and Touraj Daryaee

1 Introduction

A large number of monuments, buildings, rock reliefs, inscriptions, and collections of coins and manuscripts have shaped our present image of Sasanian archaeology. The systematic study of material remains of the Sasanian period began in the 17th century with the exploration of monuments, rock reliefs and sites by European travelers (Huff 1986: 302) but it was not until the 1920s that the first archaeological excavation of a Sasanian site began at Ctesiphon in central Iraq (Reuther 1929a, 1929b). More fieldwork was carried out in Iran during the 20th century, resulting in a better understanding and interpretation of Sasanian material culture. Regional survey in southwestern Iran was initiated by Robert McC. Adams of the Oriental Institute (Chicago) in the 1960s and was later continued by Robert Wenke (1975–6). Archaeological explorations and surveys in Fars and northeastern Iran significantly enriched the body of evidence available on the archaeology of the late pre-Islamic Iranian empires.

Except for major monumental remains such as royal cities, palatial and religious buildings, and rock reliefs, the archeological evidence indicates regional diversity in material culture across the Sasanian Empire. This regionalism can be observed in pottery, building techniques, and settlement patterns, making the identification of Sasanian remains difficult. Only in southwestern Iran and central Iraq, thanks to the excavations at Susa, Ctesiphon, and other sites in Mesopotamia, is there a well-stratified corpus of artifacts that can be safely attributed to

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the Sasanian period. Despite the fact that the study of spectacular monuments has always dominated archaeological research programs, the major Sasanian sites have not all been fully explored and published. The first capital of the empire, Firuzabad, has been the object of limited archaeological investigations (Huff 1971, 1972, 1974); other large sites in southern Iran such as Darabgird and Istakhr are inadequately known (Morgan 2003; Whitcomb 1979). The destruction of important Sasanian sites in southwestern and western Iran, due to agricultural and urban activities, continues today. The sites of Eyvan-e Karkheh and Qasr-e Shirin were severely damaged in the 1980s during the Iran–Iraq war and the celebrated site of Jundishapur has been extensively destroyed by agricultural activities. Similarly, the waterworks at Shushtar suffer from the urban development of the modern town there. Most of the archaeological surveys concentrated in southwestern Iran and southern Mesopotamia have been surface reconnaissances for collecting potsherds, the study of which is based largely on the excavated materials from Susa and sites in the Deh Luran plain (Adams 1962: 116–19; 1965: 71–80; Neely 1974; Wenke 1975–6, 1987). Whereas these surveys provide an important body of information on settlement patterns, the utility of the data depends largely on the excavated ceramic sequence from Susa (the only site that has been extensively excavated), which had already lost its importance by the 4th century – i.e. early in the Sasanian period.

To date, the difficulty of presenting a satisfying picture of the archaeological remains of the Sasanian period has been addressed in two ways. Early attempts to tackle the problem were largely art historical, as illustrated by the pioneering works of L. Vanden Berghe (1959: 235–48), R. Ghirshman (1962), and A. Godard (1965), which emphasize architecture and minor arts, often at the expense of other types of evidence (e.g. ceramics, coins, and settlement patterns). The second approach consists of a regional study of the remains. This is reflected in the only comprehensive survey of the archaeology of the Sasanian period, by D. Huff (1986), and is probably the best way to handle the considerable quantity of archaeological evidence. With an emphasis on more recent research, surveys, and excavations, this chapter attempts to highlight some key aspects and recurrent patterns in the art and archaeology of the Sasanian empire as reflected in excavation reports and general syntheses.

2 Settlement Patterns and Cities

The bulk of our archaeological evidence on urbanization and settlement patterns in the Sasanian empire comes from the western and southern parts of the empire – i.e., Iran and Mesopotamia. In these regions, archaeological surveys and textual records bear witness to a series of intense urbanization efforts combined with the expansion of irrigation and large-scale exploitation of arable land. The urbanization project under the Sasanians brought about an influx of population

from other parts of the empire. Both Middle Persian and later Islamic sources attest to intense interest in city-building projects on the part of Sasanian rulers. The *Shahrestaniha-ye Iranshahr* (*Provincial Capitals of Iran*), a Middle Persian geographical text completed in the late 8th or early 9th century, names cities across Central Asia, the Iranian plateau, and Mesopotamia, many of which were named after the king who built or rebuilt them – e.g., Weh-Ardashir, Adashir-Khurrah, Bishapur, Weh-Andiog-Shapur, etc. (Markwart 1931: 14, 19; Daryaee 2002: 20).

The urbanization project in southwestern Iran and Mesopotamia brought about a decline in rural settlement and migration to the cities, phenomena attested by archaeological evidence (Adams 1962: 115–116; Wenke 1987: 259; Neely 1974: 30). Population increase and urbanization were a direct result of planned expansion and economic growth promoted by the Sasanian government (Morony 1994: 227). As surveys around Damghan in northeastern Iran show (Maurer-Trinkaus 1983: 134–5, 1989: 135–41), the urbanization process does not seem to have dramatically affected other parts of Iran. Archaeological evidence suggests that the Sasanians continued to occupy earlier settlements, although settlement was more widespread and more uniform than in the preceding Parthian period. Shahr-e Qumis, the major Parthian settlement in the Damghan area, continued to be occupied throughout the Sasanian period (Maurer-Trinkaus 1983: 130–2, Figs. 2–3). Damghan's city wall was probably built in the late Sasanain period (Adle 1993) and the existence of a palace or manor house at Tepe Hissar shows that the area was densely occupied during the 6th and 7th centuries (Schmidt 1937: 327–350; Kimbal 1964). The Bronze Age site of Tureng Tepe was reoccupied and fortified in the Sasanian period. French excavations there uncovered a mudbrick fort, on the ruins of which a fire temple was later erected (Boucharlat 1985a; Boucharlat and Lecomte 1987: 25–30, 52–5). Excavations have been undertaken at royal and monumental sites in Fars and southeastern Iran, but there is a corresponding scarcity of archaeological surveys. Remains of the Sasanian period have been excavated at Qasr-e Abu Nasr, Shiraz, Tal-e Malyan, and Siraf on the coast of the Persian Gulf. Further east, at Tepe Yahya in the Soghun Valley (Kerman province), substantial Sasanian levels were excavated and a number of Sasanian settlements have been found between there and the Straits of Hormuz. At Gobayra the remains of a Sasanian settlement and a nearby Sasanian city have been identified (for a complete listing of sites, see Huff 1986: 303).

The Sasanian Empire also required a large urban workforce in order to develop textile, glass, metalworking, and other industries. The capture of Roman engineers, skilled workers, and craftsmen, and their deportation to newly built or older cities by Shapur I (mid-3rd century AD) brought a much-needed workforce into Iran and helped to alleviate a shortage of skilled workers (Wenke 1987: 259). The use of the suffix *Eran* or *xwarrah* ("glory") in the names of many cities suggests the ideological tendencies of the Sasanians as well, and reflects their

concept of kingship (Gnoli 1989: 131). Thus, for the Sasanians, urbanization had both economic and political significance.

3 Cities of the Highlands

In Fars, a series of large, royal cities at Firuzabad, Bishapur, and Darabgird provide most of our archaeological evidence for settlement patterns in the heart of the empire. The layout of these sites consists of either a circular plan around a few central monuments (Firuzabad and Darabgird) or a geometric plan introduced by east Roman engineers (Bishapur). It should be noted that very few vernacular architectural remains of the Sasanian period are known. Surveys have been limited to the Marv Dasht and Mamasani regions. The extensive ruins of Istakhr, 5 kilometers north of Persepolis, were excavated in the 1930s without yielding any satisfying archaeological material from the Sasanian period. Small finds consist of pottery, fragments of sculpture and architectural decoration, and coins (Schmidt 1939: 105–125; Whitcomb 1979).

The castle of Ardahshir Papakan, founder of the Sasanian dynasty, at Firuzabad is probably the earliest building of the Sasanian period. Known as Qaleh Dokhtar, the structure is a well-defended fortress on a plateau 150 meters above a bend in the Firuzabad river. It controls the main access to the plain of Firuzabad, which Ardashir had chosen as the nucleus of his emerging empire. The main structure stands on the highest point of the plateau and consists of a square, domed hall with side rooms and an *eyvan* (or *iwan*, barrel vault). The structure, the first known of its kind in Iran, is not the residence of an undisputed great king, but the splendid and powerful castle of an ambitious usurper, still fighting for supremacy in Iran (Huff 2008: 42; 2009: 83–4). The new king had two large reliefs carved on the opposite bank of the river Tangab: one depicts his investiture, while the other is a long panel representing a victorious combat against the last Parthian king, Artaban, in which Ardashir's son and successor, Shapur, is also shown along with another Sasanian knight (Vanden Berghe 1983: 62–6, figs. 8–9).

The first true Sasanian city is Adashir-Khurrah ("divine glory of Ardashir"), modern Firuzabad, the former Shahr-e Gur, founded in the very early years of Ardashir's reign, c.220. The site is located in the northern part of the plain near the eastern bank of the Firuzabad river, about 5 kilometers from the exit of the gorge that controls access to the plain. The circular city, 8 kilometers in diameter, was laid out on a concentric master plan and is a masterpiece of ancient surveying skills (Huff 2008: 45). The walls of the city form a perfect circle 1.85 kilometers in diameter, within which is a circular inner area that included, among other buildings, a central tower (known as the *tarbal*) and a square structure, the Takht Neshin, probably a fire temple. The outer area was divided by radiating streets, with two main axes, into 20 sectors. The city was encircled by a wide ditch (Huff 1974: 157–8), still visible today, that was fed by a deep canal. The radiating sectors

and main axes extended beyond the city walls into the countryside, resulting in an intricate pattern of paths with the city as its center. The standing remains of Firuzabad show that Ardashir not only built a city, but that he carried out a program of hydraulic works and land division all over the plain (Huff 1974: 160), confirming later literary tradition. According to the 10th century historian Istakhri, the Firuzabad plain had been a swamp or lake, which Ardashir had to drain before he could build his new city (Le Strange 1905: 255; Mostafavi 1978: 66). The question of water is also addressed in both the *Karnamak-e Ardashir-e Babakan* and *Farsnama* of Ibn Balkhi (Huff 1974: 161; Le Strange and Nicholson 1921: 137–8).

Ardashir's palace was built close to the city, next to a spring rising in the center of a pool, and has been studied many times (e.g. Flandin and Coste 1843–54/I: Pls. 39–43; Herzfeld 1936: 96; Reuther 1964: 534–5; Godard 1965: 191–3). In the 1970s Huff carried out the most recent study of the monument (Huff 1972, 1974, 1978a). The palace covers an area measuring 103 × 54 meters and is divided into two main parts: a reception hall and a residential sector. The entrance is in the form of a great *eyvan*, a typical monumental gate with its opening in the center of the main façade, which gives access to three large, domed halls arranged side by side. Beyond the reception halls lies the residential sector arranged around an internal courtyard. The walls were all plastered. Stucco cavetto cornices above doors and niches decorated the main halls of the palace (Godard 1965: 190–1). The palatial complexes at Firuzabad reveal the earliest examples of domed constructions on squinches above a square hall. The buildings also show a widespread use of barrel vaults (*eyvans*) which became a diagnostic feature of Sasanian architecture (Godard 1965: 191; Huff 1993: 49). A reminiscence of this type of vault is particularly reflected in the building at Sarvestan. The date and function of this "Sasanian palace" are debated. Its layout does not correspond to that of a palace, and its advanced architectural forms and decoration suggest a post-Sasanian date (Bier 1986: 28–50).

In 2005 the Cultural Heritage Organization of Iran undertook brief excavations at Firuzabad (www.chn.ir: 5/2/2006) aimed at exploring the area within the city's circular enclosure. Three areas were selected for fieldwork: the area of the high tower (*tarbal*), the Takht Neshin or fire temple (*chahar taq*), and the palace. Research at the foot of the *tarbal* revealed traces of steps belonging to a staircase that once led to the upper levels of the tower. The most outstanding discovery was a series of wall and floor paintings depicting royal figures. Paintings, apparently found on coffins in a subterranean tomb near the *tarbal*, show the busts of two young women, a young man, and a boy. The style and treatment of these paintings reflects the influence of Parthian art still in force in the early years of the Sasanian Empire. It has been suggested that the figures are Sasanian princes or dignitaries.

