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ECONOMY, ENVIRONMENT AND SOCIETY AT KILISE TEPE, SOUTHERN CENTRAL TURKEY – FAUNAL REMAINS FROM THE 1994-1998 EXCAVATIONS

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Abstract

Excavations undertaken at Kilise Tepe from 1994-1998 have yielded a very large faunal assemblage (about 13,000 identified mammal and bird remains), from contexts ranging in date from the Early Bronze Age to the Byzantine period. Kilise Tepe is located on a promontory overlooking the Göksu and Kurtsuyu rivers, on one of the main routes linking the Konya Plain to the coast, and it is thought to have been an administrative and military centre in the Bronze and Iron Ages. Few comparative sites exist or have been excavated in the area, and the animal bone assemblage provides unique insight into local diet, economic activities and cultural aspects of daily life. The animal bones also provide invaluable information about stability or disruption in the agrarian economy, which may be used to further our understanding of the socio-political and cultural situation. Kilise Tepe witnessed a number of destructive events, and/or changes in ceramic repertoire, however occupation appears to have continued unchanged at least following some of these events. By exploring the subsistence base, herding strategies and evidence for production and distribution, the data may help to elucidate the impact these political or cultural changes had on the site and wider area.

Keywords: Bronze Age, Iron Age, Byzantine, Hittite, administrative centre, diet, agrarian economy, society, environment.

Résumé

Les fouilles conduites à Kilise Tepe de 1994 à 1998 ont livré un assemblage faunique volumineux (environ 13 000 restes déterminés de mammifères et d'oiseaux), provenant de contextes chronologiques variés, depuis le Bronze ancien jusqu'à la période byzantine. Kilise Tepe est situé sur un promontoire surplombant les rivières Göksu et Kurtsuyu, sur l'une des principales routes reliant la plaine de Konya à la côte, et fut vraisemblablement un centre administratif et militaire durant les époques du Bronze et du Fer.

Les sites de comparaison sont peu nombreux dans la région et rares sont ceux qui ont été fouillés. L'assemblage faunique de Kilise Tepe fournit un aperçu unique sur l'alimentation locale, les activités économiques et les aspects culturels de la vie quotidienne. L'étude des restes animaux apporte des informations inestimables sur la stabilité et les bouleversements dans l'économie agraire, qui peuvent

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être utilisées pour comprendre ensuite la situation socio-politique et culturelle. Si Kilise Tepe témoigne d'un certain nombre d'épisodes destructifs et/ou de changements dans le répertoire de la céramique, l'occupation semble toutefois être demeurée inchangée à la suite au moins de certains de ces évènements. En explorant les systèmes de subsistance, les stratégies d'exploitation pastorale et les modes de production et de distribution, cette étude contribue à élucider l'impact que les changements politiques et culturels ont eu sur le site et la région environnante.

Mots-clés : *Âge du Bronze, âge du Fer, époque byzantine, Hittites, centre administratif, alimentation, économie agraire, société, environnement.*

INTRODUCTION

Kilise Tepe is a tell site located in Southern Turkey, approximately 40 km inland from Silifke in the Göksu valley, in the region known as Rough Cilicia (*fig. 1*). A number of classical sites are known in the area but evidence of prehistoric settlement is sparse and thus the pre-classical period is less well understood (Jackson 2008; Postgate 2008a). The site was first mentioned by Mellaart (1958) in his survey of the Göksu in the 1950s, but excavations were not undertaken until the 1990s. These were planned as a rescue excavation prior to the building of a dam on the lower Göksu (Postgate 2008a). The excavations were directed for the British Institute of Archaeology at Ankara by Prof. Nicholas Postgate, University of Cambridge, in collaboration with successive Silifke museum directors, Şinasi Başal and Ilhame Öztürk. The excavations have revealed occupation from the Chalcolithic through to the Byzantine period.

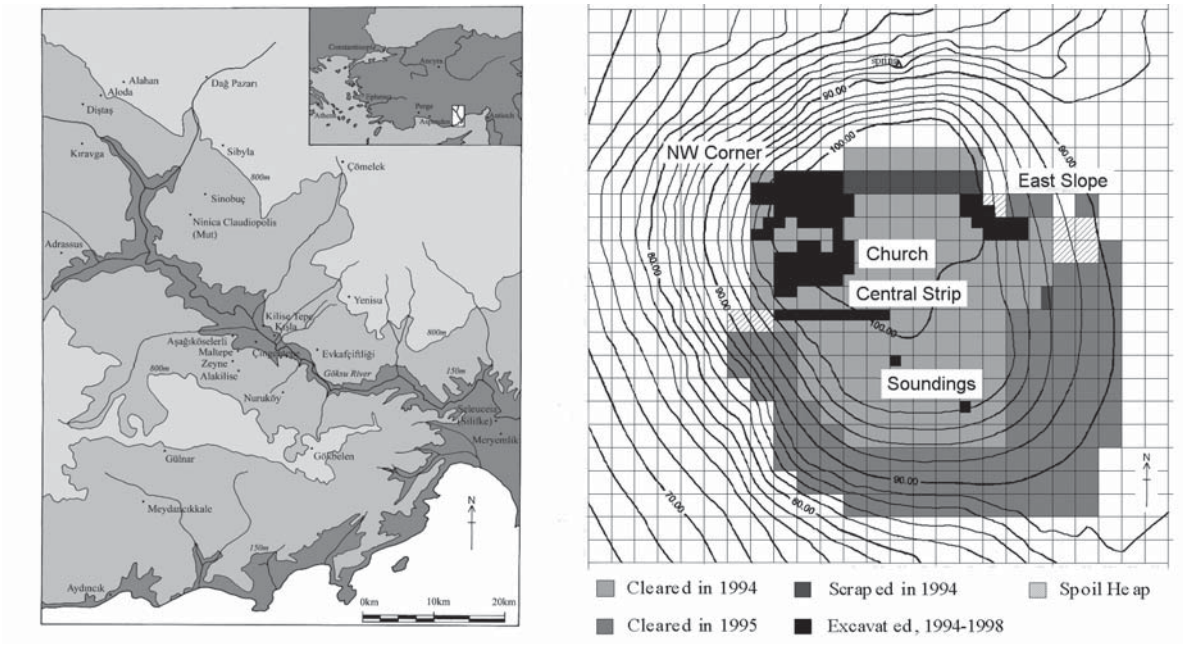

Fig. 1—Location of Kilise Tepe and mound excavations (figures from Postgate 2008a, courtesy of N. Postgate).

The Göksu valley is one of the main features of Rough Cilicia and offers one of few routes from the inland plateau to the coast. From about Mut to Kilise Tepe, the Göksu river flows through a wide plain while just south of Kilise Tepe it cuts its way through the southern range of the Taurus, forming deep gorges, until it reaches the Silifke delta to the southeast. Location of the site was strategic in controlling this main route along the river, but also a second route crossing to the right bank and leading up the valley side to Gülnar and the west.

The settlement is located on a natural conglomerate bluff, one of about seven distributed north-south in the area. The bluff/promontory measures nearly 200 m north-south and on its western side is *ca* 16 m higher than the surrounding land below it. The settlement mound is smaller, not much more than 100 m in any direction and a maximum of 13 m high. It was no doubt chosen for its vantage point but also for the proximity of a number of springs (Postgate 2008b).

AIMS OF ZOOARCHAEOLOGICAL RESEARCH

The recovery and analysis of environmental remains has been a central focus of the investigations at Kilise Tepe since 1995 (*e.g.* Baker 2001; Colledge 2001). A detailed programme of recovery for archaeobotanical and zooarchaeological remains has resulted in the collection by hand and through sieving of an enormous amount of animal bones and teeth. The large body of data provides an opportunity to explore a number of aspects relating to food consumption, economic activities, status and belief systems and environmental change. The aims of this article are to provide a very general introduction to some of the analytical results (species distributions, age profiles of cattle and caprines) obtained to date. The conclusions are very preliminary and no doubt will be refined or changed during further analyses.

