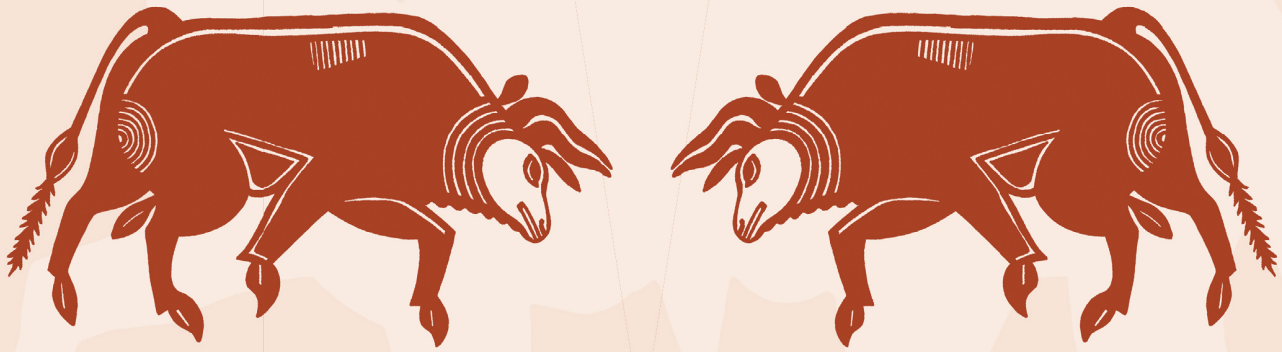
Archaeobiology 3

ARCHAEOZOOLOGY OF SOUTHWEST ASIA AND ADJACENT AREAS XIII



Proceedings of the Thirteenth International Symposium, University of Cyprus, Nicosia, Cyprus, June 7–10, 2017

edited by

Julie Daujat, Angelos Hadjikoumis, Rémi Berthon, Jwana Chahoud, Vasiliki Kassianidou, and Jean-Denis Vigne

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Group photo of the 13th ASWA[AA] meeting June 8th 2017
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Part 2: Subsistence Economies of Early and Late Complex Societies in Southwest Asia and Adjacent Areas

Part 3: Beyond Subsistence: Animals in the Symbolic World of Southwest Asia and Adjacent Areas

FOREWORD

The 13th ASWA conference was hosted by the University of Cyprus, one of the youngest of Europe's universities. In 2019, it was only thirty years since its foundation. Nevertheless, this is a thriving academic institution, which currently consists of eight faculties, twenty-two departments, and eleven research units.

In 1991, and just two years after the university's foundation, the Archaeological Research Unit (ARU) was founded by decree from the Government of the Republic of Cyprus, following the issuance of the dependent legislation by the House of Representatives. The decision to establish the ARU was based on the recommendation of the Interim Steering Committee of the University of Cyprus, which stated the following:

1. Cyprus is offered for primary research in the field of archaeology thanks to its distinctive cultural signature and history, as well as due to the fact that Cypriot archaeology and archaeological research on the island already has a distinguished tradition and international reputation;

2. The subsequent international recognition of the importance of archaeological research in Cyprus should comprise one of the first incentives for choosing the University of Cyprus as a center for postgraduate studies, and will pave the way for the exchange of students and academics between the University of Cyprus and academic institutions overseas.

The faculty members of the ARU, who are also part of the Department of History and Archaeology academic staff, have contributed immensely over the past 28 years to the achievement of the aforementioned objectives for the study and promotion of Cypriot cultural heritage through their research, their teaching, and the practical training they have been providing to students at undergraduate and postgraduate levels. The active study of other regions of the Mediterranean world have not been overlooked either, as members of the ARU academic staff have been carrying out excavations and research projects in Greece, Turkey, and France.

The members of the ARU are actively carrying out research in Pre- and Protohistoric Archaeology, Classical and Byzantine Archaeology but also Archaeometry and Environmental Archaeology, Maritime Archaeology, and Western Art. In the course of the past 28 years, the ARU has laid very stable foundations in all aforementioned specialisations of the archaeological discipline, none of which existed at academic level in Cyprus before the unit's establishment. Through their teaching at undergraduate and postgraduate levels, all members of the ARU academic staff have been contributing to the formation of a new generation of Cypriot archaeologists, equipped with all the necessary knowledge and practical experience needed to excel in this scientific field.

Over the years, the ARU has been very active in organizing international conferences and workshops. The ARU has organized over 50 international conferences, while members of the academic staff have published the proceedings of over 20 scientific meetings held at the ARU.

Thus, when Jean-Denis Vigne came to my office several years ago with the suggestion to co-organize the 13th Archaeozoology of Southwest Asia and Adjacent Areas conference I gladly accepted. The meeting in Nicosia brought together colleagues from all over the world and offered a venue where new results from the field or the laboratory could be presented and discussed. The publication of the conference proceedings enables colleagues who were unable to attend the conference to read about the latest developments in the archaeozoology of this culturally important region.

I would like to close by thanking all the members of the 13th ASWA organizing committee for all the work they have put into bringing so many scholars to Cyprus, many of them for the first time. I would also like to thank the co-editors of this volume for all the work they have put into the publication of the proceedings.

Professor Vasiliki Kassianidou
Director of the Archaeological Research Unit,
University of Cyprus
Nicosia, August 2019

EDITORS' PREFACE

Due to their location at the meeting point of the three Old World's continents—Africa, Asia, and Europe—Southwest Asia and its adjacent areas played a pivotal role in the history of humanity. They received successive waves of our species—*Homo sapiens*—out of Africa. Different processes in several areas of this large region brought about the transition to the Neolithic, and later on the urban revolution, the emergence of empires bringing with them important subsequent religious, cultural, social, and political consequences. Southwest Asia also played a major role in the interactions between East (Asia) and West (Europe) during the last two millennia. The unique importance of Southwest Asia in the history of humanity is strengthened by the, also related to its location, fact that this area is a hotspot of biodiversity, especially in mammals, which were—as everywhere in the world—tightly associated to the history of civilizations in a diversity of roles: game, providers of meat and milk, traded raw material, symbol of prestige and wealth, pets, etc.

Everywhere in the world, the biological and cultural interactions between humans and animals often remain under-evaluated in their heuristic value for understanding complex social and biological interactions and trajectories. This is why, almost half a century ago, archaeologists who were carrying out research and reflecting on such themes founded a very active nonprofit world organization named the International Council for Archaeozoology (ICAZ). This is also why the ICAZ working group "Archaeozoology of Southwest Asia and Adjacent Areas" (ASWA[AA]) was one of the first ones created within ICAZ, constituting one of the largest and most active of ICAZ's working groups.

The ASWA[AA] was formed during the 1990 ICAZ International Conference in Washington, D.C. Its purpose is to promote communication between researchers working on archaeological faunal remains from sites in western Asia and adjacent areas (e.g., Northeast Africa, Eastern Europe, Central Asia, and South Asia). It carries out its mandate mainly through the sponsoring of biennial international conferences. Since 1998, these meetings have alternated in being hosted in Europe or in Southwest Asia: Paris (1998), Amman (2000), London (2002), Ankara (2004), Lyon (2006), Al Ain (2008), Brussels (2011), Haifa (2013), Groningen (2015).