After the overthrow of the Parthians, Ardashir transferred his capital to Ctesiphon on the Tigris, in central Iraq, where the Parthians and Seleucids before them had their capital city. Little is known of Parthian and early Sasanian

Ctesiphon. The locality is known in Arab sources as Al-Mada'in ("the cities"). The oldest part was the walled city on the east bank of the Tigris, which the Arabs called the Old City (*al-madina al-atiq*). Here the royal residence or White Palace (*al-qasr al-abyaz*) was located (Kröger 1993: 447; Morony 2009). To the south of Ctesiphon lay the sprawling, unwalled residential district of Aspanbar, where the great *eyvan*, baths, treasury, game preserve, and stables were located (Fiey 1967: 28). Excavations in Choche on the west bank of the Tigris revealed the remains of Ardashir's new capital, Veh-Ardashir ("the beautiful city of Ardashir"), which occupied c.700 hectares (Gullini 1966: 26; Negro Ponzi 2005: 150–2, 157–8). During the Sasanian period Ctesiphon developed into a sprawling metropolis consisting of a series of cities and suburbs along both banks of the Tigris, hence the name Al-Madai'n (the cities). In 1616 the Italian traveler Pietro Della Valle correctly identified these ruins with Ctesiphon, describing them in some detail and measuring them by pacing out the remains (Invernizzi 2005: 196–7). Excavations by German and Italian teams have revealed part of the fortifications, artisans' quarters, and residential areas.

In the mid-5th century the course of the Tigris shifted, dividing Veh-Ardashir in two (Gullini 1966: 36; Negro Ponzi 2005: 151–2). Owing to a series of repeated floods that disrupted the city's life, a new Ctesiphon developed on the east bank of the river, south of Parthian Ctesiphon, where the famous Sasanian royal palace with its enormous audience hall, known as Taq-e Kesra, stands. The French art historian Marcel Dieulafoy took the first photographs of this monument in 1883. These show the two lateral façades flanking the great *eyvan* (today only the central *eyvan* stands). The structure was part of a larger complex that included a corresponding building on the east side of a large courtyard. The standing monument consists of a large *eyvan* 43.5 meters deep and 25.5 meters wide, penetrating a blind façade that stretches 46 meters in either direction from the center line of the *eyvan* and was originally 35 meters tall (Keall 1986: 156). The floors and walls of the palace were decorated with marble, *opus sectile*, mosaics, and stucco sculptures. It has been suggested that the complex was built by Khosrow I Anushirvan (531–79), who decorated it with mosaics commemorating his conquest of Antioch (modern Antakya, Turkey) in 540. It is also possible that Byzantine craftsmen sent by the emperor Justinian I (527–65) were employed in its construction (Keall 1986: 157). Medieval historians and geographers described the monument as the most beautiful ever built of brick and plaster (see, e.g., the description by Ibn Faqih Hamadani in Invernizzi 2005: 9–10). In the 10th century, Tabari mentioned details of the throne hall and its amazing treasures that the Arabs captured at the time of the Islamic conquest, in particular a fine "winter carpet" with gold embroidery (Invernizzi 2005: 14–15).

Sasanian Ctesiphon was protected by an enormous city wall, 10 meters thick, the ruins of which, called Al-Sur, rise from the plain as mounds of various heights (Reuther 1929b: 451). Italians excavations at the site revealed the residential and commercial areas of the city as well (Invernizzi and Venco Ricciardi 1999:

42). The discovery of iron and glass slag, and a number of plaster molds, indicates the presence of workshops within the city. According to an early 7th century source prepared for the Chinese court, the population of Sasanian Ctesiphon numbered more than 100,000 households (Simpson 2000: 61). The city was conquered by the Arabs in 639, and gradually lost its importance to the benefit of the newly founded Abbasid capital Baghdad.

The circular urban plan seen at Firuzabad was later abandoned for a geometric layout or Hippodamian plan. Shapur I, whose victorious battles against the Romans were described and illustrated at Naqsh-e Rustam, intended to found a new capital city, this time in southwestern Fars. Bishapur or Veh-Shapur is another *ex nihilo* foundation in the western foothills of Fars. The city – as described in Shapur's inscriptions – was built by Roman engineers captured after the defeat of Valerian in 260 (Ghirshman 1971b: 11; Daryaee 2009: 7). Indeed, some of the architectural remains at Bishapur reflect the influence of these Roman prisoners, particularly the celebrated *eyvan* of Roman-style mosaics excavated before and during World War II by Roman Ghirshman (1962: 141–7, Figs. 180–6). Other architectural components excavated by the French include a fire temple and a spacious, cruciform palace with a huge cupola, the walls of which were probably decorated with mosaics and stucco. Half a kilometer to the south of the fire temple lies another building in which two votive columns stand. The inscription on one of the columns bears the name of Shapur and dates the building to 266 (Ghirshman 1962: 151). The city was well protected by a fortress named Qaleh Dokhtar (not to be confused with the fortress of the same name near Firuzabad) on its eastern side, giving access to a gorge (Sarab-e Qandil) where an important Sasanian rock relief of Bahram II was carved (Hermann 1983: Pls. 33–40). The northern edge of the city was protected by the Shapur river, while a thick city wall enclosed its southern and western sides. An Iranian team, under A.-A. Sarfaraz, excavated portions of the northern city wall where the river imposed an irregular boundary on the otherwise rectangular city plan (Sarfaraz 1970). The wall was punctuated by an evenly spaced series of rounded towers at intervals of less than 1 meter, a technique that may have been derived from an ancient model known in the Roman Empire, but whether this reflects the work of Roman prisoners or not is unknown. Recent excavations of the Governor's Palace, dated to the late 7th century, and an early Islamic bath (Mehryar 2000: 58–60, 70–81) suggest that Bishapur continued to be occupied after the fall of the Sasanian Empire.

4 The Lowland Settlements: Shushtar, Jundishapur, Eyvan-e Karkheh, Susa, and Mesopotamia

The Sasanians, whose economy depended largely on agriculture, developed large irrigation systems in Iran and southern Mesopotamia. Waterworks from this period, especially bridges and dams, can be seen in Khuzestan and Fars. Bridges

were necessary for crossing the major rivers in Khuzestan (Karun, Karkheh, and Ab-e Diz) and it is here, too, that most of the known canals, tunnels, and mills are located. The focal point of this activity was at Shushtar, where a number of waterworks built in the Sasanian period, such as the Shadorvan weir (see below), still function. Road construction was also related to the improvement and exploitation of watercourses in the region.

Besides putting them to work on the construction of Bishapur, a number of Roman prisoners were employed by Shapur I (c.240–72) in the construction of waterworks, dikes, and weirs at Jundishapur, Shushtar, and Dezful. Some of these were described by medieval Arab and Persian historians and geographers (Le Strange 1905: 235–6), but none has yet been the object of thorough investigation save for the pioneering survey by Graadt van Roggen (1905), the Dutch engineer of the French Delegation at Susa, who explored the hydraulic structures of Susiana in the early 1900s. The World Heritage nomination file of the Shushtar waterworks presented to UNESCO in 2009 provides a complete list of the Sasanian-era hydraulic structures (bridges, dams, canals, watermills, etc.) in the region.

Shushstar is situated on a cliff at the northern extremity of an island formed by the Karun River to the west and the Ab-e Gargar canal on the east (Curzon 1882: 371–87). Its position offers considerable commercial and strategic advantages. The town has long been celebrated for a number of major waterworks there. The Ab-e Gargar canal (the Mashreqan of medieval sources) ran from the left bank of the river (about 500 meters north of the town) southward along the east side of the Shushtar cliffs, before rejoining the Karun at Band-e Qir. The great barrage called Band-e Qaysar or Band-e Valerian (the "dike of Caesar/Valerian"), also known as Band-e Mizan, runs across the principal arm of the river, which is here called the Shuteit. It is located east of the town and is about 350 meters long. This barrage supports a bridge that connected the town with the west bank. It is still extant, although there is now a considerable gap in it. The Mian Ab canal begins above the barrage in the form of a tunnel cut out of the rock on the western side of the town. It turns southwards and irrigates the land south of the town. In Shushtar, part of the riverbed was leveled and paved with stones by order of Shapur, and called in consequence Shadorvan (Curzon 1882: 374; Kramers and Bosworth 1996: 512). Aside from its roles in irrigation and flood control, the Shadorvan bridge-dam also functioned as a city gate in the road from Shushtar to other towns like Dezful. In order for the dam to be built, the riverbed was emptied, its water diverted into a diversion canal. Afterwards, construction progressed in a multi-staged procedure with the building of temporary dams (Roggen 1905: 183–4).

Jundishapur is a site of extensive ruins c.14 kilometers southeast of Dezful. Both it and Eyvan-e Karkheh (see below) have a similar plan. Today the site consists of a series of mounds in a vast quadrilateral measuring 3,400 × 1,500 meters. In the 1930s Ghirshman studied the remains of the city and noted that

it had been built like a Roman military fort: a rectangular walled city, with the longer northern and southern sides c.2 kilometers long and the shorter eastern side 1 kilometer long, and streets arranged in a grid system, just as Hamza Esfahani (894–970) described it (Ghirshman 1971b: 138; Shahbazi 2002). In 1963, on behalf of the Oriental Institute (Univ. of Chicago), Robert McC. Adams and Donald P. Hansen undertook soundings in the ruins, recognizing the "rectangular outline of the city" and "a grid pattern suggesting regularly placed intersecting streets" on aerial photographs (Adams and Hansen 1968: 55–62). None of the soundings produced "positive findings of inherent importance" in that they did not yield any significant Sasanian remains, other than pottery (Adams and Hansen 1968: 55).

The vast city of Eyvan-e Karkheh was founded to the northwest of Susa by Shapur I. With its rectangular shape (4 × 1 kilometers) and its impressive remains of a monumental *eyvan*, the site soon attracted the attention of French archaeologists working at Susa. Dieulafoy took the first and still best published photographs of the ruined *eyvan* in 1884 (Dieulafoy 1884–9/V: Pls. 7–9). Ghirshman undertook soundings at the site in the fall of 1950 and published a succinct report on his work (Ghirshman 1951: 296–7). Excavations in the southeastern part of the palatial complex uncovered two of four halls, each 30 meters long and 6 meters high. Other trenches near the city walls revealed semi-circular towers reinforcing a massive, 8 meter thick wall. Another trench in the central mound revealed the remains of a triple *eyvan* of baked brick, the walls of which must have supported a vault 12 meters high and 8 meters wide. The walls were probably decorated with painted frescoes over plaster (Ghirshman 1951: 294; Gyselen and Gasche 1994). Illustrations of the finds have never been published in full. Adams' survey of the region in the early 1960s confirmed that these new foundations, Jundishapur and Eyvan-e Karkheh, both depended heavily on intensive irrigation and water management for their livelihood. In addition, a series of vented tunnels were dug specifically for Jundishpur as an alternative source of water. Adams suggested that their construction may have been related either to an increasing need for water in the summer, or to the need for assuring winter irrigation during periods when the weirs near Dezful were inoperative due to washouts (Adams 1962: 118). Adams also produced a map of Jundishapur from aerial photographs (Adams 1962: Fig. 7). This is particularly valuable given the regrettable fact that the site was largely destroyed in the early 1980s during the Iran–Iraq War. Wenke surveyed these sites and their environs in the 1970s, concluding that an increase in population density accompanied the rebuilding of Eyvan-e Karkha around 525 by the late Sasanian king Kavad I (Wenke 1975–6: 137–8).

Ghirshman also explored the Sasanian remains at Susa in his large trench A in the Ville Royale (Boucharlat 1987a: 359–60; 1993: 44–5; Vallat 2002: 516–17). Sasanian remains were found in three levels. Level V contained destruction layers corresponding to the Partho-Sasanian conflict in the early 3rd century. Level IV dated to 341 when Shapur II (309–79) captured the city and persecuted its

inhabitants. This was capped by an important destruction layer containing a number of graves, jar burials for infants, and bronze crosses, attesting to the Nestorian Christian presence in the city so well attested in literary sources. For the excavator, this was clear evidence of the massacre and destruction ordered by Shapur II. Level III, dated to the 5th–6th centuries, including a dozen inscribed bullae mentioning the name of the city and province. Coins were rare at Susa. Most were found in hoards, but unfortunately almost all (96 percent) date to the reign of one king, Khosrow II (591–628).