EXCAVATION LOCATION AND RESULTS

Three areas were the focus of excavation (*fig. 1*): a 5 x 50 m test excavation (Central strip) bisecting the western half of the mound, a small excavation on the East slope, and more extensive excavation in the Northwest corner. Not all levels were reached in all areas and the nature of settlement is more or less clear depending on surface area exposed. For example, in the Central strip and on the East slope, the excavations identified domestic buildings with associated open spaces and storage pits, but entire building plans or street layout were not revealed. Most features in these excavations date to the Iron Age. The Northwest corner yielded the longest sequence, from the Early Bronze II (EBII) to the Byzantine period, and evidence for public buildings in the Late Bronze and "terminal Late Bronze" (see chronology below). While overall the area investigated was substantial, the Early Bronze and Middle Bronze levels were reached only in a deep sounding, and the area explored was very limited. Postgate (*in* Postgate 2008d, 33) notes that "as far as we can tell, these were regular domestic rooms, with plastered floors and mudbrick walls often on stone foundations".

CHRONOLOGY AND CULTURAL AFFILIATIONS

The phasing of the levels in the different excavation areas is summarised in table 1. Various shifts in architecture and pottery suggest that cultural changes occurred during the history of occupation. The settlement also suffered a number of fires, but it is not always possible to know whether they represent a localised fire or a more serious conflagration. Correlation of archaeological levels, in particular for the Late Bronze and "terminal Late Bronze", with cultural periods established elsewhere in Anatolia is problematic also (N. Postgate pers. comm. 2006; see also Postgate 2008d). The following summary attempts to describe the observed cultural shifts and proposed chronological sequence in particular for the Late Bronze-"terminal Late Bronze".

The first change, suggested by a shift in ceramics, is between the EBII and EBIII levels although the extent of culture change is not clear. For this zooarchaeological analysis, it is not possible to compare these

two periods given the small assemblage available for EBII. During the subsequent Middle Bronze Age, cities to the north and in the central plain would have been tied in to the "Anatolian city-state network" (Postgate 2008c, 15).

Period	Approx. Dates	NW Corner		Church	I-M14		East Slope (Q-S)	N12a	Q10a
					I/J14	K14a			
Byzantine	AD 400-1200	I	e	1	1 Late		E1 (S18)	1	Phase 1
			d						
Late Roman			c						
			b						
Roman	AD 400-300 BC	I	a		1 Early		E2a-c		Phase 2
							E3a-b		
Hellenistic							E4a-c		
Iron Age	1150-650	II	g, h		2k	2 upper			Phases 3-4
			f				E5a-b		
			e		2 late	2 middle	E5c-d		
	1275-1150	II	d						
			c		2 early	2 lower			
Late Bronze			a/b						
	1500-1275	III	e		3				
			d						
			a-c						
Middle Bronze	2000-1500	IV	b						
			a						
Early Bronze III	2400-2000	V	e						
			f						
Early Bronze II	2700-2400	V	g						
			h						
			i						
			j						
			k						
			l						

A4:1 – Kilise Tepe stratigraphic and chronological chart

Table 1—Stratigraphic and chronological chart (from Postgate 2008c, courtesy of N. Postgate).

More significant for this research is the break, in both architecture and ceramics, between Level III (*i.e.* Late Bronze Age), and the preceding Middle Bronze period. The pottery of the Late Bronze is characterised by the uniform undecorated wheel-made pottery found across Anatolia and attributed to the Hittites. Thus, it is inferred that during the Late Bronze, Kilise Tepe came under Hittite control (Postgate 2005; Postgate 2008c, 15). The nature of the architecture is unclear in the Northwestern corner but there may have been some sort of cultic building, based on the presence of frequent fragments of libation vessels and extrapolation from later use of the area.

A second shift of great interest occurs at the end of the Late Bronze Age, in Levels IIa-c, which cover some of the 13th century BC and beginning of the 12th century BC (*ca* 1275-1150 BC). It occurs both in architecture as indicated by a completely different building alignment and a striking change in ceramics, with modifications to the standardised Hittite pottery accompanied by the introduction of wares that seem "distinctly local in inspiration and distribution" (Postgate 2008d, 35). Initially this shift was attributed to the fall of Hattusa, but the new building is now thought to precede the collapse of the Hittite Empire. Its destruction in Level IIc is more likely to coincide with the end of the empire (Postgate 2005; Postgate 2008d). For the purposes of this report, levels IIa-d are considered to be "terminal Late Bronze", Level IId (*ca* 1175-1150 BC) being included as it shows little cultural change from the preceding levels IIa-c. Level IIe is clearly of Iron Age date (although it too shows continuity from the preceding levels).

The new building, named the Stele Building for the presence of a partly painted stele in Room 3, is made up of a number of rooms and is believed to have had a storage and probably cultic role. Behind the plaster facing of an altar in Room 3 were found a group of astragali and various shells, and a deposit of 99 astragali (97 sheep and goat; two fallow deer) was found in a cache beneath the floor in Room 7 (Baker, Collon 2008). Storage jars and official seals were also found within this building.

Nicholas Postgate has suggested (though only tentatively) that the changes after Level III may be linked to the establishment of the Tarhuntassa dynasty and decentralisation of the Kilise Tepe area, prior to the fall of the Hittite Empire (Postgate 2005; Postgate 2008d). So, this would represent a political, cultural and possibly economic shift but one which is not correlated with the fall of Hattusa. The ceramic repertoire as noted above suggests a return to local types and production and this has been noted at other sites, leading some specialists to suggest that local traditions went underground during the Hittite reign (Postgate 2005 and references within).

For the Iron Age (IIe-h) our understanding of the history of the area is very incomplete. There seems to have been considerable instability in the region and defence works were built on the more accessible Northeast corner of the tell. The region for a time came under the administration of the Assyrian governors of Plain Cilicia to the East. The ceramic evidence suggests links with the south as opposed to the inland plateau but the site would have been tied in to the agricultural activities of the area (Postgate 2008c).

There is no evidence for occupation between the 7th century BC and Hellenistic times at Kilise Tepe. During the Hellenistic period, Kilise Tepe would have come under the administration of the Ptolemaic dynasty in Egypt and trade of various products would have existed between Egypt and Cilicia. Indeed, there is evidence for the import of Nilotic fish to Kilise Tepe itself (Van Neer, Waelkens 2008).

The nature of the site and countryside during the Byzantine period are the subject of an exhaustive study by Jackson (2001, 2008). Kilise Tepe at this time came under the jurisdiction of the province of Isauria. There is a suggestion that the Early Byzantine period was a prosperous one, with the region boasting a number of important ecclesiastical sites. Surveys in adjacent provinces suggest that rural settlement was dense. From the 7th century, militarization of the region occurred, with a supply route through the Taurus mountains and frequent invasions occurring during the period of the “Arab wars”. Little is known about rural settlement during this period (Jackson 2008).

EVIDENCE OF SOCIAL STRATIFICATION

It is important to note that, on the basis of the finds repertoire, at no time is there considered to have been a strong presence of an elite at the site. Conversely, in almost all periods there is evidence for textile production (loom weights), supporting other evidence for the production or processing of hair/wool (spindle whorls).

ENVIRONMENT AND PRESENT DAY ACTIVITIES

The Göksu valley in the area of Kilise Tepe is fertile and archaeobotanical evidence suggests the growing and storage of einkorn, lentils, chickpeas and figs (Colledge 1996, 2001; Bending 1997). Various crops are grown today, including vegetables, fruit trees, olives, vines and poplar. The main livestock raised in the area are goats, with large goat herds a common sight along the Göksu river. In addition, some sheep are raised and a few cows kept for milk, while wild boars are hunted to protect crops (Postgate 2008b). Transhumance was practiced in the area in the recent past, in particular by the Yörük (Cribb 1991; Yakar 2000). Flocks were moved from the coastal plain to the mountains in late winter/early spring and returned in the autumn in October/November.