Ongoing armed conflicts and political tensions in several countries of Southwest Asia made it difficult to locate a safe and convenient place that would enable the organizing the 13th ASWA[AA] meeting in within that region. Although Cyprus is currently a member of the European Union, in (pre-)history Cyprus was embedded in the eastern Mediterranean "world." Because of its location, Cyprus was indeed at the confluence of African, Levantine, Anatolian, and Greek cultural streams and, as is common for islands, recombined them in different but always original ways all along its history. Archaeozoology recently provided one of the most convincing illustrations of the tight connection between Cyprus and Southwest Asia, demonstrating that the earliest domesticated mammals, especially cats, pigs, cattle, sheep, and goats, were introduced to the island very shortly after their first incipient domestication on the near continent, that is, during the ninth millennium BC. For all these reasons, Cyprus represented an ideal place to host the 13th ASWA[AA] conference.

Despite the illegal military occupation of part of its territory by a foreign country, the option of hosting the meeting in Cyprus was enthusiastically embraced by all members of the working group, especially because it is open to all nationalities and maintains good diplomatic relationships with a large majority of countries in Southwest Asia. These facts contributed towards the 13th ASWA[AA] meeting in Cyprus (June 7–9, 2017) becoming one of the best-attended ASWA[AA] meetings. It brought together 80 scientists coming from 25 different countries: from Southwest Asia (6 countries), Europe (14 countries), North America (2 countries), and Japan.

They presented their results in 36 oral and 32 poster presentations. They debated the long-term interactions between humans and biodiversity, about the beginning of animal domestication and husbandry, the strategies of animal exploitation from the Paleolithic to modern times, and the symbolic and funeral use of animals through time. They also greatly enjoyed the numerous social events organized, in-

cluding a fantastic Cypriot mezze dinner, enhanced by a local folk-music band, and a nice excursion to the archaeological sites of Amathous, Kourion, and Khirokitia, and to the museums of Nicosia and Larnaca, which provided ample opportunities for scientific exchanges in a friendly atmosphere.

The hosting of the conference at the new campus of the University of Cyprus was another major reason to the meeting's success. This campus was a convenient and pleasant venue for such a conference, and the strong support of the University of Cyprus, as well as its valuable experience for the organization of such meetings were deeply appreciated by both the scientific organizers and the delegates. Several other partners contributed to the organization: the French archaeological mission "Neolithisation—Klimonas," which is itself strongly supported by the French School at Athens, the Cyprus Department of Antiquities, the French Institute of Cyprus, the French National Center for Scientific Research (Centre National de la Recherche Scientifique [CNRS]), and the French National Museum of Natural History (Muséum national d'Histoire naturelle [MNHN]).

The present volume brings together the texts of 18 of the 68 presentations of the meeting in Nicosia. The editorial board collected the papers and organized their review and editing. We are very grateful to Sarah Kansa (and Open Context), Justin Lev Tov, and Lockwood Press for their constant support in bringing this volume to fruition.

Julie Daujat
Angelos Hadjikoumis
Rémi Berthon, Jwana Chahoud
Vasiliki Kassianidou
Jean-Denis Vigne

1.7 | Animal Exploitation and Community Behavior at a Middle Bronze Age Village on Cyprus

Mary C. Metzger,* Elizabeth Ridder,† Suzanne E. Pilaar Birch,‡ Steven E. Falconer,§ and Patricia L. Fall¥

Abstract

Analysis of faunal remains from the Bronze Age village of Politiko-*Troullia* in central Cyprus offers the opportunity to add detail to the ongoing effort to characterize societal changes during the Middle Bronze Age, prior to the emergence of Late Bronze urbanism on the island. Politiko-*Troullia*, located in the northern foothills of the Troodos Mountains, has a radiocarbon chronology that indicates an occupation around 2100–1900 cal BC. Sheep and goat bones dominate the faunal assemblage, with bones from Mesopotamian fallow deer (*Dama mesopotamica*), cattle, and pigs following in descending frequency. Excavated architectural remains include a household compound, two large open courtyards and an adjacent alley with bone-rich trash deposits. Analysis of the bone assemblages from these spaces reveals consistencies about butchering as well as patterns of animal exploitation and consumption, which distinguish household subsistence and communal feasting behaviors. These lines of evidence can augment a developing understanding of village social identity and reflect larger patterns of social change prior to the first urbanism on Cyprus.

Keywords

Cyprus, Middle Bronze Age, Politiko-Troullia, *faunal survivorship profiles, faunal carcass distribution,* Dama mesopotamica, *feasting, communal behavior, orchard cultivation, household-scale metallurgy*

Introduction

Bronze Age Society on Cyprus

This analysis focuses on the settlement of Politiko-*Troullia*, Cyprus (Figure 1.7.1), as it exemplifies agricultural economy, particularly animal exploitation, just prior to the development of urbanized society on Cyprus (Table 1.7.1; Knapp 2008; Steel 2004). The Cypriot Chalcolithic Period featured a landscape of largely self-sufficient agrarian communities (Held 1993; Knapp 2008; Peltenburg 1996). The subsequent Philia "facies," identified primarily by funerary evidence, has been interpreted as a regional ceramic tradition (Stewart 1962) or as the earliest component of the Bronze Age (BA; Dikaios 1969) or a combination of the two (Webb and Frankel 1999). The ensuing Early Cypriot (EC) and Middle Cypriot (MC) periods (or the "Prehistoric Bronze Age"; see Knapp 2008:Table 1) featured pre-urbanized society with interacting villages of varying sizes, architectural configurations, and economic profiles (Knapp 2008:68–87). EC and MC agriculture incorporated animal management for secondary products, the introduction of cattle-plow farming, and heightened copper exploitation (Knapp 1990, 2008). At the end of these periods, MC III and Late Cypriot (LC) I jointly form a relatively quick transition to urbanized society and widespread international trade, which characterized LC II and III (Catling 1973; Knapp 2008; MC III–