Excavations in the 1970s in the Ville Royale, *chantier* II, provided an almost continuous sequence of occupation from the 2nd millennium BC to the late Parthian period, followed by a hiatus until the Islamic era (Boucharlat 1987a: 359). Archaeological evidence and textual records point to a city in decline as early as the 3rd/4th century and a revival in the late Sasanian period. As Boucharlat noted, with the foundation of new, competing settlements such as Jundishapur and Eyvan-e Karkheh, Susa was marginalized. Moreover, Susa's decline was also exacerbated by the deliberate actions of some kings, like Shapur II, who destroyed Susa in 341 (Boucharlat 1987a: 363). The use of adjacent areas to boost agricultural production was also prominent in the late Sasanian period, as can be seen by the evidence of agricultural intensification in the Deh Luran plain to the north of Susa (Neely 1974).

Sasanian levels have been reported at Mesopotamian sites such as Babylon and Uruk, but the best-known architectural remains were found at Kish, where five domestic structures were excavated, three of which were well-preserved buildings with abundant stucco decoration, including a bust of king Peroz (457–84). These buildings have very distinctive layouts with columned halls, *eyvans*, and rooms arranged around a central courtyard and basin. They have been dated to the 5th century AD or later (Watelin 1964; Moorey 1978: 122–4, 141–2).

5 Fire Temples and Sanctuaries: Takht-e Suleiman, Bandian, Mele Hairam, and Kuh-e Khajah

Sasanian religious remains and cult buildings consist mostly of fire temples, a large number of which are still visible in Iran; fire altars; *dakhmas* (circular "towers of silence" for the exposure of corpses and their excarnation); and ossuaries. The most significant of these remains is the *chahar taq* – a building with a central domed square and four arches. Fars is dotted with numerous *chahar taqs* from Darab and Bishapur in the south to Yazd-e Khast in the north. These monuments have been frequently explored (Godard 1938; Vanden Berghe 1961, 1965, 1984; Schippmann 1971; Huff 1998; Boucharlat 1985a, 1999).

The most distinguished of all fire temples is the religious complex at the World Heritage site of Takht-e Suleiman in Azarbaijan. This impressive site lies 30 kilometers north-northeast of Takab, at an elevation of c.2,200 meters above sea

level, on top of a 60 meter high natural hill situated in a broad mountain valley. The hill was built up by the sedimentation of calcium-rich water, the overflow of a thermal spring-lake located on the site. Its growth was only interrupted when the overflow was conducted away from the hill by artificial canals. Occupied sporadically between the 4th century BC and the 4th century AD, Takht-e Suleiman became the site of monumental structures in the second half of the 5th century. Literary sources and archaeological finds identify these buildings as the ruins of the fire temple of Atur Gushnasp ("fire of the stallion"), one of the three most revered Zoroastrian fire sanctuaries in the Sasanian empire (Naumann 1965: 25; 1977: 70–1, Fig. 47; Huff 1978b: 778). Medieval geographers and travelers such as Abu Dalaf, who left a detailed description of the site in the 10th century, knew it by the name of Shiz (Naumann 1965: 23; Huff 2004: 462). Sir Robert Ker Porter published the first modern description of the site following his visit there in 1818 (Ker Porter 1822: 556–62). In the account of his journey from Tabriz to Takht-e Suleiman, Henry C. Rawlinson described the ruins in detail, but erroneously identified them with the Median capital Hagmatana/Ecbatana (Rawlinson 1840: 47–54). In the early 20th century, A.V. Williams Jackson published a thorough description of the ruins, collecting all medieval sources describing the site (Williams Jackson 1906: 124–43). In 1937 Arthur Upham Pope and members of the American Institute for Iranian Arts and Archaeology briefly surveyed Takht-e Suleiman (Pope et al. 1937). Their report served as the basis for V. Minorsky's fascinating, but now refuted, thesis that Takht-e Suleiman may have been the Parthian site of Phraaspa captured by the Romans in 36 BC (Minorsky 1944). Between 1959 and 1978 the German Archaeological Institute in Tehran carried out several seasons of meticulous excavations, resulting in the correct identification of the site as Sasanian Ganzak, with its fire temple Atur Gushnasp.

Takht-e Suleiman consists of an oval platform, c.350 × 550 meters, rising c.60 meters above the surrounding valley. It has a small, calcareous artesian well that has formed a lake 120 meters deep. From here, small streams bring water to the surrounding lands. The temperature of this deep, mysterious lake is 21°C. It is the focal point of the site and its existence was without doubt the reason for the construction of the Sasanian fire temple and palaces there (Naumann 1965: 24; Huff 2004: 462). The lake is also an integral part of the layout of the monumental complex and was surrounded by a rectangular "fence." To the north are the Sasanian sanctuary and its components, flanked originally by two monumental *eyans* (only a single wall of which remains today). The sanctuary was enclosed by a massive, 13 meter high stone wall with 38 towers and two entrances (north and south). This wall was apparently of mainly symbolic significance, as no gate has been discovered. The main buildings are on the north side of the lake, forming a square around a square, baked brick Zoroastrian fire temple in the center. To the east of the temple is another square hall reserved for the "everlasting fire." The royal residences are situated to the west of the temples. In the

northwest corner of this once enclosed area are the ruins of the Western *eyvan*. In front of the southern entrance of the temple (southern *eyvan* of the temple complex) is a rostrum with a monolithic stair at the eastern side. The blocks of hewn stone are worked in a careful manner which is not found in any of the other buildings, suggesting that it is most probably the king's *takht* or throne, reminiscent of Khosrow II Parviz's (590–628) celebrated Takht-e Taqdis (Naumann 1977: 42–3, Figs. 20–21; Huff 1978b: 786).

Takht-e Suleiman was destroyed by the Byzantine army in 627 as a countermeasure to a Sasanian attack on Byzantine territory (Naumann 1977: 69). The site was revived in 1256 when it became the summer palace of the Mongol ruler, Abaqa. In the past decade, limited excavations were undertaken by the Cultural Heritage Organization of Iran, but no substantial report has yet been published. Dozens of seal impressions and bullae were reported to have been found near the northern city gate (Moradi 2003). Some 8 kilometers northeast of Takht-e Suleiman, on top of the Belqeys mountain, are the remains of a fort known as Takht-e Belqeys. Measuring 60 × 50 meters and built of yellow sandstone, the fort was explored by the German team working at Takht-e Suleiman. It may have been an outpost associated with the defense of the fire temple situated 1,000 meters below (Naumann 1977: 115–18).

Probably the most outstanding Sasanian discovery of recent times is the site of Bandian, 2 kilometers northeast of Dargaz in northern Khorasan, where archaeological remains were revealed by agricultural activities in 1990. Excavations carried out by M. Rahbar (1994–9) under the auspices of the Iranian Cultural Heritage Organization resulted in the discovery of an important architectural ensemble with a number of highly interesting stucco reliefs that decorated the interior walls of the main building (Rahbar 1997, 1998, 1999b). The Sasanians' desire to protect the northeastern frontiers of their empire from invasion provides the main justification for the presence of monumental and defensive buildings in this region. Such invasions are reflected in the written and visual records of the time, as the archaeological remains at Bandian have shown. The excavations uncovered three levels of Sasanian occupation, the second of which is the most important. Here a building was excavated measuring 20 × 21 meters, which included a columned hall, a fire temple with altar, and an ossuary. The main construction material used was *pisé* (packed mud). Mudbrick was also used to reinforce some of the structures and foundations. The stucco decoration on the interior walls of the columned hall is remarkably varied both in theme and treatment. The 33 meter long decorated panels cover the walls of much of the hall. The upper parts of the panels were not preserved, but it is possible to reconstruct the scenes depicted at Bandian through comparison with the decorated walls found further north at Panjikent in Turkmenistan (Rahbar 1999b: 64). On the northeast panel a standing individual is represented holding an incense burner, above which there is an inscription in Pahlavi. According to this text, the name of the person is Weh-Mihr Shabur who was apparently a high

ranked official (Bashash Kanzag 1997; Gignoux 1998). On the central wall the decoration shows a fire altar placed on a platform; on each side of the altar there is an individual holding incense burners and sticks – another inscription was found here. The southwest wall shows a man holding a horse ornamented with necklace of pearls. A third inscription is placed on the body of the horse. There is also an investiture scene represented on the northern wall of the columned hall with four figures. To the right of this scene is a seated figure, which might be the representation of the king himself.

A layout similar to that of the Bandian complex was previously observed in a manor house at Hajiabad, near Darab in Fars, where M. Azarnoush's excavations in 1978 revealed an especially rich figural program. The stuccos of ladies in niches were interpreted by the excavator as evidence of a cult of Anahita. Busts attributable to Shapur II and Bahram Kushanshah led the excavator to date the building to c.359 (Azarnoush 1994). The house included a residential and a religious area. According to Azarnoush (1994: 50–1), the religious part of the building was meant to be decorated with stuccos, a project that was never completed. Other sites with rich, decorative stucco remains include Chal-Tarkhan near Rayy and Tepe Hissar near Damghan (Kröger 1982).

A building like that at Bandian was also discovered at Mele Hairam, near Sarakhs in Turkmenistan. Excavations carried out by a Polish team in 1997 revealed installations and a fire temple (Kaim 2004, 2006). The earliest phase of the building is Parthian and may be tentatively dated to the 2nd century. It consists of a main building, the access to which is through a large *eyvan* (7.5 × 5.2 meters). Two layers of wall paintings were found in the vaulted entrance, depicting a series of floral and geometric motifs. Inside the building were several small mudbrick platforms. The fire temple is a square room (5 × 5 m) with an altar in the center.

The monumental complex at Kuh-e Khajeh, 30 kilometers southwest of Zabol on an island in the middle of Hamun Lake, is the easternmost Sasanian building ever found. The mountain of Kuh-e Khajeh, situated 600 meters above sea level, has a diameter of 2–2.5 kilometers. The ruins, first reported by Beresford Lovett, a British army officer, were explored in 1915 by Sir Marc Aurel Stein, who claimed that "the extensive and well-known ruins situated on its eastern slope proved to be the remains of a large Buddhist sanctuary," a view that has not been entirely shared by other scholars (Stein 1916: 221; Kawami 1987: 20–5). The site was later excavated by Ernst Herzfeld who discovered a number of magnificent wall paintings. Further investigations were carried out by Giorgio Gullini in 1960 (Gullini 1964). Mahmoud Mousavi resumed excavations (1990–2) at Kuh-e Khajeh (Mousavi 1999a) with a view to restoration and the preservation of the mudbrick structures at the site. The complex consists of a large esplanade, access to which may have been by a steep path. Access to the Central Courtyard was via a monumental gate composed of a vestibule and an elongated hall, decorated with wall painting and covered originally with a mudbrick cupola c.8 meters

high. Unusually, the lower part of the hall was made of baked brick, indicating its importance. The Central Courtyard (20 × 20 meters) is flanked by painted galleries, two *eyvans* and vaulted halls. To the north is the Painted Gallery that leads to the highest point of the site, where Herzfeld found frescoes depicting human figures as well as geometric and floral motifs. It is clear that the area underwent a number of changes. In view of the fact that there are two small mounds at each end of the gallery, Herzfeld reconstructed a double staircase, giving access to the gallery in the first phase; he then thought that in the second phase the front of the gallery had been changed, and envisaged a simple staircase in that phase. The new excavations uncovered only traces of a single, axial staircase perpendicular to the gallery. The mounded areas located on either side of the gallery may have been buttresses to strengthen the fragile mudbrick buildings. The excavations also revealed painted stucco in this area. Radiocarbon dates confirm Herzfeld's proposal of two phases, the earlier dated to c.80–240 and the later to c.540–650 (Ghanimati 2000: 145). Thus, the foundation of the monumental complexes dates to late Parthian or very early Sasanian times. The site was occupied until the late Sasanian period (Mousavi 1999a: 84).

6 Sasanian Fortifications and Castles: Gorgan Wall and Qaleh Zohak

Stretching from the Kopet Dagh mountains to the shores of the Caspian Sea, the mudbrick structure known as Sadd-e Eskandar ("Alexander's Wall") or Divar-e Gorgan ("Gorgan Wall") is at least 200 kilometers long and can be clearly seen in the northern part of the Gorgan plain, bordering the Turkoman steppe. This structure consists of a thick, mudbrick wall or embankment with some 33 forts of varying shape and size (120 × 120 to 300 × 200 meters) along it. The wall was built as a bulwark against invaders from the north, much like the Roman *limes* in Europe. As far as is known, the eastern end of the wall joins the mountain range at Pishkamar, 58 kilometers northeast of Gonbad-e Qabus. Any further prolongation to the east is doubtful (Adle 1992). The wall is at present 2–5 meters high and about 10 meters wide. A 3 meter deep, up to 30 meter wide ditch runs along the outer (northern) side of sections of the wall. The wall is constructed of both unbaked mudbricks (50 × 50 × 10 centimeters) and baked bricks (40 × 40 × 10 centimeters). In 1978, M.Y. Kiani excavated parts of the wall and one of the forts. He attributed its foundation to the early Parthian period, specifically the reign of Mithridates II (123–88 BC) (Kiani 1982: 38). A joint team from the Cultural Heritage Organization of Iran and the University of Edinburgh carried out three seasons of exploration and excavation under the direction of Eberhard Sauer, with the aim of clarifying the chronology of the wall. Radiocarbon dating suggests that it was constructed and expanded in the 5th century during the reign of Peroz (457–83) in the context of his wars

against the White Huns or Hephthalites (Nokandeh et al. 2006; Omrani Rekavandi et al. 2007).