ZOOARCHAEOLOGICAL ASSEMBLAGE AND METHODS STATEMENT

Total assemblage size

The material recorded to date includes approximately 13,000 identified bones, of which *ca* 11,000 are the subject of this report. The data presented here is based on number of identified specimens (NISP), with horncore and antler fragments excluded from the quantitative results. NISP is uncorrected for relative frequency of individual elements in the mammal or bird skeleton. Animal bones and teeth recovered through wet-sieving and analysed as part of an earlier study (Baker 2001) were re-quantified for this analysis. While overall, the number of identifications is low, sieving has been essential for the recovery of fish (see Van Neer, Waelkens 2008) and bird bones. The hand-collected material recorded by Rebecca Sheldon (1997) for her undergraduate thesis was re-recorded by the author.

Methods statement

Recording of specimens was based on an "epiphysis only approach". The main limb bones and metapodials were counted only if over 50% of the lateral or medial side of the proximal or distal epiphysis or epiphysial surface (or for proximal metapodials, the articular surface) was present. The pelvis was recorded where at least 50% of the proximal or distal acetabulum was present. The atlas and axis were recorded if over 50% of the lateral or medial side was present. Phalanges were recorded if more than 50% of the proximal lateral or medial epiphysis/epiphysial surface was present, or if over 50% of the distal lateral or medial side was present (few such fragments were recorded). Carpals and tarsals were recorded if over 50% complete. For the skull, only the zygomaticus and occipital condyle were recorded if over 50% complete. Mandibles/mandible fragments with or without teeth present were recorded, with the part of the bone present described (*e.g.* diastema, ramus, etc.) and tooth presence recorded. Isolated mandibular and maxillary teeth were recorded if over 50% of the crown was present. Vertebrae other than the atlas and axis and rib fragments were not recorded.

For identification, a number of guides were referred to. Sheep and goat distinction follows Boessneck (1969), Payne (1969, 1985) and Prummel, Frisch (1986). Distinction between red and fallow deer follows Lister (1996). A few diagnostic antler fragments were identified as *Dama dama* and the bones and teeth are presumed to be from this species also, based on published distributions of archaeological fallow deer finds (Uerpmann 1987). Domestic fowl, pheasant and guinea fowl were distinguished following MacDonald (1992) and the smaller galliformes (*e.g. Alectoris* sp.) were identified using the reference collection. Tomek and Bocheński (2000) was referred to for corvids.

The recording and analysis of tooth eruption and wear follows Payne (1973, 1987) for sheep and goats, Grant (1982) and O'Connor (1988) for cattle and pigs, and Ewbank *et al.* (1964) for the early eruption stages in all of the above taxa.

Taphonomy

Detailed taphonomic analysis will be included in the full study of the assemblage (Baker to be published) and only a few factors are commented on here. Most of the animal bones and teeth were collected by hand, with a much smaller proportion recovered through sieving (wet and dry-sieving over a 3.5 mm mesh); as noted above sieving was essential for the recovery of small bones including fish and bird bones. The preservation of the remains was qualified as poor, fair or good, and the nature/integrity of the bone edges was noted as rounded, battered or spiky. The presence of natural modifications (weathering,

root etching, carnivore and rodent gnawing, semi-digestion, etc.) was recorded also. Most of the remains from the Bronze Age-Iron Age levels are well preserved, and it is only from the Iron Age/Hellenistic transition levels that preservation worsens considerably. Preservation is also influenced by context type but most of the material is from four main deposit types which show broadly similar levels of preservation (*ca* 20% poor preservation, the remainder varying between fair to good). Only in the recent levels where mixed and miscellaneous contexts are more common is preservation probably influenced by context type.

ZOOARCHAEOLOGICAL RESULTS

Distribution of taxa

Species distribution of mammals and birds by phase is provided in tables 2-6. Assemblage size varies markedly by phase and excavation area, with most of the remains recovered from Late Bronze and Iron Age contexts, in the Northwest corner (*fig. 2*). In all periods, the majority of remains are from mammals; in wet-sieved assemblages birds may reach up to *ca* 25% (40% in very small assemblages), but more generally *ca* 15% or less of NISP (*table 2-5*). A variety of mammal and bird species have been identified. Mammal taxa include cattle, donkey, horse, pig, sheep, goat, dog, camel, fox, red, fallow and roe deer, wild boar, wild goat, bear, medium and large size felids including probable lion and leopard, hare, Sciurids, Mustelids, hedgehog and smaller mammals (*table 2, 4, 5*). Over 35 species of bird are present, including small galliformes (mainly *Alectoris* sp.), pelican, egret, white stork, grebe, ducks and geese, crane, little and great bustard, and a variety of corvids, pigeons/doves, raptors and passerines (*table 3-5*).

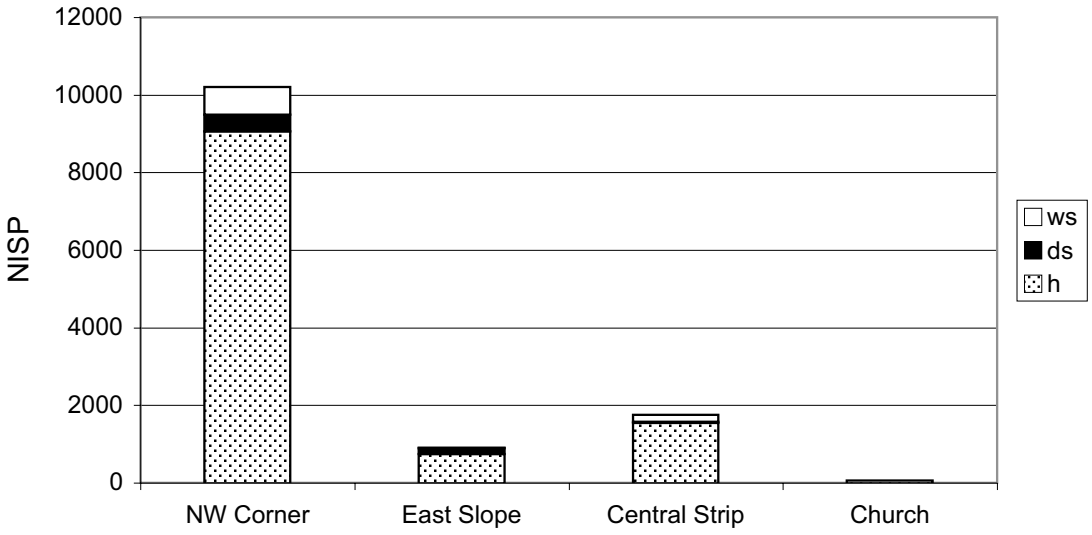

Fig. 2—Distribution of identified remains (NISP) by area and recovery method.
An additional 25 remains are from a sounding.
h: hand-collected; ws: wet-sieved; ds: dry-sieved.