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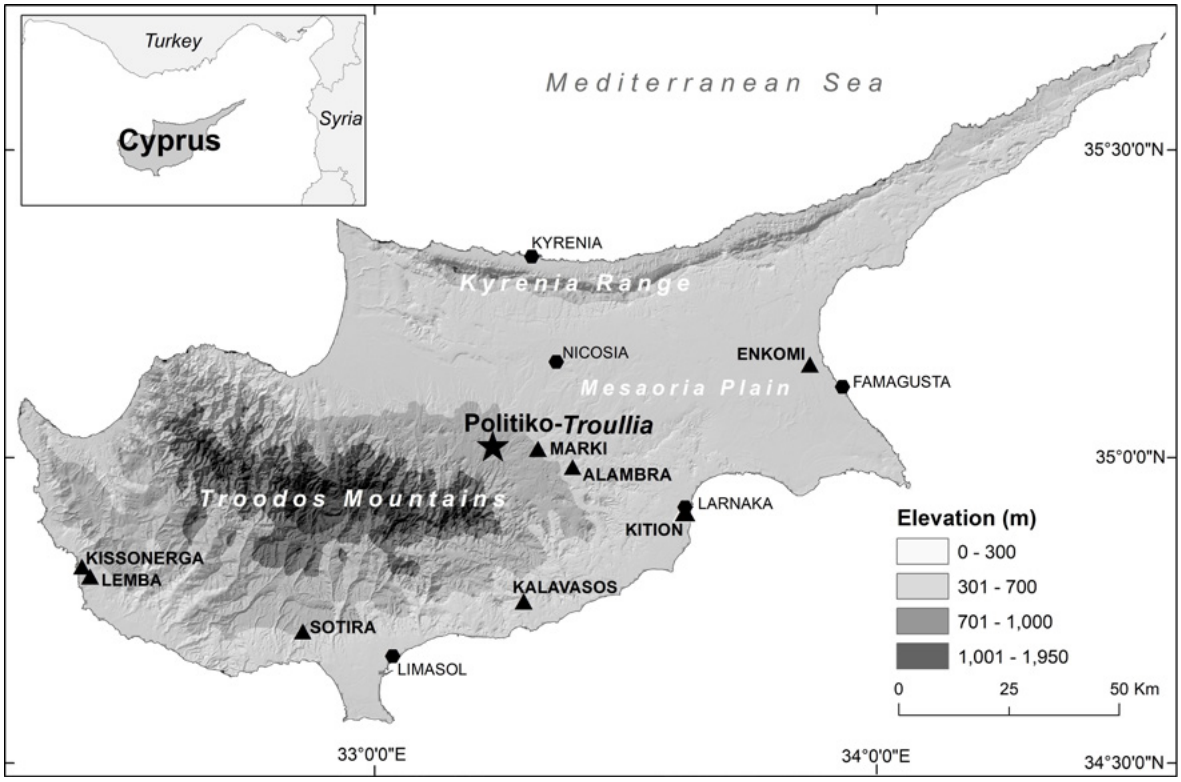

Figure 1.7.1. Map showing location of Politiko-*Troullia* on the island of Cyprus and other archaeological sites discussed.

LC III are also known as the "Protohistoric Bronze Age"). LC coastal cities like Enkomi and Kition became important nodes in expanded trade networks throughout the eastern Mediterranean (Keswani 1996; Knapp 1997a, 1997b; Manning 1993; Merrillees 1982; Peltenburg 1996).

Research Setting

The archaeological remains of Politiko-*Troullia* lie buried in the foothills of the copper-bearing Troodos Mountains, at the southern edge of the arable Mesaoria Plain of central Cyprus. This village site sits on an alluvial terrace between Kamaras Creek on the west and the streambed of the Pediaios River on the east (Figure 1.7.2).

The Pediaios, which is now dammed just upstream of Politiko-*Troullia* and dry downstream of the dam, is the longest river course on Cyprus. Springs less than 1 km to the south, which still feed Kamaras Creek, would have provided easily accessible perennial water along the settlement's western edge. The nearby hills feature large surface exposures of the Troodos ophiolite, which would have provided ready access to high-quality copper ore (Singer 1986, 1995).

Table 1.7.1. Archaeological chronology for prehistoric Cyprus. (After Steel 2004:Table 1.1; see also Knapp 2008:Tables 1 and 3.)

Period	Approximate Dates
Late Cypriot III	ca. 1200–1000 BC
Late Cypriot II	ca. 1400–1200 BC
Middle Cypriot III/Late Cypriot I	ca. 1700–1400 BC
Middle Cypriot I–II	ca. 2000–1700 BC
Early Cypriot I–III	ca. 2400–2000 BC
Philia	ca. 2500–2400 BC
Chalcolithic	ca. 4000–2500 BC

Material culture—most noticeably potsherds and ground stone—spreads over an expanse of about 20 ha, encompassing agricultural terraces on the hillsides of Politiko-*Koloiokremmos* overlooking Politiko-*Troullia* (Fall et al. 2012). Within this area, dense concentrations of Red Polished Ware ceramics and

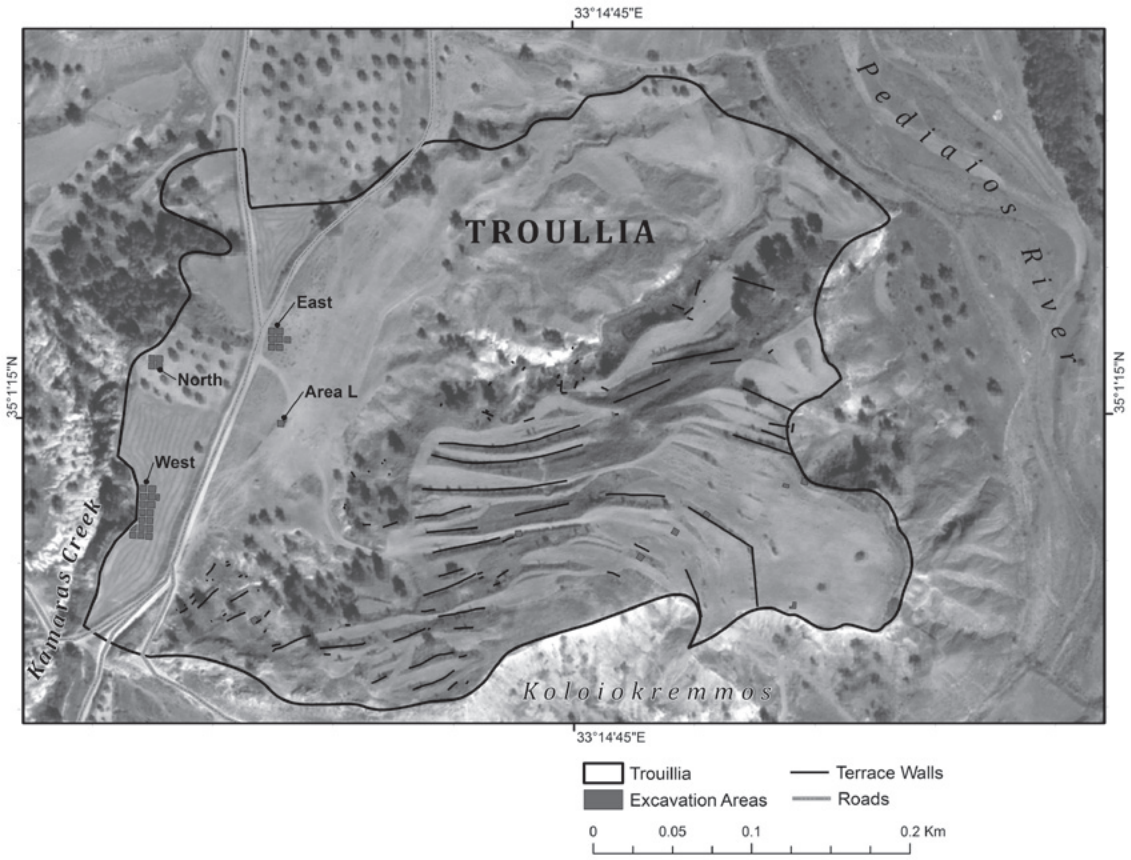

Figure 1.7.2 Quickbird image of Politiko-*Troullia* and surrounding landscape showing excavation fields. (After Ridder et al. 2017:Figure 2.)

ground-stone implements, accompanied by clear signatures of buried architecture revealed by soil resistivity survey, indicate a BA settlement covering at least 2 ha (Falconer and Fall 2013). Modeling of surface ceramic distributions associated with local terracing suggests an ancient, intensively managed agricultural landscape surrounding the village of Politiko-*Troullia* (Fall et al. 2015; Galletti et al. 2013; Ridder et al. 2017).