Qaleh Zohak is located 50 kilometers east of Mianeh in Azerbaijan. The castle sits on top of a high mountain surrounded by two rivers and is one of the largest fortresses in the region. First visited by Colonoel Monteith in 1830, Qaleh Zohak was later explored by M.T. Mostafavi, K. Schippmann (1967), and W. Kleiss (1973). It was excavated (2000–4) by a team from the local office of the Iranian Cultural Heritage Organization based in Tabriz. The complex is made up of two areas: a fort on the south side of the mountain and a palace on the north side. The most prominent remains are those of a *chahar taq* of baked brick measuring 8.5 × 8.5 meters and standing 9 meters high. The original height of the monument is estimated at 12 meters, including the crenelated upper part of the façade. The building was decorated with stucco and molded brick, fragments of which litter the foot of the monument. The existence of a columned hall is also indicated by fragmentary column bases that have often been compared with those from the Parthian site of Khorkhe in central Iran (Kleiss 1973: 172–8). Excavations have revealed stucco fragments and a series of wall paintings (Qandgar et al. 2004: 202–3). The finds tend to date the main period of the fortress of Qaleh Zohak to the late Parthian/early Sasanian period, although it continued in use during the Buyid and Saljuq periods (10th–11th century).

7 Rock-Reliefs

To date, a total of 39 Sasanian rock-reliefs have been discovered, most of which are located in Fars apart from one at Salmas, northwest of Lake Urmia (Vanden Berghe 1983: 67); six at Taq-e Bustan, near Kermanshah (Vanden Berghe 1983: 92–5, Pls. 36–40); and one at Rag-e Bibi in northern Afghanisatn (Grenet 2005). A relief of Shapur I at Rayy was destroyed in the early 19th century (Ouseley 1823: Pl. 65). The reliefs in Fars include nine carved below the Achaemenid rock-cut tombs at Naqsh-e Rustam (Schmidt 1970: 122–37, Pls. 80–95), two at Naqsh-e Rajab, 2 kilometers north of Persepolis (Schmidt 1970: 123–7, Pls. 96–101), two at Barm-Delak, near Shiraz (Vanden Berghe 1983: 80–1, 136–7), one at Guyum, also near Shiraz (Vanden Berghe 1983: 77, 137), six in Tang-e Chowgan, near Bishapur (Vanden Berghe 1983: 72–4, 131–4), one at Tang-e Qandil, 15 kilometers northwest of Bishapur (Vanden Berghe 1983: 80), one at Sarab-e Bahram, near Nurabad-e Mamasani (Venden Berghe 1983: 78–80, Fig. 10), two at Tangab, Firuzabad (Vanden Berghe 1983: 62–6, Figs. 8–9), one at Sar-Mashad, between Kazerun and Bushehr (Vanden Berghe 1983: 80, Pl. 29), and two at Darabgird in southeastern Fars (Vanden Berghe 1983: 72, 108). Most of these reliefs, placed high up on cliffs, were meant to be viewed from below, not frontally. This explains why individuals and animals are represented with their bust and head larger than the lower parts of their bodies (Haerinck

1999: 57). Some reliefs, such as the victory scenes of Shapur I, bear inscriptions in Middle Persian, but a large number are devoid of any text, and in this case the identification of royal figures is based on the crowns and other royal attributes of specific kings as represented on their coins (Vanden Berghe 1983: 60–1; Herrmann and Curtis 2002). Sasanian reliefs were highly personalized and their locations were significant. Locations such as the lower part of the cliff at Naqsh-e Rustam, the gorge at Naqsh-e Rajab, or the cliffs on the rivers banks of Tangab and Bishapur were favored because of their symbolic value (Canepa 2010: 114–16). No Sasanian relief is ever associated with the buildings of that period. As Herzfeld rightly pointed out some 70 years ago, painting was the source of inspiration for Sasanian rock sculpture. This is why the bas-reliefs stand independent of Sasanian architecture.

Most of the Sasanian rock-reliefs belong to the first 75 years of the period. After a gap of some 70 years, Shapur III (383–8) placed the panel depicting the image of his father and himself at Taq-e Bustan, near Kermanshah. The last rock-reliefs were carved more than 200 years later at Taq-e Bustan by Khosrow II (610–28). The reasons for this hiatus are unclear, but it seems that crucial political events such as royal investiture and military victories occasioned the realization of rock reliefs (Vanden Berghe 1983: 57–8). No major relief was carved after Shapur II, whose reign was marked by a number of military triumphs. Surprisingly enough, no reliefs are known from the reigns of Kavad or Khosrow I, whose reigns were also full of military exploits.

8 Ceramics

The pottery of the Sasanian period poses a number of problems owing to its diversity and lack of formal and decorative motifs. In the excavation of large settlements such as Ctesiphon and Bishapur, there has been a tendency to concentrate more on luxury objects and fine art (mosaics, stucco, glass, coins) than evidence for everyday crafts such as pottery. As a result, pottery assemblages from the excavations of important centers have been inadequately examined and published. The problem is exacerbated by the fact that Sasanian ceramics were mass-produced. There are fewer distinctive types and the lifespan of different vessel types varies from region to region (Trinkaus 1986: 49). There are also considerable differences in ceramic tradition across the Sasanian Empire, dividing Mesopotamia from the Iranian plateau and the northeastern frontier of the empire. R. Boucharlat and E. Haerinck published the first comprehensive regional study of Sasanian pottery (Boucharlat and Haerinck 1991). Their study shows a neat difference between the regions. In the lowlands, excavations at Susa provide the only stratified assemblage that is linked with the corpus of ceramics in Mesopotamia (Boucharlat and Haerinck 1991: 306). These assemblages are important for the dating of sherds picked up on surface surveys in Khuzestan.

The best-known type is a blue/green-glazed pottery, very common in Sasanian Mesopotamia but scarce on the Iranian Plateau (Huff 1986: 307). In Fars, a recent surface collection at Darab is said to include Sasanian ceramics, but these remain unpublished (Morgan 2003: 333, and n35). In some cases, as at Qasr-e Abu Nasr, in Fars, a meticulous re-examination of finds and excavation reports has produced interesting information with regard to ceramics (Whitcomb 1985: 47–40). The most distinctive Sasanian type in Iran and Mesopotamia combines simple decorative patterns, including raised bands, horizontal grooves, and wavy and cross-hatched incision, often from combs (so-called "comb-incised" technique) (Huff 1986: 307; Adams 1965: 131; Venco Ricciardi 1967: 93–4). Excavations at Khirbet Deir Situn in northern Mesopotamia yielded an assemblage of late Sasanian stamped ceramics, but this seems to be only a regional variant (Simpson 1996: 99–101).

The lack of a reliable ceramic typology for the Sasanian core areas creates difficulties in the identification of Sasanian sites throughout the empire and has led to detailed studies in the periphery of the Sasanian world. For example, in the Oman peninsula a thorough examination of excavated ceramics resulted in a primary classification of the ceramic assemblages from the Sasanian period (Kennet 2002). In the Merv Oasis, an analysis of the ceramics from various excavations enabled G. Puschnigg to distinguish three pottery groups which are representative of different phases in the development of Sasanian Merv (Puschnigg 2006).

9 Bullae and Coins

The Sasanians used stamp seals. Bullae (clay balls) were used to seal packages destined for caravan or maritime trade (Frye 1970b: 79, 84). Bullae with seal impressions provide insights into Sasanian administrative institutions and imperial organization both in the cities and in the provinces (Göbl 1971). This evidence throws light on the involvement of the priesthood in administration (Frye 1970a: 240; 1974a: 68; Gyselen 1989); the scope and degree of economic activity; who was in charge of these activities; and where they took place (Gignoux 1980: 299–314; Gignoux and Gyselen 1982, 1987). In terms of economic activity, we can tell that there was a vibrant domestic exchange, since bullae and seals often carry the names of cities, districts, or provinces. While there have been many publications of bullae acquired on the antiquities market, and hence of unknown provenance, at least four major storehouses of bullae have been excavated, including those at Takht-e Suleiman, Qasr-e Abu Nasr, Aq Tepe (Afghanistan), and Dvin (Armenia). Sasanian bullae have even been found at the coastal site of Mantai in Sri Lanka (Bopearachi 2002: 110).

Literary sources suggested that, administratively, four chanceries (*diwan*s) were created for the empire, a fact confirmed by the numismatic evidence (Gurnet 1994: 36–7). G. Gnoli suggested that there certainly was a military

quadripartition as well, in which the entire empire (*Eranshahr*) was placed under the control of four generals (*spahbed*s) as a reaction to foreign incursions from the four corners of the Sasanian Empire (Gnoli 1985: 265–70). R. Gyselen (2001) corroborates the literary evidence on the military division of the Sasanian Empire in the 6th century and provides a wealth of information about administrative and military offices throughout the empire (Gyselen 2007).

The Sasanian imperial administration imposed standardization in weights and in the minting of coinage. The units and types of coins struck by the Sasanian government were the gold *denar* (from Latin *denarius*), the silver *drahm* (from Greek *drachma*), the silver *dang*, and the copper *pashiz* used in local, daily transactions. The use of copper coinage certainly indicates that during the Sasanian period, especially in its later stages, there was a move toward a monetary economy. While the increase in the use of copper and bronze coinage in certain parts of the empire attests to an increase in trade and governmental control, silver coinage was much more common. Among the coins, the most widely minted and attested in documents is the silver *drahm* weighing about 4.25 grams. From the time of Ardashir I we find coins with this uniform weight, which vary typologically. On the obverse, we find the portrait of the *shahanshah* ("King of Kings") along with a name and title, such as "Ardashir King of Kings of Eran whose race (is) from the Gods." On the reverse of the coinage is a fire alter, either alone or flanked by two attendants.

Until the late 5th century mint names were not put on Sasanian coins, making it difficult to gauge the activity and output of mints across the empire. While more than 100 mint marks are known, fewer than 20 mints produced the majority of coins that circulated in the Sasanian empire (Göbl 1983: 332). The situation prior to the advent of mint names on coins is unclear, but there may have been as few as three different mints in operation, mainly in Fars and in the capital Ctesiphon (Reider 1996: 10–11).

With the introduction of mint marks on the reverse and the regnal year of the king in which a coin was struck, we begin to have an idea of the periodicity of minting and of which mints were the most productive and stable. Certainly, those that were close to economic centers like Fars had a huge output which supported the Persian Gulf trade (Daryaee 2003: 1–16), while the mints of Media had much smaller outputs. In times of war, however, mint productivity increased enormously. Thus, during the reign of Khusrow II (590–628) a huge quantity of coins was minted, largely to finance the long war with Byzantium.

Sasanian silver *drahms* were so well known that they were imitated in places as far away as India, clearly attesting to the economic power and/or prestige of the Sasanian Empire in the eyes of its neighbors. The purity of Sasanian coinage also gives us indications about mines and where coins were minted. For example, we know that coins produced in the northeastern part of the empire were purer than those from other regions and thus, even when coins lack mint marks, it can be assumed that those of particularly pure silver were minted from silver mined

in this region. In fact, Islamic sources confirm that the silver mines of the northeast were heavily worked by the earlier Islamic dynasties which came after the Sasanians. Of these, none produced silver as pure as Panjshir in modern-day northeastern Afghanistan.

GUIDE TO FURTHER READING

A number of good works exist which provide general orientation on Sasanian history and archaeology. See, e.g., Schippmann (1990) and Daryaee (2008 and 2009). Sasanian political history is reviewed concisely in Frye (1983).