Taxon	Scientific name	Period													
		EB	EBII	EBII/III	EBIII	EB/MB	MB	MB/LB	LB	LB-IA	tLB	IA	IA/H/R	H/R/B	LR/B
Mammal															
Cattle	*Bos taurus*		11	1	96	2	48	4	92	77	345	349	58	96	36
Cattle?	*Bos taurus*?		1		4		5		4	6	28	46	3	13	5
Goat	*Capra hircus*		7	1	40	4	34	4	36	25	178	125	23	32	6
Goat?	*Capra hircus*?		3	3	37	1	23	2	30	16	88	63	11	16	8
Sheep	*Ovis aries*		9	2	40		16	2	11	24	130	58	17	18	
Sheep?	*Ovis aries*?		2	3	29		17	1	10	16	57	43	6	15	2
Sheep/goat	*Ovis aries/Capra hircus*	2	149	25	620	31	313	53	341	426	1190	1299	247	596	98
Sheep/goat?	*Ovis aries/Capra hircus*?		22	2	18		13	7	23	19	62	70	9	28	2
Pig	*Sus scrofa* f. *domesticus*		24	9	193	8	84	3	44	26	207	99	33	92	8
Pig?	*Sus scrofa* f. *domesticus*?				1		1				1	1		2	
Donkey	*Equus asinus*										1				
Donkey?	*Equus asinus*?								1	1		49		2	
Horse	*Equus caballus*										1	1		1	
Horse?	*Equus caballus*?										1	8			
Equid	Equidae						1		9	11	23	161	6	24	2
Equid?	Equidae?											4			
Dog	*Canis familiaris*		1		66	4	2		5	52	17	38	4	114	
Dog?	*Canis familiaris*?		2		1						1	2	2	22	
Camel	*Camelus* sp.											3			
Camel?	*Camelus* sp.?											1			
Red deer	*Cervus elaphus*		1	2	2				1	3	9	8	0	7	
Red deer?	*Cervus elaphus*?			1	2	1	1		0	1	6	12		2	
Fallow deer	*Dama dama*				1	1					1	6	1	4	
Fallow deer?	*Dama dama*?		0		1					3	5	8	3	8	
Red/fallow deer	*Cervus elaphus/Dama dama*		2		6	1	1		3	1	5	18	3	9	
Large deer?	Large cervidae?				1										
Roe deer	*Capreolus capreolus*									2		1			
Roe deer?	*Capreolus capreolus*?				1										
Wild boar	*Sus scrofa*										1				
Wild goat	*Capra aegagrus?*										1			2	1
Fox	*Vulpes vulpes*											6		3	
Fox?	*Vulpes vulpes*?											3			
Dog/fox	*Canis sp./Vulpes vulpes*											4			
Bear	*Ursus arctos*		2		2					3	2	14	1	3	
Lion	*Panthera leo*											1			
Lion?	*Panthera leo*?										1	1			
Leopard?	*Panthera pardus*?									1		1			
Felidae	Felidae				1				1					2	
Weasel?	*Mustela nivalis*?						6								
Mustela sp.	*Mustela* sp.										1				
Mustelid	Mustelidae?											1			
Carnivora	Carnivora						2								
Carnivora?	Carnivora?						1								
Hare	*Lepus* sp.		3	5	17	1			6	3	17	13	2	5	2
Hare?	*Lepus* sp.?			1	1		1	1				3	2	3	
Hare/rabbit	Lagomorpha							1				1			
Squirrel	*Sciurus* sp.				1				1						
Squirrel?	*Sciurus* sp.?				1						2				
Sciuridae?	Sciuridae?				1										
Hedgehog	*Erinaceus europaeus*				1							1			
Hedgehog?	*Erinaceus europaeus*?										3				
Hystricidae?	Hystricidae?				4										
Artiodactyla (medium)	Artiodactyla (medium)		2		2		1	4	1		3	9		3	1
Total mammal		2	241	55	1190	54	570	82	619	716	2387	2531	431	1122	171
% of mammal and bird		100.0	99.6	98.2	98.3	98.2	98.1	97.6	96.9	97.3	97.5	97.5	98.0	96.7	98.3

Table 2—Taxonomic distribution of hand-collected mammal bone assemblage by period (NISP).

Taxon	Scientific name	Period													
		EB	EBII	EBII/III	EBIII	EB/MB	MB	MB/LB	LB	LB-IA	tLB	IA	IA/H/R	H/R/B	LR/B
Bird															
Domestic fowl	*Gallus gallus*													2	
Domestic fowl?	*Gallus gallus*?									1					1
Domestic fowl/Pheasant /Guinea fowl	*Gallus gallus/Phasianus colchicus/Numida meleagris*												1	7	
Domestic fowl/Pheasant	*Gallus gallus/Phasianus colchicus*													2	
Grebe	*Podiceps* sp.								1						
Cormorant?	*Phalacrocorax carbo*?										1				
Pelecan	*Pelecanus* sp.									1					
Egret?	*Egretta* sp.?						1								
White stork	*Ciconia ciconia*													1	
Ciconiiformes	Ciconiiformes										1				
Greylag/domestic goose	*Anser anser*										3	1			
Goose (*Anser* sp.)	*Anser* sp.		1		1				1	1	2	9	1		
Goose (*Branta* sp.)	*Branta* sp.								1						
Anseriformes	Anseriformes										2				
Shelduck	*Tadorna tadorna*											2			
Teal?	*Anas crecca*?											1			
Teal/garganey	*Anas crecca/querquedula*										1				
Mallard/domestic duck	*Anas platyrhynchos*						1				2	1		2	
Mallard/domestic duck?	*Anas platyrhynchos*?									1	5	1	1	1	
Duck (*Anas* sp.)	*Anas* sp.				2	1	3		3		11	3	1	1	
Duck (*Anas* sp.)?	*Anas* sp.?						1				2				
Duck (*Anas* sp./*Netta rufina*)	*Anas* sp./*Netta rufina*						1								
Duck (*Anas* sp./Aythyinae)	*Anas* sp./Aythyinae						1				1	1			
Goosander	*Mergus merganser*													1	
Red kite	*Milvus milvus*											1			
Red kite?	*Milvus milvus*?										1	3			
Egyptian vulture	*Neophron percnopterus*										1	1			
Griffon vulture	*Gyps fulvus*				1										
Harrier	*Circus* sp.				1										
Sparrowhawk?	*Accipiter nisus*?										2				
Accipitridae	Accipitridae										1				
Rough-legged buzzard	*Buteo lagopus*											1			
Buzzard?	*Buteo* sp.?											1			
Golden eagle	*Aquila chrysaetos*											1			
Golden eagle?	*Aquila chrysaetos*?											1			
Eagle (*Aquila* sp.)	*Aquila* sp.									1		1			
Falcon	*Falco* sp.								2						
Chukar/partridge	*Alectoris* sp.				1				1	1	2	6		2	
Chukar/partridge?	*Alectoris* sp.?				1		1		6	2	3	9	3	4	
Chukar/grey partridge	*Alectoris* sp./*Perdix perdix*								1	1		2		1	
Chukar/grey partridge?	*Alectoris* sp./*Perdix perdix*?											1			
Chukar/partridge/francolin	*Alectoris* sp./*Francolinus* sp.								1						
Chukar/partridge/francolin?	*Alectoris* sp./*Francolinus* sp.?									2		1		1	
Phasianidae (small)	Phasianidae (small)				2		1			1	2	2		4	2
Crane	*Grus* sp.				1					1		1			
Crane?	*Grus* sp.?									1					
Little bustard	*Tetrax tetrax*									1					
Great bustard	*Otis tarda*									1					
Plover	*Pluvialis* sp.									1					
Rock/stock dove	*Columba livia/oenas*			1					1	1	1	3	1	1	
Rock/stock dove?	*Columba livia/oenas*?											2			
Wood pigeon	*Columba palumbus*								1		1				
Wood pigeon?	*Columba palumbus*?											3			
Columbidae	Columbidae												1		
Columbidae??	Columbidae?											1			
Turtle dove?	*Streptotelia turtur*?							1			1				
Dove?	*Streptotelia* sp.?											1			
Owl?	*Asio* sp.?				1										
Roller	*Coracias* sp.														
Thrush/Starling	*Turdus* sp./*Sturnus* sp.													1	
Passeriformes (small)	Passeriformes (small)						1		1		6			5	
Magpie?	*Pica pica*											1			
Carrion crow	*Corvus corone*				2										
Rook/Carrion crow	*Corvus frugilegus/corone*				5			1							
Raven	*Corvus corax*				2										
Corvidae (small)	Corvidae (small)										2				
Large bird	Large bird											1			
Medium bird	Medium bird									1	2	3			
Small bird	Small bird									1	5			2	
Bird		0	1	1	20	1	11	2	20	20	61	66	9	38	3
% of mammal and bird		0.0	0.4	1.8	1.7	1.8	1.9	2.4	3.1	2.7	2.5	2.5	2.0	3.3	1.7

Table 3—Taxonomic distribution of hand-collected bird bone assemblage by period (NISP).