Research Questions

We hypothesize that spatial patterns of excavated animal bones and teeth from the BA village of Politiko-*Troullia* will allow us to distinguish different use areas at the site. Further, sheep and goat deposition will vary when compared to deer bones in terms of abundances and proportions. We expect that meat-rich carcass portions—upper forelimb and upper hind limb—of sheep and goat and deer will be differentially deposited in the village. We also expect that patterns of animal species and faunal elements will be expressed most clearly in Politiko-*Troullia* West's Northern and Southern Courtyards, in contrast to patterns from the Metallurgical Workshop in Politiko-*Troullia* East and other areas of domestic refuse.

Methods

Field excavations between 2007 and 2015 were undertaken in 4 × 4 m units separated by 1 m wide balks, which were removed periodically to permit broader, multiunit exposures. Since architecture often frames differing patterns of behavior (Finlayson et al. 2011; Goring-Morris and Belfer-Cohen 2008; Hardy-Smith and Edwards 2004; Rapoport 1990), we organized the excavated evidence from Politiko-*Troullia* according to "sectors" that correspond to distinct architecturally defined spaces, ranging from enclosed rooms to open exterior areas of varying sizes. All excavated sediments were dry-sieved through 1 × 1 cm mesh

to maximize recovery of material remains, especially animal bones (Falconer and Fall 2013; Fall et al. 2008).

The bones recovered from Politiko-*Troullia* excavations were washed and air-dried at the field lab in the nearby town of Pera Orinis. A small number of bones—about 40—recovered with calcareous deposits were soaked in a mild acetic solution to dissolve the deposits. The preservation of the bones was generally good. Bones recovered from contexts near the modern ground surface were typically weathered and abraded more than bones recovered from deeper strata. Bones were identified with reference to comparative literature, including Boessneck (1969), Boessneck et al. (1964), France (2008), Getty (1975), Schmid (1972), von den Driesch (1976), Zeder and Lapham (2010) and Zeder and Pilaar (2010).

Animal bone data are quantified as NISP (Number of Identified Specimens) to enable spatial comparison of relative frequencies of animal bones (Crabtree 1990:159–160; Grayson 1984:94–96; O'Connor 2000:55; Reitz and Wing 2008:202–210). Survivorship data were calculated primarily from tooth wear of mandibular tooth rows. For survivorship calculations of sheep and goats, mandibular deciduous fourth premolars and permanent third molars were also used. Plant remains—that is, charcoal fragments and carbonized seeds—were recovered through manual, nonmechanized water flotation of excavated sediments with burned organic content (see Fall et al. 2015; Klinge and Fall 2010). Samples were poured through nested mesh sieves, and all remains measuring at least 0.5 mm were sorted using a binocular microscope.

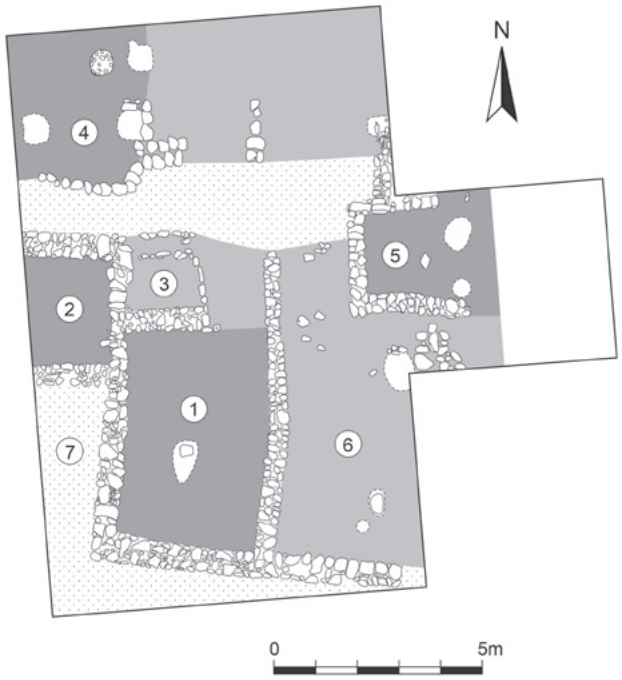

Figure 1.7.3. Map of Politiko-*Troullia* East showing domestic architecture (Sector 1) and associated outbuildings (Sectors 2 and 3), open-air work spaces (Sectors 4 and 5), and the Metallurgical Workshop (Sector 6). (After Falconer and Fall 2013:Figure 6.)

Results

Architectural Configuration

Excavation of Politiko-*Troullia* East—in eight 4 × 4 m units (see Figure 1.7.3)—uncovered a two-room domestic compound with small outbuildings to the north and east buried in one meter of archaeological sediment. The absence of material culture or adjacent buildings to the south or west suggests that this compound lay at the northern edge of the settlement (Fall et al. 2008). A partially covered exterior metallurgical workshop (Sector 6) produced the most abundant floral and faunal remains in Politiko-*Troullia* East. This exterior space revealed metallurgical manufacturing debris and tools, for example, copper tongs, a carved limestone casting mold, ceramic crucible fragments, copper slag, and chunks of ore, suggesting that this space served as a household-scale copper workshop (Falconer and Fall 2013). The architecture and material evidence in Politiko-*Troullia* North was excavated in four units and generally resembles that of *Troullia* East. In *Troullia* North, an enclosed room is surrounded by exterior spaces that produced utilitarian ceramic remains and further evidence of copper metallurgy in the form of slag and ore.

The major spaces uncovered through excavation of Politiko-*Troullia* West—incorporating 17 units (see Figure 1.7.4)—are two large courtyards. The Northern Courtyard (Sector 8) was entered from the north, adjacent to a well located within the site. The Southern Courtyard (Sector 9) had a later entrance at its southwest corner and an earlier one in its southern wall (Figure 1.7.4).

Comparably sized "exterior" courtyards excavated at other BA Cypriot villages (Frankel and Webb 2006:Figures 11.1–11.8; Swiny et al. 2003:58) and an ethnoarchaeological study of traditional Cypriot houses (Swiny et al. 2003:58) suggest that

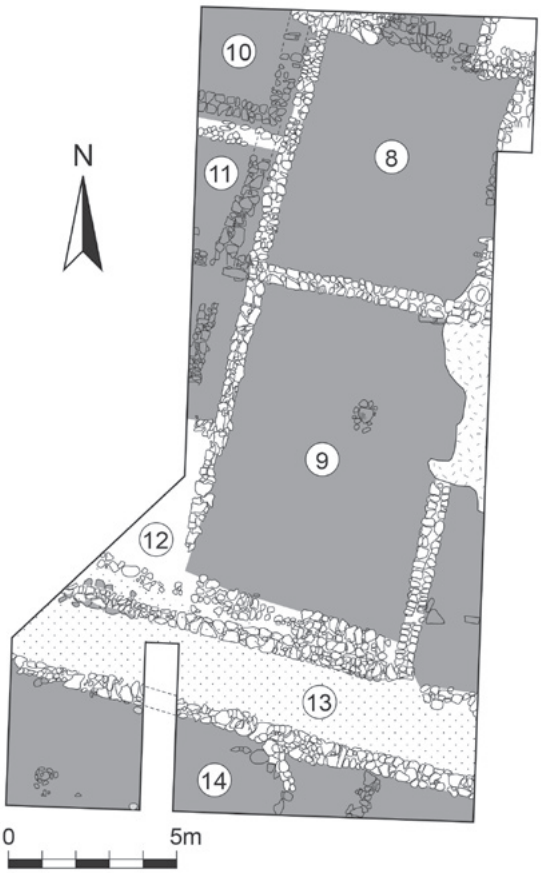

Figure 1.7.4. Map of Politiko-*Troullia* West, centered on the Northern Courtyard (Sector 8) and the Southern Courtyard (Sector 9); with Well (Sector 10), Alley (Sector 13), partially preserved rooms west of the courtyards (Sectors 11 and 12), and exterior space beyond the Alley (Sector 14). (After Falconer and Fall 2013:Figure 8.)