CHAPTER FIFTY-EIGHT

Christianity in the Late Antique Near East

Cornelia Horn and Erica C.D. Hunter

1 West of the Euphrates

Introduction

Ancient Christian archaeology in the Near East is a fascinating and challenging subdiscipline. In general histories of the field it does not readily receive the attention it deserves (Frend 1996). Both biblical archaeology and early Christian archaeology are in the process of overcoming misleading assumptions that have impeded the reception of data, one of which is that data derived from archaeological work supplements and supports historical reconstructions that derive from reading sacred or otherwise authoritative texts, primarily the Bible and writings of patristic authors. Yet such literature does not necessarily or intentionally present the historical situation. Not infrequently it offers interpretative constructions that may be idealized and tendentious. Therefore, Christian archaeology has to strive to take into consideration the widest possible network of ancient textual sources, Christian and non-Christian, to overcome the limitations inherent in the phenomenon of the (attempted) erasure of alternative voices ("orthodox" vs "heretical") and the tensions between literature and religious practice (Wharton 1995: Ch. 1; Snyder 2003: 15). The best approach to Christian archaeology is one of constant, inclusive, and comprehensive dialogue between material data, ancient texts, and methodological developments in the constituent fields (MacDonald 2001: 663; Humphries 2008; Jensen 2008: 104–7).

A Companion to the Archaeology of the Ancient Near East, First Edition.
Edited by D.T. Potts.

Christian archaeology of ancient Syria

Ancient Christian Syria was home to numerous churches and monasteries throughout its villages and towns, both along the Mediterranean coast and in the interior, many of which have been surveyed and studied (Butler 1929; Lassus 1947; Tchalenko 1953–8; Tchalenko and Baccache 1979; Baccache 1980; Donceel-Voûte 1988; Tate 1992). Valuable insights for the history of the ancient Christian community, its liturgical practices, and its social context are to be gained from diverse evidence ranging from church architecture to floor mosaics and liturgical inventory. Liturgical objects like the 6th century silver "Antioch Chalice," possibly a lamp used in worship in the Church of St Sergius in Kaper Koraon, southeast of Antioch, have been singled out repeatedly for study (Jerphanion 1926; Strzygowski et al. 1936; Rorimer 1954; Milburn 1988: 263; Metropolitan Museum of Art 2006). The debris found in excavated churches in Syria frequently includes glass lamps, bottles, and goblets of such high quality that it is likely that this fine ware was used in church services. Glass lamps shaped in the form of goblets, either with handles or with a stem, were very popular (Watson 2001: 477).

Initially, Christian congregations gathered for liturgies, commemorations, and communal events in gardens, other open spaces, and congregational spaces, at times of a more confined nature, as for instance in the catacombs or in private homes, referred to in Latin as *domus ecclesiae* and in Greek as *oikos tes ekklesias* (Milburn 1988: 9–18; White 1996; Osiek et al. 2006). Recent study of villa churches demonstrates that this practice continued at least into the 5th century (Bowes 2007). The oldest excavated example of such a house church is at Dura Europos (Ch. II.52), a garrison town at the border between the Roman and Persian empires on the Syrian Euphrates (Rostovtzeff 1934; Kraeling 1967; Hopkins 1979; Matheson 1982). There, the Jewish synagogue and the Christian house church, which evidences a differentiated arrangement and formation of rooms on the first floor, can both be dated to 256, the year in which the Sasanians conquered Dura and permanently dispersed its population (Wharton 1995: Ch. 2; Piltz 2007: 4). Elaborate wall paintings, both in the synagogue and in the Christian building, point to an awareness of the power of attraction as well as revelation exercised by visual art, and both congregations, perhaps in competition with one another or by way of exchange with one another, availed themselves of this (cf. Wharton 1995: 59–63; Elsner 2003: 118–19). Wall paintings of New Testament scenes on the north wall of the Christian baptistery at Dura include the earliest known depiction of Christ, who is shown as a beardless youth, healing the paralytic (Milburn 1988: 11–12 and Fig. 4). The architectural style of the baptistery of the Christian house at Dura Europos antedates the square baptisteries that continued to be constructed at Dar Qita and elsewhere in Syria throughout the 5th and 6th centuries (Milburn 1988: 10).

The cult of martyrs and saints attracted flocks of pilgrims to sites throughout the Near East. In Syria, relatively small-sized martyr shrines could be found virtually everywhere (Butler 1929; Lassus 1947; Tchalenko 1953–8; Peña et al. 1987, 1990, 2003). In some instances the remains of reliquary ossuaries or badly deteriorated inscriptions on the wall of a tomb chamber are all that is left of these shrines (Hunter 1989b, 1991, 1993). The archaeology of sites related to the veneration of soldier martyrs (e.g. Sergiopolis, modern Rusafa) and pillar saints (Qalat Siman, near Aleppo) captures aspects of the hardships characteristic of Christian life in Syria.

Located southwest of modern ar-Raqqah near the Euphrates, Rusafa was a desert outpost of the Roman army on the caravan routes connecting Aleppo, Dura Europos, and Palmyra. When the Roman soldier Sergius was brought to the city for his execution, the Christians there quickly capitalized on his martyrdom and developed it into a significant pilgrimage site (Ulbert 1986; Fowden 1999). Of the city's two basilicas, one was erected around c.520 as a *martyrium* over St Sergius' grave (Dussaud et al. 1931: Pl. 75–7; Loosley 2003: 277–80). The change of the city's name to Sergiopolis illustrates the importance of Christian pilgrimage for the development of the city's identity. In a frontier town marked by the daily realities of trade and defense, the *martyrium* of St Sergius invited the meeting and exchange of cultures. Thanks to Justinian I's (527–65) building program the whole area was enclosed behind a c.12 meter high wall. Thus the complex also offered protection against invaders (Krautheimer 1986: 274; Bowes 2008: 593).

The Syrian landscape was home to a fascinating and manifold tradition of ascetic life. Both within and in close proximity to well-populated towns and villages, monastic sites flourished. G. Tchalenko (1953–8) found evidence of monasteries as manifestations of communal ascetic life in close association with churches located in towns. In the countryside, his surveys identified towers that were built or restored for the use of ascetics living in greater isolation. On the upper level, an anchorite would take up residence, while one or two assistants dwelt in a room on the lower level of the tower (Peña et al. 1980, 1983; Bowes 2008: 602). Christian Syria became especially famous for its pillar saints (Brown 1971) who lived primarily in the hinterland. Most prominent among them was Simeon the Stylite. At Qalat Siman in northern Syria, about 32 kilometers northwest of Aleppo, hosts of pilgrims could gather at his pillar. In 470 architects surrounded the pillar with a cross-shaped building, centering on an octagon with the pillar in its middle. The central octagon appears to have been left without a roof, leaving both the saint on his pillar and the pilgrims who approached him without immediate protection against sun and rain (Evagrius Scholasticus, *Church History* I.14 in Migne 1865: Col. 2459). Each of the four arms of the cross-shaped main church featured a basilica-style building with three naves, displaying three apses in the eastern basilica and narthices in the arms to the west and south (Krencker 1939: 13; Piltz 2007: 6–7). The pilgrimage complex at Qalat Siman also contained a monastery and a baptistery (Tchalenko 1953–8/II: Pl. 182;

Milburn 1988: 128; Wharton 1995: 79). Metal objects found in the area contribute to the reconstruction of the cultural and social profile of visitors to the site (Kazanski 2003).

The central Limestone Massif, east of Antioch, is particularly rich in remains of ancient churches featuring the *bema*. Within the Syriac-speaking architectural realm, the term *bema* refers to a raised platform, often horseshoe-shaped and located in the nave of the church (Loosley 2003: 29), that served predominantly for liturgical practices centering on the reading and exposition of scripture. Among the essential elements of the Syrian *bema*, Tchalenko identified the platform, base, chancel, access paths, bench, throne, and a kind of shelf for liturgical objects (Tchalenko 1990: 259). Many of these churches date to the 5th and 6th centuries, while the earliest examples belong to the late 4th century. Their remains have been the subject of intensive, interdisciplinary research (Taft 1968; Tchalenko 1990; Renhart 1995; Loosley 2003). Of particular interest for further study is the character of the *bema* as an archaeological, architectural, and liturgical monument of both continuity and difference across monotheistic religions in the Near East (Renhart 1995; Habas 2000; Loosley 2003: 30–2, 44–7, 86–8; Milson 2007: 102ff).

The Limestone Massif separated the Syrian littoral from the towns of inner Syria. Visual, formal, and spatial analyses of standing remains of secular and ecclesiastical buildings there point to a complex exchange between the architectures of domestic dwellings and churches as well as between architectural manifestations in urban and rural settings. Similarities as well as discontinuities and breaks can be readily discerned (Kidner 2001: 350). Archaeological data illuminate aspects of the process of Christianization of the region that are not readily apparent in texts.

Christian archaeology of Byzantine/Late Antique Palestine

Studies of Christian archaeology in Roman and Byzantine Palestine have primarily emphasized pilgrimage, asceticism, and the architecture and functionality of churches, chapels, and baptistries. The remains of more than 350 churches have been discovered and many scholars have attempted to present the evidence systematically and in an integrated fashion (Crowfoot 1941; Ovadiah 1970; Bagatti 1971b; Ovadiah and De Silva 1981, 1982, 1984; Bottini et al. 1990; Tsafrir 1993; Hoppe 1994; Patrich 1995: 477–9; 2003, 2006). Palestine featured various types of churches, ranging from memorial churches erected at sacred sites, to monastic churches attached to monastery complexes, and, most of all, regular parish churches, serving the worship needs of the general Christian population (Patrich 2006: 361). Of particular interest are excavations of ancient Christian churches in the Negev at Shivta, Rehovot-in-the-Negev, Nessana, Avdat, Elusa, and Mamshit (Negev 1974, 1989; Rosenthal-Heginbottom 1982; Margalit 1987). By uncovering several churches each at individual villages and small towns,

the archaeological evidence has revealed that church construction throughout this region and elsewhere in Palestine was especially intensive in the 6th century (Patrich 2006: 361).

Surveys of archaeological evidence of ancient Christianity in villages have been conducted in a number of regions, including Galilee, Samaria, Judea, and the Negev (Bagatti 1971a, 1979, 1983; Aviam 1999). K. Bieberstein and H.Bloedhorn (1994) published an exceptionally useful guide to archaeological data for the city of Jerusalem up to the Islamic era. In a monumental work, R. Schick (1995) has assembled and analyzed the archaeological record for the history of the Christian communities in Palestine during the transition from Byzantine to Islamic rule in the 7th through early 9th centuries.

Pilgrimage was one of the prevalent phenomena of life in Byzantine Palestine. While not originally intended for pilgrim traffic, the monumental Constantinian churches in Bethlehem (Church of the Nativity) and Jerusalem (Church of the Holy Sepulchre/Anastasis) were host to many a pilgrim from the West, like Egeria, and the East, like Peter the Iberian (Horn 2006: 248–51). Other 4th century Constantinian churches include those found on the Mount of Olives (Eleona Church) and at Mamre (Church of Abraham) (Patrich 2006: 368–70). In the 6th century Justinian I's significant construction efforts added the "New Church of St Mary, Mother of God" to Jerusalem's sacred and ecclesiastical landscape (Avigad 1993).

Especially at the churches in the orbit of Jerusalem, archaeologists regularly unearth clay lamps, often with decorations and/or inscriptions that confirm their use by pilgrims in processions held at night at the holy sites or churches (Loffreda 1990). Archaeological evidence of the widespread popularity of pilgrimage to Palestine is plentiful across the Mediterranean world. It can be detected, for instance, in the form of *ampullae*. These small flasks, round in shape and flattened, were produced to hold oil or dust that had been brought into contact either with a holy place or with the relics of a saint (Milburn 1988: 263–4; Ousterhout 1990). On their return home, pilgrims took *ampullae* along as physical objects for commemoration. A valuable collection of 35 such flasks is now preserved in Monza and Bobbio, Italy (Grabar 1958).