Main domestic taxa

Despite the great variety of taxa exploited, most of the meat consumed would have been provided primarily by domestic mammals. For the purposes of this report caprines, cattle and pig are considered to have been the main meat providers, although equids may have been eaten (14% of 167 bones show cutmarks). Distributions of sheep/goat, cattle, and pig show the predominance of caprines in all areas and in all levels (*fig. 3-5*). In the Central strip, cattle (and equids) are relatively more common than elsewhere, which may be related to type of feature and/or disposal practice. The Iron Age fill of a massive pit—the nature of which is unclear—yielded many remains of equid (donkey and horse), cattle and four camel (*Camelus* sp.) bones. Use of the general area and pit for the disposal of large carcasses/waste must bias the taxonomic distributions towards the larger mammals for the Late Bronze to Iron Age in the Central strip, although given the relatively small assemblage size it does not have a strong effect on species frequencies overall.

Goats and sheep

The distribution by phase in the hand-collected assemblage shows the predominance of sheep and goats in all areas and throughout site occupation. With little variation these generally make up *ca* 75-85% or more of the main taxa in the separate areas, and when these are considered as one assemblage (*fig. 3-5*; *table 2, 4, 5*). There are, however some notable shifts in the ratio of goats to sheep between levels (*fig. 6*). In the EBII and EBIII levels, goats and sheep are present in approximately equal proportion, 0.9-1:1 or *ca* 50%. Goats increase to *ca* 60% (or 1.7 goats:1 sheep) in the Middle Bronze. This rises to 80% (or 3.2 goats:1 sheep) in the Late Bronze period in the Northwest corner and Central strip assemblages. In the "terminal Late Bronze" a shift back to Middle Bronze frequencies (60% goat-40% sheep or 1.4 goats:1 sheep) occurs. From the Iron Age, the goat-sheep ratio remains relatively constant (1.3-1.8 goats:1 sheep) until the Late Roman/Byzantine period when goats increase markedly (7 goats: 1 sheep; NB: this is a very small sample). The caches of sheep and goat astragali from the "terminal Late Bronze" Stele building mentioned above do not appear to bias the distributions.

Cattle and pig

In addition to shifts in the goat:sheep ratios, changes in the cattle and pig relative proportions are also evident. A notable change occurs in the Late Bronze (Hittite) period from the preceding Middle Bronze level, with a clear increase in cattle and decrease in pig, which persists, more or less, during the later periods (*fig. 3*). While this may be influenced partly by the assemblage from the Central strip with its high cattle count, the assemblage size from this area (total NISP = 812) is much smaller than that from the Northwest corner (total NISP = 6970) and so does not unduly bias the taxonomic frequencies. Furthermore, the pattern appears in the small assemblage from the East slope also and it holds when comestible wild mammals and birds are included in the counts. From providing less than 10% of bone fragments in the Early-Middle Bronze periods (of the total hand-collected assemblage), cattle increase to 15-20% from the Late Bronze. Conversely, pigs decrease from over 15-18% in the EBIII and Middle Bronze periods to less than 10% in the Late Bronze-Iron Age levels. Only in the later mixed levels does pig increase again.

The pattern is echoed in the sieved assemblages, in particular in the dry-sieved assemblage (*fig. 4*). In the wet-sieved assemblage, cattle is absent in the Early and Middle Bronze levels but appears in the Late Bronze and "terminal Late Bronze" assemblages, although it does not exceed pig in any level (*fig. 5*). The sieved assemblages are very small, in general not exceeding 200 identified fragments (NISP) per level. Further quantification (by Minimum Number of Elements—MNE—or Individuals—MNI) of hand-collected and sieved assemblages will help to provide a clearer understanding of species ratios. Finally, the shift between pig and cattle does not reflect differential preservation in Bronze or Iron Age levels, and

the increase in pigs in the later (Hellenistic onwards) more poorly preserved assemblages is contrary to expectation based on taphonomic evidence.

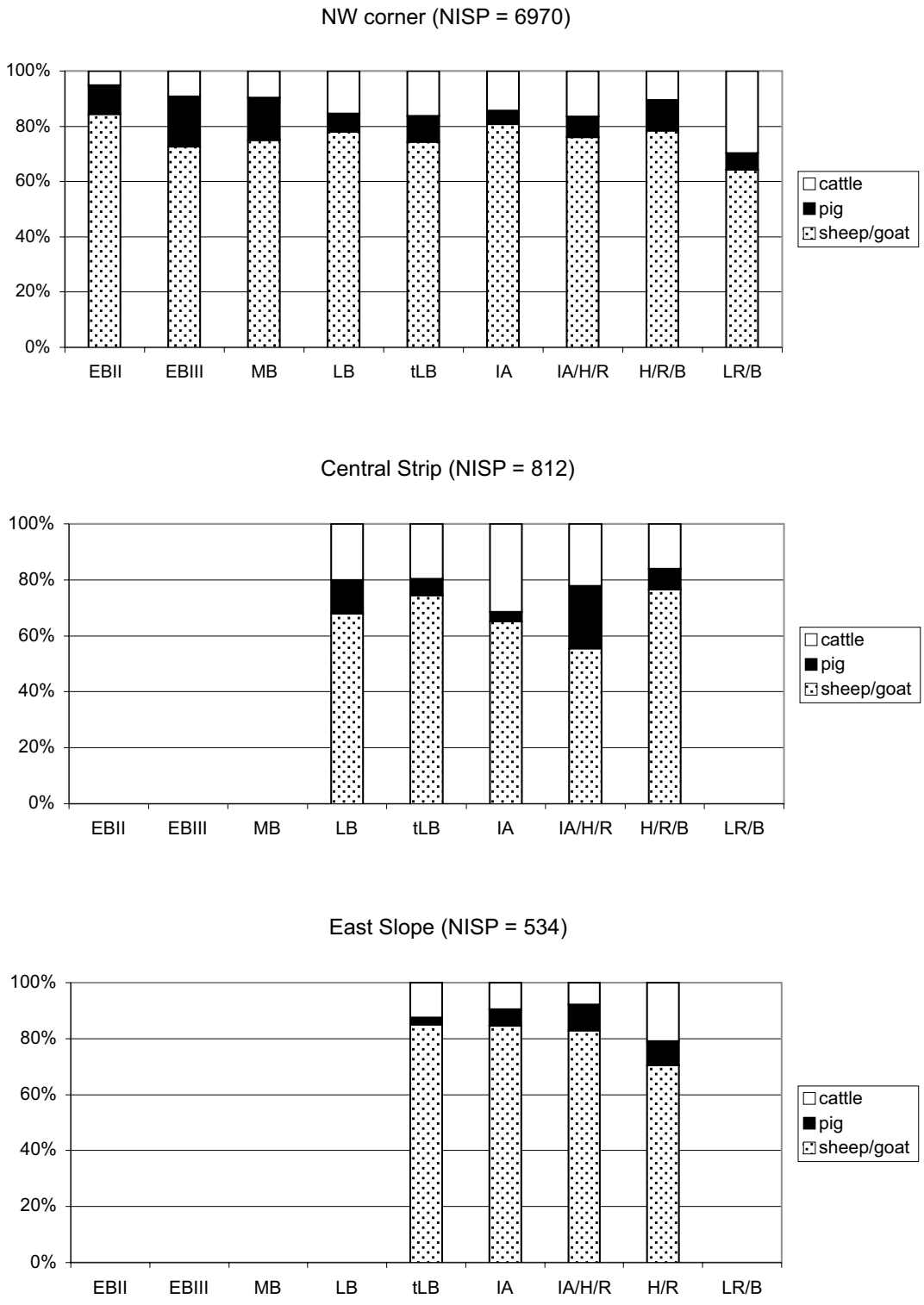

Fig. 3—Relative frequency of sheep/goat, cattle and pig in hand-collected assemblage by level and main excavation area (NISP; data in table 2*, all areas combined).*