these courtyards probably were open and unroofed (Falconer and Fall 2013). The Southern Courtyard is bounded by parallel east–west walls to the south, framing an Alley (Sector 13) that sloped down toward the stream level of Kamaras Creek and thereby provided immediate access to water. This Alley was the scene of substantial community trash deposition, as reflected by rich, highly stratified sediments with abundant plant and animal remains. Recovery of very limited material evidence south of the Alley suggests that its southern wall may have constituted a settlement boundary. Additional domestic features in Politiko-*Troullia* West include a well (Sector 10) to the northwest of the Northern Courtyard and partially preserved rooms to the west of both courtyards along Kamaras Creek (Sectors 11 and 12, see Figure 1.7.4).

The remains of Politiko-*Troullia* constitute at least five phases of architectural building and rebuilding buried in one meter of archaeological sediment in *Troullia* East and more than three meters of deposition in *Troullia* West. The site's ceramic assemblage, which is dominated by Red Polished Ware, suggests occupation primarily during the MC Period (Falconer and Fall 2013). A suite of nine calibrated radiocarbon ages narrows the likely occupation span to roughly two centuries centered about 2000 cal BC.

Archaeobotanical Evidence

The inhabitants of Politiko-*Troullia* clearly practiced intensive arboriculture and fuelwood harvesting, as indicated by excavated charcoal and carbonized seeds (see Fall et al. 2015; Klinge and Fall 2010). Seeds were recovered most abundantly from olive (*Olea europea*), grape (*Vitis vinifera*), fig (*Ficus carica*), and pistachio (*Pistacia* sp.). Less frequently recovered plants included annual cereals, for example, wheat (*Triticum* sp.) and barley (*Hordeum* sp.), and also wild taxa. Analysis of charcoal fragments indicates burning of oak (*Quercus* sp.), pine (*Pinus* sp.), and olive much more abundantly than at contemporary BA settlements in deforested settings in the Southern Levant (Fall et al. 2015). Based on this evidence, the landscape surrounding Politiko-*Troullia* combined extensive orchard cultivation, possibly including hillside agricultural terracing (Fall et al. 2015; Galletti et al. 2013; Ridder et al. 2017), amid surrounding woodlands that provided abundant fuelwood and food for forest-dwelling game.

Faunal Remains

Nearly two-thirds of the excavated animal bones from Politiko-*Troullia* come from domesticated sheep (*Ovis aries*) and goat (*Capra hircus*), with much less abundant evidence of pig (*Sus* sp.) and cattle (*Bos taurus*) and considerable remains of Mesopotamian fallow deer (*Dama mesopotamica*; Table 1.7.2). The proportions of sheep and goat bones average relative to bones from other taxa about 66% across the excavation fields and architectural sectors considered in this analysis, which underscores the general importance of village-wide sheep and goat meat consumption.

Faunal remains are much less abundant in Politiko-*Troullia* East than in West (Table 1.7.2). The

Table 1.7.2. Faunal remains from Politiko-*Troullia* expressed as Number of Identified Specimens (NISP; see Figures 1.7.3 and 1.7.4 for location of sectors); Caprines (*O*/*C*).

Area (sector)	*O/C*	*Dama*	*Bos*	*Sus*	Total
PT East (1–7)	65	10	11	19	105
N Courtyard (8)	481	215	35	54	785
S Courtyard (9)	1,370	566	137	113	2,186
Well (10)	87	19	5	3	114
Court Ext (11&12)	67	29	1	7	104
Alley (13)	2,446	688	249	153	3,536
S Ext (14)	229	65	39	15	348
TOTAL	**4,745**	**1,592**	**477**	**364**	**7,168**

Table 1.7.3. Faunal remains by taxa from Politiko-*Troullia* according to grouped sectors, and expressed as NISP; χ^2 = 96.65, df = 6, $p < 0.0001$. Caprines (*O*/*C*); *Ovis*:*Capra* (*O*:*C*) ratios shown for each of the grouped sectors and for the site as a whole. Note: PT East has a comparatively small sample size; the remainder of the site reflects very consistent *Ovis*-*Capra* ratios of 0.70–0.72.

Area (sectors)	*O/C*	*Dama*	*Bos*	*Sus*	Total	*O*:*C*
PT East (1–7)	65	10	11	19	105	1.44
Courtyards (8,9,11,12)	2,080	846	211	182	3,319	0.70
PT West Ext (10,13,14)	2,762	772	293	171	3,998	0.72
TOTAL	**4,745**	**1,592**	**477**	**364**	**7,168**	**0.72**

Politiko-*Troullia* East bone assemblage is constituted overwhelmingly by domestic animals, especially sheep and goat, accompanied by the site's highest relative frequencies of pig and cattle and the lowest values for deer bones. The evidence from *Troullia* West includes the vast majority of animal bones excavated from Politiko-*Troullia,* and the largest numbers of faunal remains were found in the Southern Courtyard, the Alley, and the Northern Courtyard. The eastern and western portions of the settlement may be distinguished most fundamentally by the abundance of deer and low frequencies of pig and cattle in *Troullia* West, in contrast to the more substantial proportions of swine and bovids, and the near absence of deer in *Troullia* East.

The faunal evidence from distinct architectural sectors in *Troullia* East and West describes several contrasting patterns that underlie our inferences of domestic subsistence and communal feasting. A Chi-square analysis demonstrates that the taxonomic composition of these deposits differs significantly (Table 1.7.3; χ^2 = 96.65, df = 6, $p < 0.0001$). The Metallurgical Workshop (Sector 6) provides two-thirds of the bone evidence from *Troullia* East, in which sheep and goat bones form a strong majority, accompanied by lesser amounts of pig and cattle, and, much less frequently, deer. In *Troullia* West, our grouped sectors reveal much more substantial bone deposition, with a common pattern of much greater frequencies of deer and much less swine, especially in the two courtyards and their associated sectors. The Alley, in particular, provides a robust bone assemblage, with more than twice the frequency of deer but less than one-third the frequency of pig than are seen in *Troullia* East (see Table 1.7.2). A similar pronounced patterning is apparent in the Northern and Southern Courtyards, which jointly contribute assemblages almost as large as the Alley, with even higher fre-