A good number of pilgrims never returned home but instead stayed on at the holy places. They joined already existing monasteries or set up their own ascetic dwellings. The habitations used by such ascetics were diverse. The archaeological exploration of desert monasticism in the Judaean Desert is especially well advanced (Hirschfeld 1992, 2006; Patrich 1994). Structures based on caves or cliff formations are very common. Ascetics contented themselves with rudimentary dwellings of relatively small size. They used caves to construct churches, setting aside space for worship. Cliffs offered useful structures for *lavras*, a form of monastery that combined elements of temporary individual isolation with community-focused worship at regular intervals. Some *lavras* were constructed on a plain or in a hilly area. The Great Lavra of Saint Sabas, to the southeast of

Jerusalem, is probably the best-known example of this type of monastic establishment. In it, a network of paths connected the cells and communal buildings with each another and integrated these individual components into a closed, architectural entity (Patrich 1995: 487). Coenobitic (communal) monasteries in Palestine tended to be erected on flat ground, yet varied in their layout from planned, orthogonal layouts, found for example at the Monastery of Martyrius, east of the Mount of Olives (Patrich 1995: 487), to the more irregular floor plans of the Judean desert monasteries (Bowes 2008: 602). Archaeologists have explored or excavated at least 65 monasteries and monastic settlements in the Judean Desert and its fringes (Corbo 1955; Hirschfeld 1992; Patrich 1995). Evidence of monasteries elsewhere in Palestine is likewise plentiful. For example, new documentation has become available for the early presence of monks of international background at Gaza (Elter and Hassoune 2005) and at a Byzantine monastery in Umm Leisan, a Palestinian neighborhood southeast of Jerusalem (Horn 2006: 72; Mgaloblishvili 2007). It is challenging and difficult to determine the precise doctrinal allegiance of the worshipers who used a given church or chapel or of the monks who inhabited a particular monastery (Patrich 2006: 359–60). Some believe, for instance, that the remains of a 6th/7th century monastery at Tel Masos, east of Beersheva and southeast of Gaza, belonged to a so-called ante-Ephesian or "Church of the East" coenobium. Yet whether there is sufficient evidence to determine the anti-Chalcedonian/"Monophysite" or the "Church of the East" identity of particular monasteries or cemeteries in Jerusalem, Gaza, Eleutheropolis, the regions in between those cities, or around Jericho remains a matter of scholarly debate (Figueras 1995: 445; Dauphin 1998: 145, 259, 268; Sadeq 1999; Sadeq et al. 1999; Horn 2003: 124–6; 2006: 196–214; Hirschfeld 2004: 75, 85; Hoyland 2009). At other sites, such as Jericho in the Jordan valley, archaeologists were able to discover the remains of a so-called "Church of the East" hermitage.

Christian archaeology of Jordan/Arabia

The arrival of Christianity constitutes a significant phenomenon in the archaeology of Roman Jordan. Churches, cemeteries, and changes in iconographic representation during the Roman period bespeak the spread of Christianity into the area. Archaeologists feel comfortable in generalizing that many of the ancient churches in Jordan were erected on the sites of earlier Roman structures, which were reused or transformed (Freeman 2001: 451). In 365, for example, the Christians at Gerasa (modern Jerash) conducted a dedication ceremony for their Great Cathedral. For the building of this church, they had made use of a Roman temple that seems to have been built in the 1st century and dedicated to an unnamed deity (Freeman 2001: 450). Excavations at Tell Abila have brought to light the remains of a sizeable 6th century basilica, which appears to have been built on top of an earlier temple or church (Freeman 2001: 450–1). In other

instances, Christians availed themselves of building materials taken from secular sites or from the worship sites of other cults, incorporating them into their own churches. This practice continued throughout the centuries. The 6th/7th century church on Jabal al-Luweibdeh, which seems to have reused materials from a secular or religious Roman building, is a good example (Bikai et al. 1994: 410–12). Quite likely, the church was dedicated to St George, a saint whose veneration is known in some cases to have replaced that of Heracles/Hercules (Freeman 2001: 450).

At some sites, archaeological evidence of Christian churches is plentiful (Michel 2001). At Gerasa, for instance, at least 15 churches, all dating to the late 4th–5th centuries, have been documented archaeologically (Kraeling 1938). The complementarity between archaeological and textual evidence at some of these sites is noteworthy. The Great Cathedral at Gerasa features a fountain that dates to the 1st or 2nd century. Some scholars do not exclude the possibility that this fountain was the point of reference for Bishop Epiphanius's comments on a spring at Gerasa that miraculously ran with wine once a year on the commemoration of the miracle at the Wedding Feast at Cana in Galilee (John 2:1–11; Wharton 1995: 73; Freeman 2001: 451). At Khirbet Faynan (ancient Phaeno), located further inland to the east of the Dead Sea, the discovery of the extensive remains of five ancient churches, three of which date to the Roman period, may be a witness to the importance attached by local Christians to the commemoration of Christian martyrs who suffered in their regions. Writing about Phaeno, Eusebius of Caesarea said (*On the Martyrs in Palestine*) that Christians (among others, the confessors Paulus, Nilus, Patrimytheas, and Elias) had been condemned to work in its copper mines (Cureton 1861; Freeman 2001: 452; Watson 2001: 470–1). This suggests that the construction of shrines for the veneration of local saints was an important part of Christian praxis and material culture, even if these sites, which are off the beaten path, were not patronized by pilgrims from abroad.

The full development of Christian archaeology in the regions of modern Jordan and northern Arabia is evidenced during the Byzantine period. The 5th and 6th centuries saw the construction of a multitude of churches that dominated the monumental architecture, especially in the cities of the Decapolis (Watson 2001: 467). Many settlements acquired churches of their own. In the area of Amman (ancient Philadelphia) numerous sites came to be noted only when the archaeological remains of ancient churches were discovered. About 56 kilometers northeast of Amman, the town of Umm al-Jimal once boasted 15 churches, roughly one for every 200 inhabitants. According to the Arabic sources, this part of the Hauran was well connected by trade with the Hijaz (northwestern Arabia) and Mecca in the 6th and early 7th centuries (Sartre 1987: 160–2; Watson 2001: 472).

The wealth of early Christians manifested itself in the lavish decoration of their churches. In Jordan, excavations have brought to light magnificent floor mosaics (Piccirillo 1993, 2001, 2003; Piccirillo and Alliata 1994). Particularly well known

among them is the Madaba Map mosaic, decorating part of the floor of the city's basilica (Avi-Yonah 1954; Piccirillo and Alliata 1988). Floor mosaics have also been discovered in churches dating to the Umayyad period (661–750). Prominent among these is the floor mosaic of the Church of St Stephen in Umm ar-Rasas which, in a manner similar to the Madaba Map mosaic, focuses on geography, showing vignettes of villages and cities between Jordan and Egypt (Piccirillo and Alliata 1994; Piccirillo 2001: 674–5). In a good number of these mosaics in ancient churches, as well as in some synagogues, seemingly intentional and carefully executed disfigurations of living beings can be dated to the early 8th century (Piccirillo 2001: 675; Bowersock 2006: 91–111). The question of who was responsible for the erasure of recognizable features of animals and human beings on such mosaics is still debated. Quite clearly, however, the phenomenon points to discrepancies of opinion either among Christian co-religionists or between Jews and Christians, on the one hand, and early Muslims, on the other. This is one clear indication that mosaics are not merely archaeological raw material but serve as valuable documents of history (Bowersock 2006; on the comparative study of mosaics, see also Talgam 2000).

Sites east of the Jordan river were significant destinations of Christian pilgrims and excavations there have unearthed the remains of important pilgrimage sites (MacDonald 2009). The monastery and church complex commemorating Moses at Mount Nebo, as well as the related town of Khirbet al-Mukhayyat, represent only one set of such sites. Further sanctuaries, chapels, and monasteries in the region, like Ayn Musa, Ma'in, Massuh, and Abu Sarbut, have all yielded valuable treasures in the form of mosaics and ruins (Piccirillo 1993; Watson 2001: 468). Thermal springs, such as those at Livias, Ayn az-Zara (ancient Callirhoe), and Ba'ar (ancient Baarou) in the mountainous region along the eastern shores of the Dead Sea (*Life of Peter the Iberian* 118, 123–5 [Horn and Phenix 2008: 170–3, 180–7]; Clamer 1997; Watson 2001: 468; Horn 2006: 252–3;), were popular with pilgrims visiting the area.

Located about halfway between the southern end of the Dead Sea and the city of Aila (modern al-Aqaba) at the northern head of the Gulf of Aqaba, Petra is most famous as the capital of the Nabataean kingdom. By the end of the 4th century it was the capital of the Roman province of Palaestina Tertia. Given the limited textual information available, and based on assumptions about a lasting economic and political depression following the destruction of the city in the earthquake of 363, scholars once suggested that Petra was permanently abandoned by the mid-6th century. Excavations conducted in the 1990s, however, challenged this picture. At least three churches and chapels once offered Christians at Petra space for worship (Bikai 1996; Fiema et al. 2001: xii). American archaeologists have uncovered a church complex with magnificent floor mosaics that was erected in the late 5th century (Fiema et al. 2001: 218–332). Despite destruction by fire in the late 6th century, usage of this space, even if no longer as a church, continued well into the 7th century, if not beyond (Fiema 2001:

113; Fiema et al. 2001: 94–105). In the Petra church complex archaeologists discovered a large archive of carbonized Greek papyri documenting aspects of the economic and personal affairs of an extended family from 528 (or 513) to 592 (Fiema 2001: 114; Fiema et al. 2001: 139–51, 445–6). The attention of the members of that family focused less on urban business than on land holdings, farms, and residences in the countryside. Not long after the Islamic conquest, the metropolitan see was transferred from Petra to al-Rabba (Zayadine 1971: 75–6; Fiema 2001: 121; Fiema et al. 2001: 2). This was but one further indication that Petra's character as an urban center was in decline. Recent Finnish excavations have concentrated on Jebel Haroun, about 5 kilometers southwest of Petra. At this site, associated with the death of Moses' brother, evidence was detected for a large 5th century church that was possibly connected to the presence of ascetics or monks and pilgrims (Peterman and Schick 1996; Fiema 2001: 114; Fiema et al. 2001: 3; Fiema and Frösén 2008, 2009).

Excavations at Aila have unearthed a mudbrick building, tentatively identified as a church and possibly founded in the late 3rd or early 4th century. The excavated remains date to the later 4th century, when the building seems to have been destroyed by an earthquake. The identification of the structure as a church relies on the building's orientation toward the east, its layout, finds (glass oil lamp fragments) frequently associated with rituals, and the presence of a cemetery immediately west of the building (Parker 1998b). If the evaluation of the data is correct, the building would constitute the earliest building erected explicitly as a church anywhere in the world (Parker 1998a, 1999a: 151, 1999b; Watson 2001: 496).

Christian archaeology of the Sinai Peninsula

Beginning with Julian Saba in the 4th century ascetics settled in the southern Sinai (Theodoret of Cyrrhus, *Religious History* II.13 [Price 1985: 29]). A rich collection of textual sources combined with material remains forms the basis for the reconstruction of the history of ancient Christianity through the Byzantine period in the region (Caner, Brock, Price and van Bladel 2010; Finkelstein and Ovadiah 1985). Archaeologists have identified 72 sites on Mount Sinai, at Raithou, and in more remote locations that were inhabited by hermits or monks (Dahari 2000: 28–146, 167). Pilgrims to St Catherine's Monastery in the Sinai left behind lapidary inscriptions, primarily in Greek, Armenian, Georgian, and Latin (Stone 1982a, 1982b). The heyday of pilgrimage to the Sinai dates to the 6th and 7th centuries, when groups of hundreds of pilgrims visited at a time, continuing even after the Arab conquest (Dahari 2000: 164). Papyrological evidence has identified the Darb Ghaza ("road to Gaza"), starting at Nessana in the Negev, as one of the roads that took pilgrims to their destination in Byzantine times (Kraemer 1958: Nos. 47, 72, 73, 89; Meshel 2000: 110–11).

2 East of the Euphrates

Material evidence of Christianity in Mesopotamia

Oscar Reuther wrote in Arthur Upham Pope's magisterial survey of Persian art, "[f]ar fewer Christian churches built during the Sāsānian period have so far been found in the territory that was then Sāsānian than in the neighboring countries" (Reuther 1977: 560). In contrast to the "western" regions of Syria and the Levant, the earliest evidence is late, dating from the 6th and 7th centuries. This stems both from the dislocation and disruption that Christians experienced and from fact that the building materials used, particularly in southern Mesopotamia – mudbrick and baked brick – were less durable than stone, hence earlier structures have not survived. Excavations and surveys have identified churches and monasteries on the basis of diagnostic features and supporting small finds, such as crosses. These have led to a focus on the official presence of Christianity, over and above an appreciation of Christian domestic settlement and collateral questions relating to the participation of Christians within Sasanian society. Jewish and Mandaean vernacular clusters in the late Sasanian/early Islamic era have been pinpointed through provenanced discoveries of incantation bowls, principally written in Jewish Babylonian Aramaic and Mandaic, especially at Nippur (Montgomery 1913; Hunter 1997–8). A handful of incantation bowls include Christian formulae, especially the name of Jesus, but they are unprovenanced.