Taxon	Scientific name	Period								
		EBII	EBIII	MB	LB	LB-IA	tLB	IA	IA/H/R	H/R/B
Mammal										
Cattle	*Bos taurus*	1	2		10	3	28	2		
Goat	*Capra hircus*				5	2	8	3	2	2
Goat?	*Capra hircus*?		1		2	2	3	2		
Sheep	*Ovis aries*		2			1	5	1		
Sheep?	*Ovis aries*?						2	3		
Sheep/goat	*Ovis aries/Capra hircus*	4	22	2	89	37	130	52	7	4
Sheep/goat?	*Ovis aries/Capra hircus*?		1		5	3	2	9		
Pig	*Sus scrofa* f. *domesticus*		9		10	6	11	6	1	1
Equid	Equidae						2	2		
Dog	*Canis familiaris*				1		14			
Dog?	*Canis familiaris*?	1								
Red deer?	*Cervus elaphus*?		1				1			
Fallow deer	*Dama dama*						1			
Roe deer?	*Capreolus capreolus*?		1							
Wild goat	*Capra aegagrus*									1
Fox	*Vulpes vulpes*							1		
Carnivora (fox size)	Carnivora				1					
Hare	*Lepus* sp.				1		3	1		
Hare/rabbit	Lagomorpha				1		1			
Artiodactyla (medium)	Artiodactyla (medium)				2		1			
Total mammal		6	39	2	127	54	212	82	10	8
Bird										
Mallard/domestic duck?	*Anas platyrhynchos*?						1			
Chukar/partridge	*Alectoris* sp.									1
Chukar/partridge?	*Alectoris* sp.?						1			
Total bird							2			1

Table 4—Taxonomic distribution of dry-sieved mammal and bird bone assemblage by period (NISP).

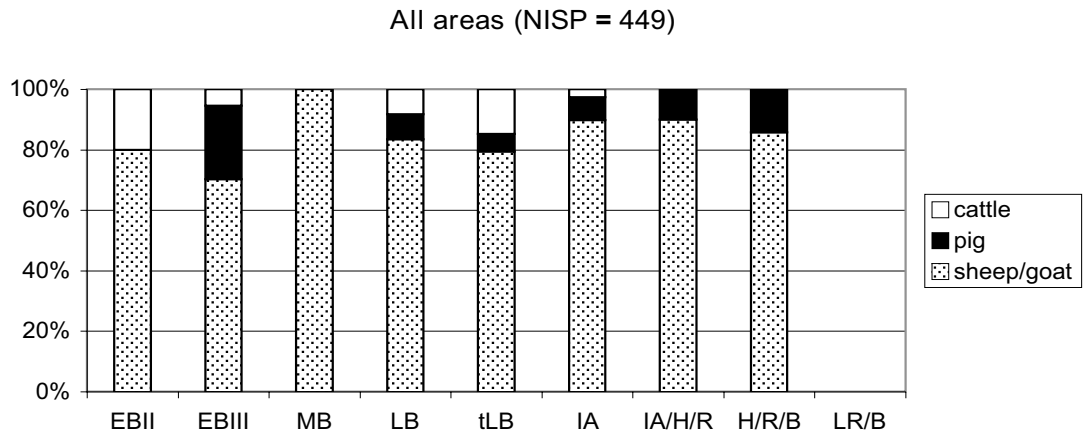

Fig. 4—Relative frequency of sheep/goat, cattle and pig in dry-sieved assemblage by level (NISP; data in table 4*).*

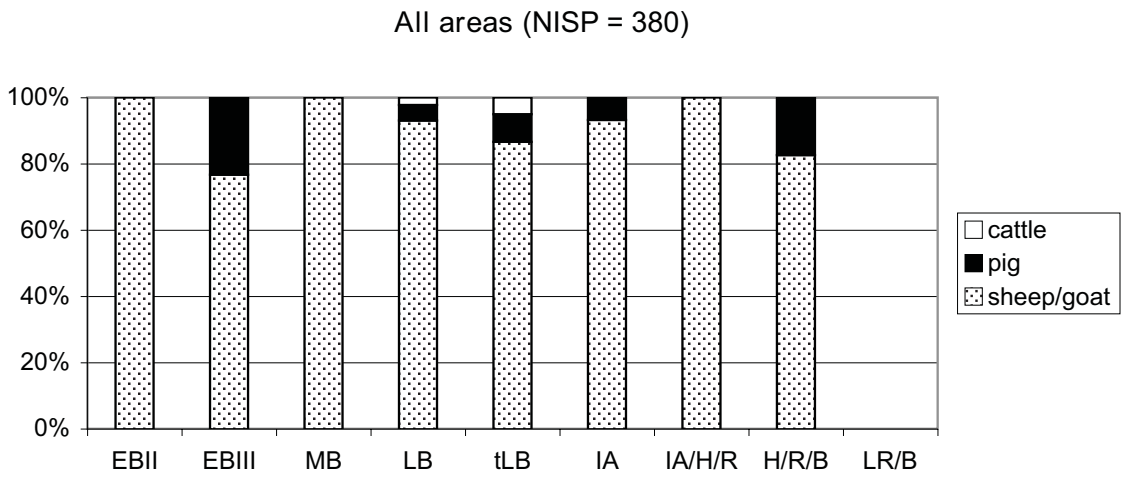

Fig. 5—Relative frequency of sheep/goat, cattle and pig in wet-sieved assemblage by level (NISP; data in table 5*).*

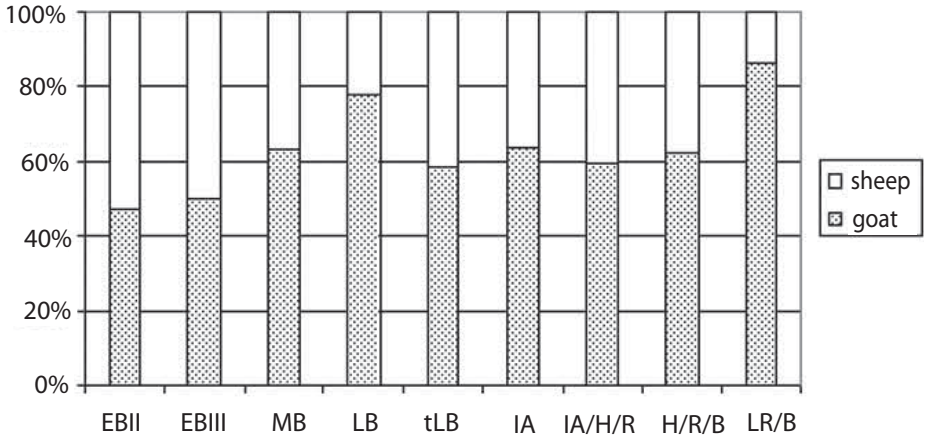

Fig. 6—Relative frequency of goat and sheep remains by level (NISP; includes data for goat/goat? and sheep/sheep? in table 2, 4, 5*). Species distinction based on dP4, humerus, radius metacarpal, tibia, metatarsal, calcaneum, astragalus. Mixed Bronze Age and Bronze-Iron Age levels excluded. H/R/B includes mixed H/R and H/R/B.*