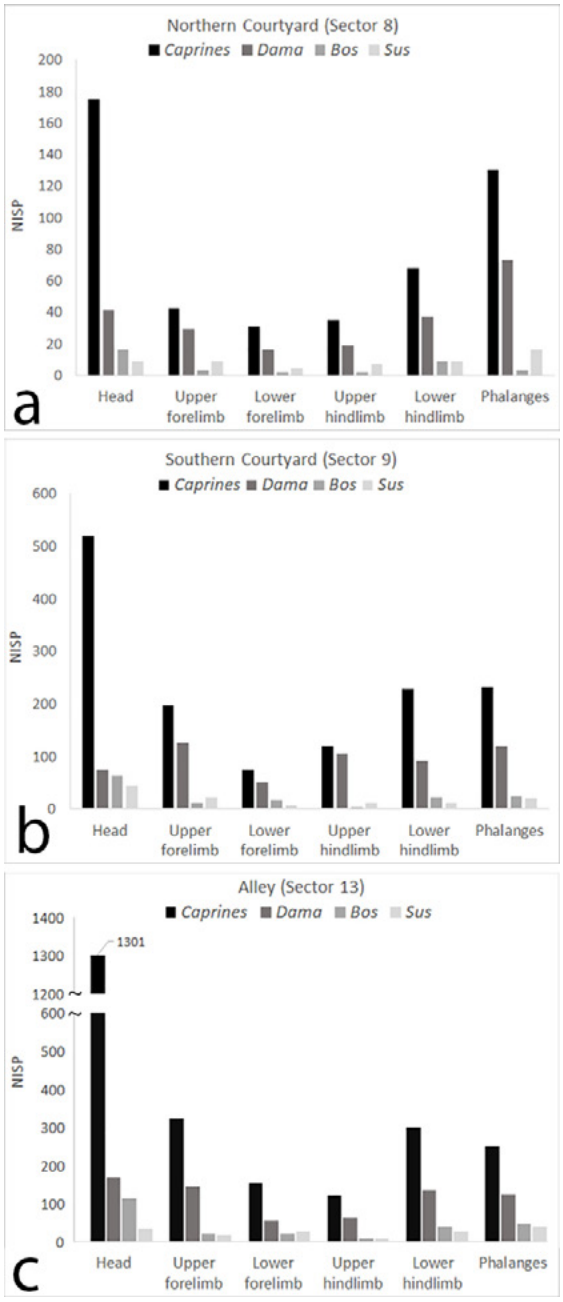

Figure 1.7.5. Carcass distribution of caprines, deer, cattle, and pigs in the Northern Courtyard (Sector 8), Southern Courtyard (Sector 9), and Alley (Sector 13) of Politiko-*Troullia* West. Groups of skeletal elements used to define sheep/goat and deer body portions (after Croft 2006). Head: skull, maxilla, mandible, axis and atlas vertebrae. Upper forelimb: scapula, humerus, proximal radius, complete radius, radius diaphysis, proximal ulna, ulna diaphysis. Lower forelimb: distal radius, distal ulna, carpals, metacarpal. Upper hind limb: innominate, femur, patella, proximal tibia, tibia diaphysis. Lower hind limb: distal tibia, tarsals, astragalus, metatarsal, metapodials. Phalanges: phalanges 1, 2, and 3, sesamoid.

quencies of deer bones. The spatial patterning across Politiko-*Troullia* summarized in Table 1.7.3 reveals significantly differing bone assemblages that are best interpreted in terms of modest household deposition in Politiko-*Troullia* East, substantial village refuse in Politiko-*Troullia* West exterior contexts—including the Alley—and heavy deposition, particularly of *Dama*, in open courtyards, suggestive of community feasting.

This patterning is particularly noteworthy in the Southern Courtyard where abundant deer bones are accompanied by several forms of evidence rarely found elsewhere at Politiko-*Troullia*. More specifically, the Southern Courtyard reveals the site's largest concentration of stone loom weights and highly decorated ceramic spindle whorls, as well as virtually all of Politiko-*Troullia*'s sizable collection of anthropomorphic plank-figure fragments (Falconer and Fall 2013; Falconer et al. 2014).

Spatial Distribution of Animal Carcasses

Several lines of evidence illuminate patterns of butchering in the courtyards and deposition in the Alley of Politiko-*Troullia* West. Evidence of cut marks created by stone or copper tools reiterates the importance of butchering practices as they contributed to the spatial distribution of carcass portions. Cut marks characteristic of animal butchery at Politiko-*Troullia*, probably involving both stone and copper tools, underscore the utilitarian orientation of metallurgy at Politiko-*Troullia*.

The bone remains represent all portions of the skeleton for both sheep/goat and deer. The Alley bone assemblage includes more abundant remains of sheep and goat, including meat-bearing upper forelimbs, but also bone elements that suggest refuse from butchering activities, for example, cranial fragments and phalanges (Figure 1.7.5). This sheep- and goat-carcass pattern in anatomical representation is roughly repeated for deer-carcass portions, although at lower bone counts, particularly for head portions. The carcass patterns for all species reflect NISP. Elements from crania and phalanges are quite abundant but are used in Figure 1.7.5 to assess carcass-disposal patterns rather than a precise calculation of relative frequencies. The sheep- and goat-carcass distribution in the Northern Courtyard is similar, with lower bone counts due to the smaller sample size. Once again, the sheep and goat evidence reflects predom-

inantly cranial fragments, teeth, and phalanges, with much less abundant limb bones; the remains of deer repeat this distribution at still lower counts. The larger bone assemblage of the Southern Courtyard includes the predictable abundances of sheep and goat bones, especially cranial fragments and phalanges. However, deer bones show a striking departure in which the most frequent carcass portions are meat-bearing upper forelimbs and hind limbs. In overview, the highest numbers of meat-bearing sheep and goat bones are found in the Alley, whereas the most meat-oriented deer assemblage is found in the Southern Courtyard.

Mortality Profiles

Age-at-death data are based on mandibular tooth wear. The tooth-wear data of the combined sheep/goat cohort follow protocols developed by Payne (1973) and Price et al. (2013), which consider mandibular tooth rows, deciduous fourth premolars (dP4), and permanent third molars (M3). The mandibular wear-stage values for *Dama mesopotamica* are based on Bowen et al. (2016) for fallow deer mandibles.

A variety of models may be used to interpret the survivorship of sheep and goat herds according to age classes. The models range along a continuum from killing a majority of animals within the first year of life in order to maximize milk production to a model of maximized wool production in which animals typically live beyond four years. Zooarchaeologists (e.g., Payne 1973) have noted that herds in pre-urban societies were rarely kept for a single purpose and that herding goals were continually adjusted in light of environmental conditions.

Survivorship curves based on mandibular tooth wear for the combined sheep and goat herd indicate a sharp drop-off in which about 70% of the animals were killed by their third year and 90% by the fourth year (Figure 1.7.6a). This management strategy suggests a mixed animal-management strategy or a possible focus on secondary products from adult animals. The finding contrasts with husbandry strategies that seek to maximize meat yield and animals are killed prior to the end of their second year, as noted at Marki-*Alonia* (Croft 2006), an E/MC settlement several kilometers to the east of Politiko-*Troullia*.

Deer mandibular tooth-wear stages were assessed for *Dama mesopotamica*. Most of the deer mandibles represent animals that had tooth wear indicative of complete mature dentition (about 24 months), and some mandibles represent individuals that were much older. The *Dama* curve shows a more continuous decline in survivorship that indicates that most deer were living longer than sheep and goats, with no discernible pattern of age-specific culling (Figure 1.7.6b).