Seals and seal impressions are the most common personal items, indicating Christian ownership by specific formulae – e.g., "protection of Jesus" or "trust in Jesus" as well as proper names (Lerner 1977; Shaked 1977; Gyselen 2006b). However, many Christians bore Pahlavi (Middle Persian) names and are thus indistinguishable within mainstream Sasanian society. The cross, often in combination with other symbols, was commonly used, even though, on occasion, it may have had other, non-Christian meanings (Shaked 1977: 20–1). Apart from crosses, other symbols or subjects drawn from the Old and New Testaments were used (Lerner 1977; Gyselen 2006b: 30–9, 42–51; Gyselen 2007: 78–80, 83). Most seals and seal impressions are unprovenanced. However, at al-Hira stamped sherds with crosses and other motifs were found on the surface (Talbot-Rice 1932a: 69 and Fig. 22). A fragment of a plaster cross was excavated in an area of housing on Mound III (Hunter 2008: 50 and Pl. 4). A "small bronze cross with a loop at the top for suspension," possibly of Byzantine workmanship, was excavated at the mansion on Mound I (Talbot-Rice 1932b: 266). At Tulul al-Ukhaidir, 2.5 kilometers northwest of the Abbasid fortress of the same name in southern Iraq, a gypsum fragment with a four-line Syriac inscription was discovered (Finster and Schmidt 1976: 139–41; Hunter 1998: 635–8, Pl. 4) amongst Arabic *graffiti* and large quantities of Sasanian/early Islamic stucco, ceramic and glass fragments (Finster and Schmidt 1976: 80–150). The site also yielded a glass

fragment with a cross enclosed in a circle (Finster and Schmidt 1976: 129 and Pl. 63g), similar in design to a pottery sherd bearing two stamp impressions (3 centimeters in diameter) of a cross with circles in the four quarters between the cross arms. This resembles a cross on a stamped sherd found at Thaj in northeastern Saudi Arabia (Langfeldt 1994: 47–8, Fig. 20).

Christian archaeology in Mesopotamia

The following discussion summarizes data on some of the main sites with Christian remains in Mesopotamia. Situated 60 kilometers northwest of Mosul, near the hamlet of Jebel Qusair, the church (23 × 14 meters) at Qasr Serej was gazetted by Seton Lloyd, noted by Gerald Reitlinger, and described by David Oates (Lloyd 1938: 136; Reitlinger 1938: 148–9; Oates 1968: 107–17; Lerner 1992: 529). The "small basilica of North Syrian type" there was constructed of carefully dressed limestone blocks (Oates 1968: 107). A central nave arcade consisting of wide arches springing from rectangular piers, flanked by aisles, terminated in the sanctuary, featuring an intact, half-domed apse and flanked by a *diakonikon* (Greek, "appertaining to the deacon" – the chamber south of the sanctuary where the sacred vessels were kept and cleansed and where the service books, vestments, and other necessaries of the Divine Service were held, corresponding to the sacristy in the western church) and a *prothesis* (the chamber north of the sanctuary, i.e. on the side opposite the *diakonikon*) which often functioned as a *martyrium* (a chapel housing the grave or relics of a martyr) on the north and south sides, respectively (Oates 1968: 107, plan 108). Entered by an archway that spanned almost the full width of the south aisle, the *martyrium* had rectangular niches in the east and north walls, as well as tapering windows, one above the east niche and one in the south wall. Another entrance in the west wall connected directly with a portico enclosing the north, south, and west sides of the church. Three windows pierced the west wall of the narthex, the largest intact one of which was located over the central doorway. A mid-6th century date is proposed on the basis of the hagiography of Ahudemmeh, which states that he had the church constructed as a copy of the famous shrine to the warrior-saint St Sergius at Sergiopolis (modern Rusafa, Syria), in a bid to curb pilgrimages into Byzantine territories by the Arab tribes who had recently become Monophysite (Fiey 1958: 126; Nau 1909: 6–52).

In 1928, the Deutsche Orient-Gesellschaft (German Oriental Society), directed by Oscar Reuther, excavated a church at the mound of Qasr bint al-Qadi on the western side of Ctesiphon (Meyer 1929: 23–4; Reuther 1929a: 11–15; 1929b: 449–451, Figs. 1–2; 1977: 560–1; Awad 1947: 105–7; Lerner 1992: 529). Built of baked brick set in gypsum mortar, the earliest phase was distinguished by thick, rounded columns on square bases standing close to the side walls, while a later phase had rectangular columned walls (Reuther 1929b: 450). No destruction

Table 58.1 Synchronic chart of Churches V and XI (al-Hira)

	Church V	*Church XI*
Dating	Late 7th to early 8th century	
Orientation	43° south from due east	41° south from due east
Layout	Tripartite, separated from main body of the church by massive piers	Tripartite, divided into 3 aisles by burnt brick arches standing on brick piers
Roof	Single span	Barrel-vaults
Floor	Burnt brick (26 × 26 × 5 cm) laid diagonally	Burnt brick (20 × 20 × 4 cm) laid diagonally
	Bema?	Bema surrounded by raised benches
Walls	Brick (replastered with lime-plaster) Undecorated.	Brick (5 layers white lime-plaster) Undecorated
Sanctuary	No apse	No apse
	Decorated: 2 levels: figurative, geometric	Decorated: geometric
Narthex	None, multiple doorways on northern side	None, two doorways on northern side

levels were found, suggesting that rebuilding might have been a result of financial endowment. The east end of the church culminated in three chambers: a *diaconikon* and a *prothesis*, flanking the sanctuary that had a straight, eastern wall instead of an apse. Four round holes in front of the steps leading into the sanctuary suggest that the church originally had a *ciborium* (a canopy resting on four pillars over the altar of a basilica; termed a *baldachino* in western churches) (Reuther 1929b: 450). An ostracon with a Syriac inscription was discovered under the floor of the sanctuary in the second phase (Kröger 1982: 48). The six-line text was possibly a scribal exercise. Written in black ink, it mentions the God of Abraham, Isaac, and Jacob (Kröger 1982: 48; Hunter 1997: 361–7 and Figs. 1–2; 1998: 618–26). Nearby were fragments of a three-quarter life-size statue of a garbed male, possibly a patron saint, made of painted stucco in high relief, demonstrating that the Church of the East embraced figurative art (Meyer 1929: 25 and Fig. 13; Reuther 1929a: 12 and Pl. 6; Kröger 1982: 48; Baumer 2006: 75). Pieces of painted and gilded ornamental stucco, some decorated with palmettes and zigzag patterns, were also found (Reuther 1929b: 450; Kröger 1982: 48). The patron saint of this church is unclear although Ctesiphon is known to have had several churches, including one dedicated to Mar Narkos, and a monastery of Mar Pethion, martyred in 447 (Streck 1917: 45).

Financed by Gerald Reitlinger and directed by David Talbot-Rice (Talbot-Rice 1932a, 1932b, 1932c; Awad 1947: 107–11; Fiey 1968/III: 206–7; Lerner 1992: 529; Hunter 2008: 41–56), the 1931 Oxford Expedition to al-Hira investigated

12 mounds in the northeastern corner of the site, nearest to the most ancient part of Kufa (Talbot-Rice 1932a: 51). On Mounds V and XI, two churches (designated V and XI, respectively) described as "long basilicas with three rectangular chambers at the eastern end," which were almost identical to the church at Ctesiphon, were excavated (Table 58.1). These dated to the late Sasanian/early Islamic era (Talbot-Rice 1932b: 265). Only the northern side of Church XI was excavated, but both churches were similar in plan, oriented south of due east. Talbot-Rice surmised that small barrel vaults covered each of the three aisles of Church XI (Talbot-Rice 1932a: 57–8 and Fig.6; 1932b: 265 and Fig. 1). In each case, the sanctuaries had straight, eastern walls flanked by a *diakonikon* and a *prothesis*.

The sanctuary of Church V (Talbot-Rice 1932b: 279–81 and Fig. 2) was decorated with murals dating to two different periods: the upper portraying fragments of crosses and the lower depicting a bird and colored circles as well as a decorative floral pattern which Talbot-Rice dated to the 7th century, describing it as "more Sasanian in character, both in appearance and style" (1932a: 57). Small finds included "icons" or fragments of plasterwork crosses of East Syrian design. These belonged to two types: incised, with the incisions picked out in red pigment; and molded, with designs in high-relief (Talbot-Rice 1932a: 58 and Fig. 24; 1932c: 282 and Figs. 3–4; Okada 1990). Fragments of glass lamps "shaped like champagne glasses" and having "close relationships with Byzantine glass from Jerash" were also found (Talbot-Rice 1932b: 266; 1932c: 290). The floor and side chambers of Church V were made of baked bricks set diagonally. The walls were plastered with white lime-plaster.

The mudbrick walls of Church XI were coated with five layers of white plaster. In the sanctuary area a painted red cross was found in situ on the wall (now in the Ashmolean Museum, Oxford, where many of the finds were deposited; see Talbot-Rice 1932a: 58; 1932c: 280 and Pl. 2). As in Church V, the floor was paved with baked bricks, set diagonally. In the middle of it was a plastered mudbrick *bema* (Greek, "platform"), the raised platform in the nave of the church from which the lessons and scriptures were read and the sermon delivered (Talbot-Rice 1932b: 280; Fiey 1959: 76–8; Taft 1968; Cassis 2002). Benches were arranged on each side in an arc with a screen behind. A *sheqaqona* (a processional way) connected the *bema* to the sanctuary and featured 12 arches that may have originally contained statues of the Apostles (Maniyattu 1995: 333–4; Hunter 2008: 36 and Pl. 3). Plasterwork crosses or "icons" were also found at various points in Church XI (Talbot-Rice 1932a: 58).

A survey at Rahaliya oasis, 110 kilometers southwest of Baghdad, by Barbara Finster and Jürgen Schmidt on behalf of the German Archaeological Institute, documented a church (15.5 × 23 meters) (Finster and Schmidt 1976: 13, 40–3 and Fig. 13; Lerner 1992: 529). Built of stone and clay, it featured a triple nave punctuated by two rows of columns composed of three, free-standing columns and two half-columns attached to the western and eastern walls, respectively

(Finster and Schmidt 1976: 40). A stone barrier connecting the final pair of free-standing columns with the two half-columns attached to the sanctuary wall may be interpreted as a *sheqaqona*. Columns in the each of the four corners of the sanctuary suggest that it was originally domed (Finster and Schmidt 1976: 41). The sanctuary, which had a straight eastern wall, was flanked by a *diakonikon* and *prothesis*. The southern chamber had a mudbrick tub, "reminiscent of a terracotta sarcophagus," suggesting a *martyrium* rather than a baptistery, as Finster and Schmidt suggested (1976: 42). Associated buildings indicate that the site was a monastery, perhaps dedicated to a martyr or holy man. Judging by the late Sasanian sherds that were found, the church at Rahaliya probably dates to the 6th century (Finster and Schmidt 1976: 43; Lerner 1992: 529).

Finster and Schmidt also documented two churches of similar dimensions and layout at Qusair, 7 kilometers northwest of the Umayyad fortress of Ukhaidir, near Kerbala (Finster and Schmidt 1976: 27–39). Church A is identical to Church B, 1 kilometer away, that was partially destroyed when the nearby *wadi* shifted its course (Finster and Schmidt 1976: 35). These churches are distinguished by their long naves, in excess of 30 meters, a feature also seen in the Kharoba Koshuk church at Merv (Turkmenistan), dated to the 6th century (Finster and Schmidt 1976: 35: Pugachenkova 1967: 87; Puschnigg 1999). Church A culminated in a domed sanctuary (5.8 square meters) with an apse (3.23 × 1.35 meters) that had a small window (Finster and Schmidt 1976: 28 and Fig. 8). As at Qasr Serej, the sanctuary was entered via a triumphal arch "reminiscent of western, early Christian churches" (Finster and Schmidt 1976: 27). The north and south walls of the sanctuary featured two small windows and two small entrances, the latter possibly connecting to a *diakonikon* and *prothesis* (Finster and Schmidt 1976: 28). At the western end of the church a single doorway, flanked by columns, may have led to the narthex. The location of Church A, in the center of a walled compound, with various other structures, suggests a monastery site (Finster and Schmidt 1976: 37). A gate on the eastern side provided entry, the wall acting as a barrier against raids by nomadic tribes and future changes in the *wadi*. A late Sasanian date may be inferred from the architectural parallels with Qasr Serej as well as the surge of Monophysite activity in the region. Syrian Orthodox monks settled at the nearby oasis of Ain al-Tamr (Finster and Schmidt 1976: 35).