Taxon	Scientific name	Period								
		EBII	EBIII	MB	LB	LB-IA	tLB	IA	IA/H/R	H/R/B
Mammal										
Cattle	*Bos taurus*				1		7			
Goat	*Capra hircus*		2		1	1	3	2		1
Goat?	*Capra hircus*?		1		1	1	7	1		1
Sheep	*Ovis aries*					1	2	2		1
Sheep?	*Ovis aries*?						1			
Sheep/goat	*Ovis aries/Capra hircus*	11	30	21	38	31	108	77	10	16
Sheep/goat?	*Ovis aries/Capra hircus*?					3	1			
Pig	*Sus scrofa* f. *domesticus*		9		2	1	11	6		4
Pig?	*Sus scrofa* f. *domesticus*?		1				1			
Equid	Equidae				1					
Dog	*Canis familiaris*			1		1				6
Dog?	*Canis familiaris*?				1					
Fallow deer?	*Dama dama*?							1		
Fox	*Vulpes vulpes*				1					
Lion?	*Panthera leo*?									1
Carnivora?	Carnivora?									1
Hare	*Lepus* sp.					2	4			
Hare?	*Lepus* sp.?		1							
Squirrel?	*Sciurus* sp.?	1		2			1			
Sciurid?	Sciuridae?			1						
Artiodactyla (medium)	Artiodactyla (medium)	1		2		2	7	5		1
Total mammal		13	44	27	46	43	153	94	10	32
% of mammal and bird		61.9	93.6	87.1	88.5	74.1	86.0	91.3	100.0	69.6
Bird										
Goose (*Anser* sp.)	*Anser* sp.							3		
Mallard/domestic duck?	*Anas platyrhynchos*?						1			
Duck (*Anas* sp.)?	*Anas* sp.?					2				
Goshawk	*Accipiter gentilis*							1		
Accipitridae	Accipitridae					1				
Chukar/partridge?	*Alectoris* sp.?					1	2			1
Chukar/grey partridge	*Alectoris* sp./*Perdix perdix*						1			
Phasianidae (small)	Phasianidae (small)				1	1	3	1		6
Rock/stock dove	*Columba livia/oenas*						1			
Columbidae	Columbidae							1		
Collared dove?	*Streptotelia decaocto*?				1					
Turtle dove?	*Streptotelia turtur*?	1								
Dove	*Streptotelia* sp.						2			
Passeriformes (small)	Passeriformes (small)	7	2	4	3	6	8	2		6
Medium bird	Medium bird		1		1	3	4			
Small bird	Small bird					1	3	1		1
Total bird		8	3	4	6	15	25	9	0	14
% of mammal and bird		38.1	6.4	12.9	11.5	25.9	14.0	8.7	0.0	30.4

Table 5—Taxonomic distribution of wet-sieved mammal and bird bone assemblage by period (NISP).

Age profiles and economic choices

Goats and sheep

For the purposes of analysing age profiles, sheep and goat jaws are combined as at the time of recording, adult jaws and teeth of the two species were not differentiated (*e.g.* Halstead, Collins 2002). No doubt sheep and goats were raised and culled following different regimes, given their different characteristics and uses but these are masked by the approach taken.

When compared to the meat, milk and wool kill-off profiles of Payne (1973), the data from all periods resembles the meat model with some variation from this model and differences between periods (*fig. 7*). In general, there is a high kill-off of animals 6-12 months and/or 3-4 years, these latter perhaps representing animals raised for wool/hair in the first instance (*fig. 8a-h*). The data suggest a lower kill-off of animals under 6 months or between 1 and 4 years than proposed in the meat model. Adult and older adults are represented in most periods, but most were killed before 8 years. The 8-10 year old group only appears from the Iron Age into the Byzantine period; it is unlikely that this reflects poorer preservation at least in the Iron Age and mixed IA-Hellenistic, as the young age groups are also prominent. The presence of the adult groups, albeit in low proportion, suggests that production of milk, hair/wool and replacement stock was on-going in the area.

Remains of foetal/neonatal and very juvenile artiodactyla (probably caprine) are present in all periods, confirming that some livestock was raised locally. In general, their relative frequency (based on total sheep/goat NISP) varies between 0.1% and 3.3% and is highest in the hand-collected and sieved assemblages from the "terminal Late Bronze" and Iron Age periods.

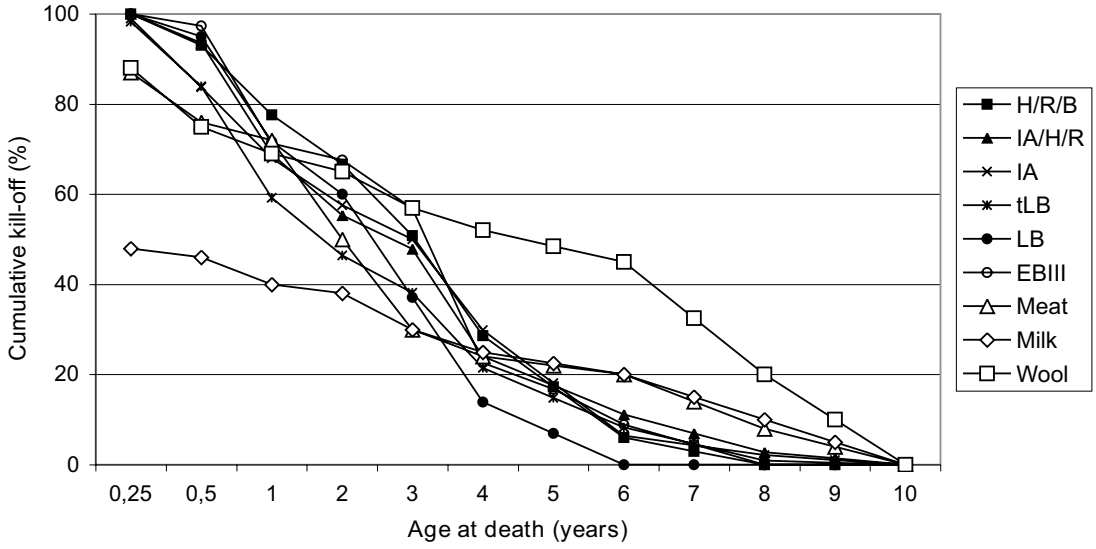

Fig. 7—Cumulative kill-off of sheep/goat by period after Payne (1973). Small samples from MB (6 mandibles) and LR/B (7 mandibles) excluded. Meat, milk and wool profiles from Payne (1973, figs. 1-3).

The data suggest a focus on consumption of good quality meat from young animals, perhaps stock surplus to herd maintenance. Also, the peaks at 3-4 years are suggestive of animals kept for wool/hair which were slaughtered before meat quality declined. This could maybe agree with the presence of a large number of artefacts related to fibre processing and textile production. It is tempting to suggest that the peak of prime meat age animals (2-3 years) and absence of animals older than 6 years in the Late Bronze reflects the greater presence of a consumer group in this period (*fig. 8c*). Perhaps there was an emphasis placed on meat animals as tax/tribute, or simply to supply inhabitants involved in administration and/or the garrison, if present.

The rise of very young animals from the "terminal Late Bronze" is noteworthy (*fig. 8d*). Comparison of mandibles identified from deciduous teeth (Payne 1985) suggests that during this period it is goats that are being killed off at a younger age (stage B) although by the Iron Age sheep too are killed at this stage. The 6-8 year old group also increases in the "terminal Late Bronze", which may indicate a wider focus on dairying, with the availability of surplus young for meat. The kill-off of the 2-6 month group however does not approach in any way that proposed in Payne's (1973) dairying model (*fig. 7*). It may also reflect a taste and demand for tender meat. Another possibility is that the younger kill-off reflects environmental stress, with inadequate resources available for lactating females.