Domestic Sheep and Goat, and Wild Deer

As expected, the sheep and goats at Politiko-*Troullia* were domesticated. In comparison with median bone measurements for selected elements from mature caprines at the Cypriot Chalcolithic site of Kissonerga-*Mosphilia* (Croft 2003), faunal remains from Politiko-*Troullia* are consistently smaller in size (Table 1.7.4), illustrating one effect of continued domestication into the BA. In contrast, minimum and maximum bone-element measurements from *Dama mesopotamica* at Politiko-*Troullia* are similar in size to those from the Cypriot Neolithic village of Parreklisha-*Shillourokambos* (Vigne 2011). This result demonstrates that *Dama mesopotamica* had not changed in size over several millennia (Table 1.7.5) and most likely continued to represent a population of wild deer.

In her 2013 dissertation on deer on Cyprus, Daujat synthesized research on deer osteometry, demographic profiles, and patterns of carcass exploitation, noting that her findings "failed to provide any evidence that the Mesopotamian fallow deer was ever domesticated on Cyprus" (Daujat 2013:45). Hunting of Mesopotamian fallow deer on Cyprus began during the Neolithic period and extended into the BA (Croft 2002). Early experiments in deer husbandry may have taken place, but on balance Croft posits that fallow deer were "free-living, hunted animals" and that "hunting of deer would have been conducted in a controlled, sustainable way within a system of game management" (Croft 2002:175). Speth (2013) considers reasons why a bone assemblage representing a large hunted animal, like fallow deer, would contain few bones from juveniles. The reasons likely do not relate to taphonomy or seasonality but rather reflect a decision by hunters to invest their time and effort in procuring adult animals that provide greater quantities of meat and fat than smaller-bodied juveniles. With Speth's observations in mind, the Politiko-*Troullia Dama* survivorship curve suggests

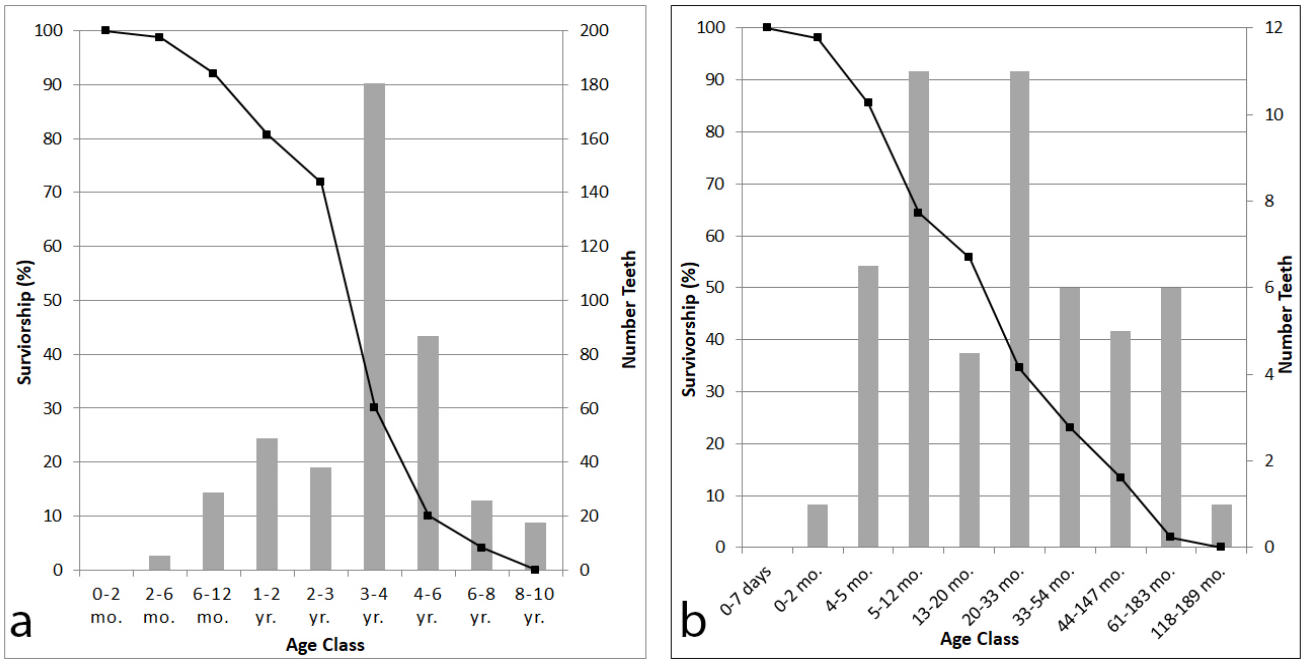

Figure 1.7.6. Survivorship curves for (a) *Ovis*/*Capra* and (b) *Dama* based on tooth eruption and wear from Sectors 8, 9, and 13 at Politiko-*Troullia* West.

Table 1.7.4. Summary statistics—median, mean, standard deviation—of measured values (in mm) for selected elements of mature caprines in Sectors 8, 9, and 13 at Politiko-*Troullia*. Median values are presented for Kissonerga-*Mosphilia* (Croft 1998) to evaluate potential changes in size of these selected elements between the Chalcolithic and the Early Bronze Age. Rad Bp = Radius proximal breadth; Mtc Bp = Metacarpal proximal breadth; Mtt Bp = Metatarsal proximal breadth; Hum Bd = Humerus breadth of distal trochlea; Scap GLP = Scapula greatest length of distal articular process; Nav–cub GB = Naviculo–cuboid greatest breadth; Tib Bd = Tibia distal breadth.

		Rad Bp	Mtc Bp	Mtt Bp	Hm Bd	Scap GLP	Nav-cub Bp	Tib Bd
Sector 8	N	4	13	10	6	3	3	9
	Median	30.35	23.00	19.25	29.25	31.30	26.30	25.40
	Mean	30.68	22.69	20.55	30.88	31.97	25.43	25.63
	Std dev.	4.91	1.75	3.37	4.70	5.63	3.48	1.89
Sector 9	N	34	24	34	40	8	2	24
	Median	31.15	22.50	19.65	30.30	34.50	23.00	26.25
	Mean	31.90	22.77	19.88	30.48	33.86	23.00	26.64
	Std dev.	3.72	2.21	1.56	2.61	3.23	2.83	3.76
Sector 13	N	61	45	34	64	25	0	68
	Median	30.00	24.20	20.1	30.15	30.8	NA	26.05
	Mean	30.51	23.97	20.68	30.66	31.78	NA	25.95
	Std dev.	3.35	2.12	3.28	3.19	3.88	NA	1.90
Kissonerga	Median	36.40	28.20	21.90	34.90	44.20	36.00	30.90

Table 1.7.5. *Dama mesopotamica* minimum and maximum values for selected measured elements (in mm) in Sectors 8, 9, and 13 at Politiko-*Troullia*. These values are compared to the same selected elements from Parreklisha-*Shillourokambos* (Vigne 2011), a Neolithic site, to evaluate potential changes in size over time.