The University of Mosul excavated a church at Tell Museifneh at Imsefnu during the Saddam Dam Basin Salvage project. Oriented east–west, it was constructed of dressed stone blocks (Abbu 1987: 133–55 and Fig. 2; Okada 1992: 77 and Fig. 2). Set within a large courtyard complex, arcades, each with two arches sprung from a square column and pilasters on the eastern and western walls, divided the church into three aisles (Abbu 1987: 136, Fig. 4). The sanctuary, typically situated in the east, featured an apse, and was flanked in the north by a *diakonikon* and in the south by a large *martyrium* that extended beyond the south wall of the church. Entrances in the southern courtyard provided access, through a columned porch, to the church and the *martyrium*. Dated to the 7th

century (Abbu 1987: 217; Okada 1991: 77), the architectural features of this church suggest that, like Qasr Serej, it was affiliated with the Monophysite tradition.

In 1972 the Japanese Archaeological Expedition to Iraq, directed by Hideo Fujii, located the site of Ain Sha'ia at the foot of the Kerbala escarpment, 15 kilometers west of Najaf. Preliminary soundings in 1986 were followed by two seasons of excavation (1987–8, 1988–9) (Fujii et al. 1989). Centrally located earthen ramparts enclosed a church built of mudbrick coated with gypsum plaster that had plastered floors (Fujii et al. 1989: 35–61 and Fig. 5). The nave was divided by pier-walls into three aisles that were punctuated by three openings aligned with the entrances/exits to the church in the north and south walls. The south wall opened onto a courtyard paved with baked bricks. The west wall of the church culminated in a narthex (Okada 1991: 73, Fig. 1). The church's orientation was not due east–west but was "deflected as much as 60 degrees to the north" (Okada 1992: 91). Painted gypsum fragments, with red, blue, and black geometric designs, were found in the sanctuary, the layout of which resembles that of the churches at al-Hira, Rahaliya and Ctesiphon (Fujii et al. 1989: 38). Gypsum plaques or "icons", similar to those at al-Hira, were recovered in various parts of the church (Fujii et al. 1989: 58–9, Okada 1990). At the southwest end of the central nave were 48 pieces of decorated or inscribed gypsum (Hunter 1989a: 95–105; 1998: 626–30). Two Syriac inscriptions on gypsum discovered near two chests or boxes, one within the other, built into the north pier wall, suggest the burial place of an ecclesiastical dignitary (Hunter 1989a: 92–5; 1998: 628–30; Fujii et al. 1989: 38–9). These were filled with mudbricks and crushed mud-stone (Fujii et al. 1989: 39). Their contents were possibly exhumed when the monastery complex declined. Similar boxes were built into the walls of Church XI at Hira, but Talbot-Rice's unpublished field-notes do not disclose whether they contained anything.

Plaster "icons," similar to those at al-Hira, were found at buildings 200–400 meters northwest of the church, suggesting that these were cells occupied by monks or pilgrims (Fujii et al. 1989: 72–3 and Figs. 34–5). The monastery complex was served by a *qanat* system (underground water galleries) that conducted water from the nearby spring, from which Ain Sha'ia derives its name (Fujii et al. 1989: 70–2). The Dukakin caves, 500 meters to the north, housed anchorites, indicating both eremitic and coenobitic activity at Ain Sha'ia. The hewn marlstone walls and ceiling of one of the caves were coated with chaff-tempered mud plaster (Fujii et al. 1989: 84). The floor of marlstone chips and baked bricks had a fireplace in the center and was littered with sherds. An ostracon with a Syriac inscription on both sides in black ink had quotations for the season of Epiphany from the *Hudra*, the liturgical cycle of the Church of the East (Hunter 1989a: 105–8; 1998: 630–5; Brock 2004). The posited identification of Ain Sha'ia and Dukakin with Deir Allaj, one of the most famous monasteries at al-Hira, remains speculative (Hamid 1988: 9; Hunter 1996: 80).

The wider context of Christian archaeology

The 1928 excavations of a church at Ctesiphon opened a new vista in the Christian archaeology of Mesopotamia and, to date, nine churches have been investigated in Iraq. Six of these are located near Kerbala and Najaf, revealing a singular concentration in an area that is now staunchly Shia. The sanctuaries of the churches at Ctesiphon, al-Hira, Ain Shai'a, and Rahaliya are all distinctly Mesopotamian (Finster and Schmidt 1976: 36) with postulated origins in Babylonian temple architecture (Talbot-Rice 1932a: 58; Awad 1947: 111). The affiliation of the churches with the Church of the East is confirmed by both epigraphic evidence and the iconography of the plaster "icons" at various sites. By contrast, the apsidal sanctuaries at Qasr Serej, Museifneh, and Qusair belonging to the Monophysite tradition affirm that the two branches of Syriac Christianity adopted distinctive architectural norms, just as they adopted different scripts. The physical evidence from Qusair supports textual accounts that the Monophysite church was a growing power in southwestern Mesopotamia in the 6th century.

Although bishoprics had already been established in eastern Arabia (Beth Qatraye and Beth Mazunaye) and Bahrain by 410, the Church of the East's expansion into the Persian Gulf may have been spurred by Khosrow II's support for the Monophysites. In 1989 a typical East Syrian church was excavated on Failaka island in the bay of Kuwait (Bernard and Salles 1991; Bernard et al. 1991). Another church, part of a monastery complex, was accidentally discovered at Jubayl, on the Saudi Arabian coast, in 1986 (Langfeldt 1994). A further Church of the East monastery complex, on the Iranian island of Kharg (Ghirshman 1971a; Bowman 1974, 1974–5; Steve 2003), displays almost exact parallels with Ain Sha'ia (Okada 1992) and another complex on Sir Bani Yas island in Abu Dhabi (King 1997). This was originally dated to the 6th or 7th century (King 1997: 228–31; Elders 2003: 231), but a detailed study of the ceramics recovered there suggests a late 7th or early 8th century date (Carter 2008).

Additional sites in the Persian Gulf belonging to the Church of the East have been identified by iconographic evidence. A stucco fragment with a cross in the East Syrian style as well as a poorly preserved church were found on the island of Akkaz, in the bay of Kuwait (Gachet 1998: 73–6 and Fig. 14). Three crosses, two made of bronze and one of mother-of-pearl, were discovered at Jabal Berri, c.10 kilometers southwest of Jubayl in northeastern Saudi Arabia (Potts 1994: 61–5 and Figs. 2–7). A post–500 date has been suggested on the basis of two glazed pottery vessels of Sasanian type that were found in the general vicinity (Potts 1994: 63). At Thaj, 90 kilometers inland from Jubayl, two East Syrian crosses were roughly incised on stones flanking a doorway of a building with ashlar stone foundations and mudbrick upper layers (Langfeldt 1994: 44–7). Five or six tombstones at al-Hinnah, 10 kilometers from Thaj, incised with East Syrian crosses, indicate a cemetery (Langfeldt 1994: 49).

Concluding remarks

Excavation and surveys conducted since the early 20th century have opened new perspectives in the Christian archaeology of Sasanian Mesopotamia. First, the considerable Christian presence in the southwestern "flank" of Mesopotamia near modern Najaf and Kerbala has been exposed, the material evidence highlighting an area that Syriac writers only mentioned sporadically. Second, distinct architectural traditions of the Diophysite Church of the East and the Monophysite Syrian Orthodox Church have emerged, complementing the theological and paleographic hallmarks that differentiated these branches of Syriac Christianity. Third, the discovery of decorated stucco-work and plastic arts has shed light on the decoration of churches, placing them within the larger context of Sasanian decorative arts and also challenging the so-called aniconic nature of the Church of the East. Fourth, small finds and inscriptions give rare glimpses of Christian activity, the latter supplying some of the earliest evidence of the liturgy of the Church of the East, pre-dating extant manuscripts by several centuries. Finally, the material evidence confirms the Church of the East's vigorous expansion in the Persian Gulf and the tangible links that were maintained with the Mesopotamian motherland.

The dimensions that Christianity achieved under the Sasanians did not die out with the dynasty but continued for several centuries after the coming of the new Islamic order. British Museum excavations in 1983 and 1986 at Khirbet Deir Situn revealed Sasanian pottery under a much later, 13th century monastery (Curtis 1989a). At Tekrit, major works by the Iraqi Department of Antiquities in the 1990s exposed a variety of churches that functioned for several centuries after the Arab conquest (Harrak 2001a, 2001b). As shown by the Monophysite churches at Qasr Serej and Tell Museifneh, dated to the 6th and 7th centuries, respectively, the architecture of both the West Syrian and East Syrian traditions spanned the transition from the late Sasanian dynasty to the early Islamic era, making change difficult to pinpoint chronologically from architectural plans alone.

Ceramic, epigraphic, numismatic, and iconographic analyses provide important adjuncts. In recent years, lively debate has emerged surrounding the dating of many sites, based on the results of ceramic studies. The monastic complexes in Mesopotamia and the Persian Gulf are now thought to date to the 8th or 9th centuries, rather than the 6th or 7th centuries (Carter 2008: 97–8). This shift does "not reflect the introduction of Christianity but simply a change in the quantity or disposition of resources, evident as a burst of building activity" (Carter 2008: 103). Surviving well into the Islamic era, these churches and monasteries may tie in with the remarkable florescence of East Syrian mystical activity that took place at this time in the Gulf region, epitomized by the writings of Isaac of Nineveh and Dadisho' of Qatar (Wensinck 1923; Brock 1999–2000, 2006).

GUIDE TO FURTHER READING

For a general discussion of Christianity in Mesopotamia, see Hunter (2009. Lacking a monograph devoted to the topic, the Christian archaeology of Late Antique Mesopotamia is best approached through articles. Finster and Schmidt (1976), Fujii et al. (1989), and Okada (1992) are useful studies of churches in southwestern Iraq. For al-Hira and Ctesiphon, see the articles by Talbot-Rice (1932a, 1932b, 1932c) and Reuther (1929b, 1964, 1977). Okada (1990) is an important, comparative analysis of East Syrian iconography, focusing on plaster "icons." For Christian archaeology in the Persian Gulf, see, e.g., Bernard and Salles (1991), Bernard et al. (1991), Langfeldt (1994), Potts (1994), King (1997), Elders (2003), and Carter (2008). For the history of Christianity in the Gulf, see Potts (1990).

Christian Syria has to be assessed through Tchalenko and Baccache (1979), Baccache (1980), and Tchalenko (1990), helpfully revisited and supplemented by Lassus (1947), Tchalenko (1953–8), Donceel-Voûte (1988), Tate (1992), Renhart (1995), and Loosley (2003). Price (1985) is the classic text on asceticism in Syria to be read alongside Peña et al. (1980, 1987). Bowersock (2006) offers an engaging, well-illustrated perspective on the value of mosaics as a source of history. In Piccirillo (1993, 2001) the reader gains authoritative access to the mosaics of ancient Jordan. For Jordan, MacDonald (2009) and, more broadly and thematically, Ousterhoot (1990), open up fruitful avenues for engaging the phenomenon of pilgrimage in the ancient Christian east. Freeman (2001) and Watson (2001) provide the reader with a useful orientation on Christian archaeology in Jordan. Piccirillo and Alliata (1988) provide attractive visuals and allow entry to Madaba research in a concentrated manner. A wealth of documentation on population groups in Palestine from the Byzantine to the early Islamic period can be found in Dauphin (1998) in combination with Schick (1995). Bieberstein and Bloedhorn (1994) is a very useful, well-documented reference work on the archaeology of Jerusalem proper. Tsafrir (1993) provides a useful introduction to the archaeology of selected, representative churches and other religious buildings in Palestine. Ovadiah (1970) and subsequent supplements in Bitton-Askhelony and Kofsky (2004), combined with Saliou (2005), provide an up-to-date entry point to studies of intellectual and material aspects of Gaza during the late ancient Christian period. Patrich (1994) offers a balanced approach to one of the most important, individual monastic sites in ancient Palestine. A wider perspective on Palestinian monasticism is to be gained from Hirschfeld (1992, 2004, 2006). Excellent access to textual traditions relevant for the ancient Christian history of Sinai is to be found in Caner et al. (2010). The material aspects of monasticism can be accessed through Dahari et al. (2000). Krautheimer (1986) provides an art-historical framework for a good number of sites and monuments relevant for the present discussion.