		Tib	Hum	Rad	Mtc	Mtt	Scap	Astrag			Ph1		
		Bd	Bd	Bp	Bp	Bp	GLP	Bd	GLl	GLm	Bp	Bd	GLPe
Sector 8	N	9	5	2	9	0	4	7	9	7	24	25	22
	Min	28.0	39.3	40.7	23.8	NA	42.0	22.5	28.4	34.5	12.6	11.0	36.0
	Max	37.4	44.8	41.7	30.0	NA	45.6	25.6	39.0	37.4	18.4	17.0	47.2
Sector 9	N	15	20	15	16	2	10	9	8	10	56	56	53
	Min	22.5	37.3	32.6	26.5	26.6	40.5	23.2	35.5	34.9	12.8	11.8	36.0
	Max	36.3	48.5	44.0	34.4	27.9	50.5	26.7	41.7	40.5	17.8	15.8	46.1
Sector 13	N	40	23	17	15	0	11	3	4	4	68	71	66
	Min	30.3	37.3	36.0	27.0	NA	37.8	25.7	38.8	37.0	13.6	12.0	37.7
	Max	40.5	47.7	46.7	32.0	NA	48.6	26.4	41.7	40.0	25.1	16.2	47.3
Shillourokambos	N	70	133	38	16	18	62	71	72	69	66	64	56
	Min	31.1	36.9	37.6	24.4	24.4	39.0	23.0	36.8	34.2	14.5	12.5	40.3
	Max	42.0	51.7	48.5	36.0	31.2	51.4	29.4	44.6	42.1	19.8	17.2	48.5

hunting of deer at a variety of ages, including adults, in keeping with hunting of wild animals, rather than management of a domesticated herd.

Discussion

Feasting

Spatial patterning of bone deposition in a variety of architecturally defined contexts provides evidence of communal feasting at Politiko-*Troullia*. Remains of sheep/goat bones and teeth, the most abundant animal taxon, occur in comparable frequencies across the settlement. In contrast, deer bones reveal distinctly different spatial patterning in which carcass-part profiles and mortality profiles suggest substantial meat consumption in open public space.

The small faunal sample from the Metallurgical Workshop in Politiko-*Troullia* East primarily reflects sheep and goat-based domestic subsistence with very little evidence of deer (see Tables 1.7.2 and 1.7.3). The sizeable assemblage from the *Troullia* West Alley (Sector 13), and a more modest assemblage from the Well (Sector 10) and exterior space (Sector 14) tends to reiterate sheep and goat exploitation on a larger scale. The comparably large Southern Courtyard assemblage (Sector 9), along with faunal remains from the Northern Courtyard (Sector 8) and other spaces associated with the courtyards (Sectors 11 and 12), features the highest densities of deer bones found in the settlement. This patterning fits well with characteristics of communal feasting deduced in a variety of other archaeological studies (Crabtree 1990; Dietler 2001:89; Steel 2002, 2004), including a distinct spatial concentration, a focal food source, and bone-element deposition indicative of consumption and disposal. The abundant bone assemblage from Politiko-*Troullia* West includes all parts of sheep, goat, and deer carcasses (Tables 1.7.4 and 1.7.5, and Figure 1.7.5). The deposition of foot bones, for example, suggests skinning and butchering were carried out in the same place. This contrasts with evidence from Late Bronze Age Kalavasos (South 2008) where foot bones are nearly absent, suggesting that skinning was a separate operation carried out in a different location from butchering, probably by a different person.

Finally, the rich faunal record at Politiko-*Troullia* contrasts with the evidence from settlements of LC urbanized society. Spigelman (2008) describes

large LC sites at which the faunal assemblage is dominated by sheep and goat. At these LC sites evidence for hunting of deer is nearly absent, and cattle and pig bones occur only in very low numbers. Associated kill-off patterns suggest that sheep and goat herds were intensively managed for wool and milk (Spigelman 2008). This pattern is different from the evidence at Politiko-*Troullia* where mixed strategy sheep/goat herding (see Figure 1.7.6a) was complemented by cattle and pig husbandry and hunting of wild deer representing a wide range of ages (see Figure 1.7.6b). Ethnographically, feasting often centers on meat (e.g., Dietler 1996), involving sheep/goat and especially deer meat at Politiko-*Troullia.* Thus, diverse animal-exploitation practices at Politiko-*Troullia* may have been designed to minimize risk while simultaneously supporting feasting.

In the Southern Courtyard, the profusion of deer bones is accompanied by pronounced deposition of spindle whorls as well as distinct patterning of ground-stone implements (Falconer and Fall 2013). BA villages on Cyprus produced spindle whorls that are notable for their intricate incised, often lime-filled ornamentation (Crewe 1998:15). These whorls provided the weight necessary for a thin spindle to rotate and twist fibers into thread or yarn. The Cypriot BA also witnessed the introduction of the warp-weighted loom and the accompanying use of stone loom weights. The joint appearance of this new textile technology contributes to a working hypothesis that open spaces with looms often became focal points of community activity (Crewe 1998:37–38). Deposition of ground stone reveals complementary patterning also indicative of group behavior, in this case based on ground-stone portability ratios—calculated as the number of smaller "handstones" relative to the number of larger non-portable implements (see Brooks 1993; Byrd 1994; Frankel and Webb 2006:201; Kadowaki 2008; Webb 2000; Wright 2000). According to this measure, assemblages with low portability ratios—for example, based on relatively abundant large ground-stone implements—often reflect group workspaces. The Alley (Sector 13) generates a very high portability ratio, which reflects an abundance of discarded "handstones" consistent with household refuse disposal, while low ratios in the Metallurgical Workspace (Sector 6) and in the Southern Courtyard (Sector 9) imply focal points for situated supra-household behavior. A final line of evidence features fragments of plank figures, which are stylized ceramic anthropomorphic depictions, possibly indicative of the emergence of community identity during the Cypriot BA (a Campo 1994:100–106; Knox 2012:146–150, Figure 44; Mogelonsky 1988:32–36; Morris 1985:142–144). A substantial assemblage of fragmentary plank figures and a hallmark example of a large complete limestone plank figure found in the Southern Courtyard provide a final, compelling line of evidence for group behavior at Politiko-*Troullia* (Falconer et al. 2014). Finally, the emphasis on arboriculture could have provided another common component of feasting behavior: the conspicuous consumption of wine (Steel 2004). Thus, distinct and complementary patterning of deer bones, spindle whorls, ground-stone implements, and plank figures supports the inference of communal group behavior in the Southern Courtyard of Politiko-*Troullia* in which feasting on Mesopotamian fallow deer played a conspicuously prominent role.

Conclusions

The animal bones in the Metallurgical Workshop and other refuse deposits at Politiko-*Troullia* reflect small-scale household consumption of mostly sheep and goats. In contrast, bones recovered from the Southern Courtyard, Northern Courtyard, and Alley reflect consumption of large quantities of sheep, goats, and particularly deer. The abundant bone assemblage from Politiko-*Troullia* West includes all parts of the animals. Both sheep/goat and deer bones include foot bones, which suggests butchering occurred at the site in or adjacent to the courtyards.

The courtyards at Politiko-*Troullia* provided space for many communal activities, including food processing (large ground-stone querns), leisure (large gaming stones), textile work (spindle whorls and loom weights), ritual (plank figurines), which were incorporated with feasting on both sheep and goat and especially deer. Whole deer carcasses were brought to the Northern and Southern Courtyards, where our evidence indicates that they were consumed communally. Thus, fallow deer would have provided a particularly important source of meat that was consumed in the open-air courtyards of the ancient village of Politiko-*Troullia* as a key element in the social dynamics of BA Cypriot agrarian communities.

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