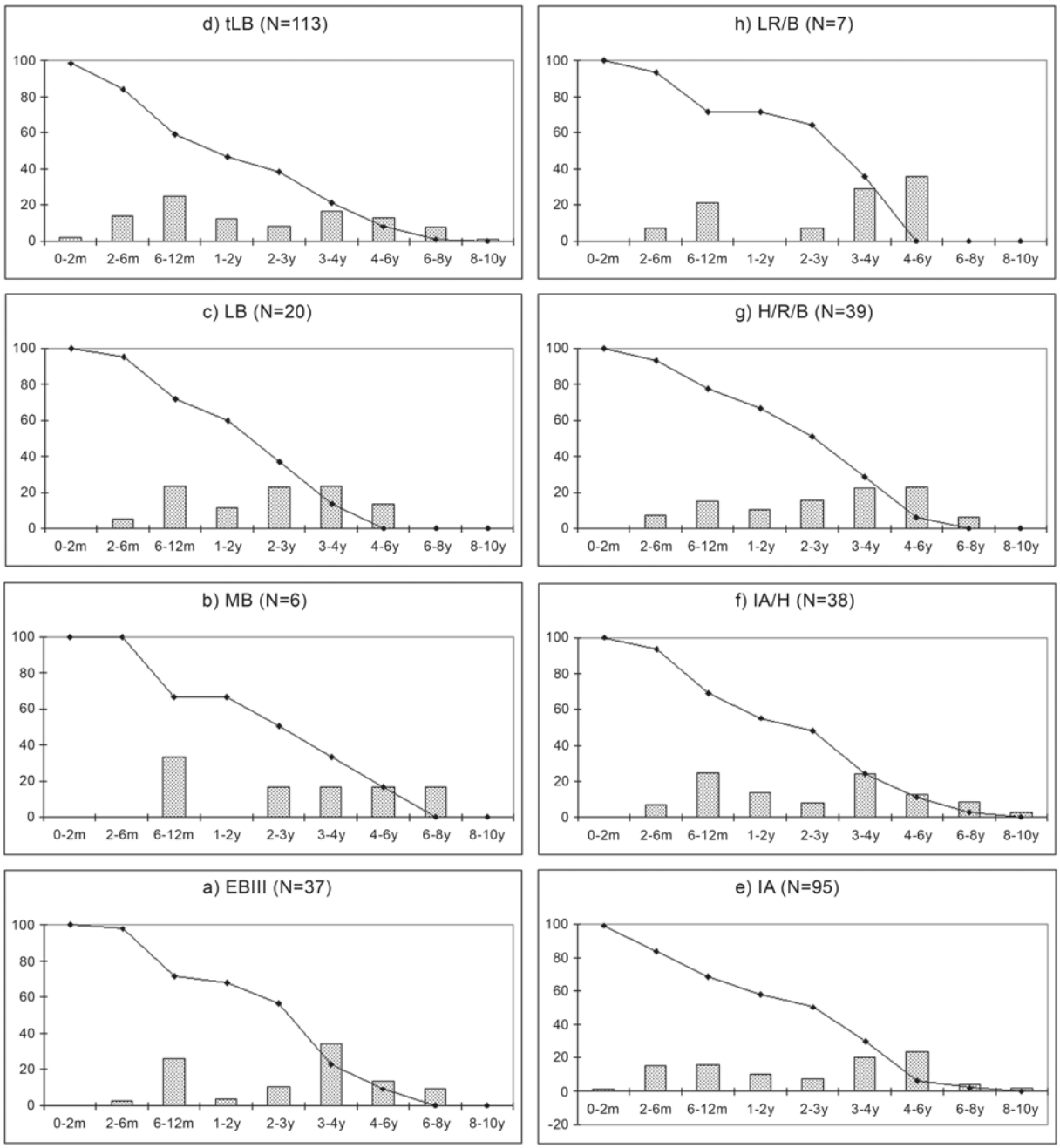

Fig. 8—Kill-off profiles of sheep/goat by period after Payne (1973). Uncorrected for differential age span of individual mandible stages. Bars: % of mandible wear stages; Line: cumulative kill-off; N: number of mandibles.

Cattle

Only a few cattle jaws are available in each period and the data must be considered indicative at best (*fig. 9*). The mortality profile suggests increasing age at death through time. Up to the Late Bronze Age, juvenile to subadult animals constitute from 25-50% of animals culled, whereas in the "terminal Late Bronze", Iron Age and more recent levels, mainly adults and older/elderly adult animals were killed. In the earlier periods, cattle may have been exploited to supply meat as well as secondary products/traction. Subsequently, the greater emphasis on adults and elderly animals suggests that they were increasingly used for arable. While the poorer preservation in the Iron Age may have to some extent influenced the cattle age profile, the presence of increasingly young caprines (see above) in these same levels suggests that preservation bias is not solely responsible for the shift. It is certainly not the cause in the "terminal Late Bronze".

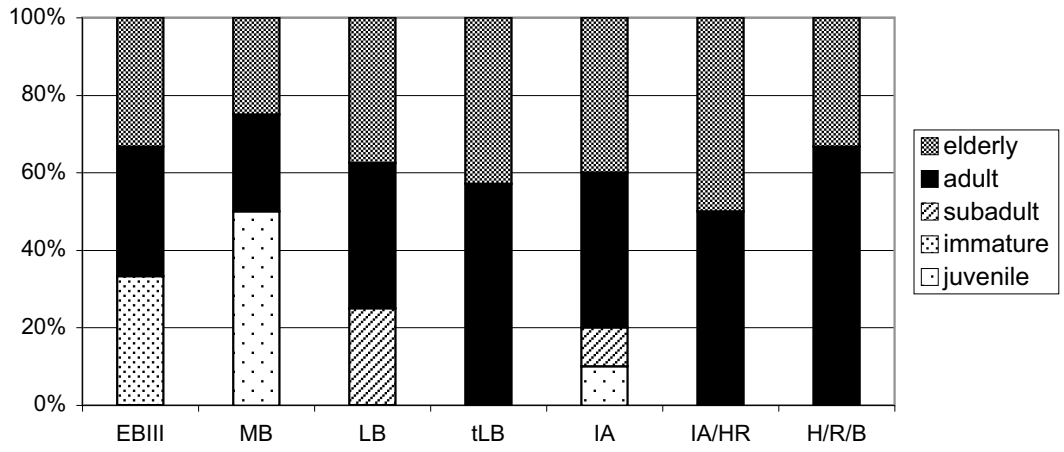

Fig. 9—Cattle mandible wear stages (after O'Connor 1988). Total number of mandibles: 32.

Wild mammals

The total number of identified bones of wild mammals is relatively low overall but a wide range of species is present (*table 2, 4, 5*; *fig. 10*). Wild mammals make up no more than 5% of mammal bones in each period, except in a few small assemblages from mixed levels. Large cervids (fallow and red deer; excluding antler) and lagomorphs (mainly hare and referred to as such herein) are the predominant species, constituting more than 60% of wild mammal remains in all periods. Felids and bear are ubiquitous, although they rarely number over a few identified specimens in each level. The felid remains include probable lion and leopard and medium size species larger than wild cat (verification of the felid identifications is pending). Most of the identified species were probably present locally and in the nearby Taurus range, included wild boar, roe, red and fallow deer and wild goat (Uerpmann 1987). Wild cat was undoubtedly present in Southern Turkey, as may have been leopard (*Panthera pardus*) (Başkaya, Bilgili 2004), but the origin of the lion (?) bones needs to be carefully considered.

Cervids and hare were probably hunted and consumed, as all bodyparts are represented, with a number displaying butchery marks. Deer antler was considered valuable also, as shown by the presence of shed (and thus collected) antler and numerous worked/butchered specimens. Other animals may have been hunted as pests, such as the fox, present only in Iron Age and later deposits. The skeletal representation of bear and felids (including lion (?) and leopard) is dominated by metapodia, phalanges and carpals/tarsals, probably

indicating the use of skins. Bear meat may have been consumed also, as suggested by the presence of four fragments of the main limb bones (ulna, femur, tibia), two of which show cut or chop marks (see De Cupere 2001 on use of bears). Direct engagement in the hunting of such large and dangerous prey as bear and lion for sport, protection or food, and display of their skins may have held an important symbolic role (*e.g.* Lion, Michel 2006; Becker this volume on Assyrian hunting and meaning). Other taxa which may have held prestige value for the danger or difficulty of procurement include wild boar and wild goat, both of which are represented by very few remains.

While the low number of remains and different assemblage sizes make it difficult to compare levels, there appear to be some shifts in the relative frequency of individual wild species. There is a decrease in hare from the Early Bronze to the Byzantine period and a corresponding increase in cervids (mainly red/fallow deer). The hand-collected assemblage shows this clearly (*fig. 10*) but the sieved assemblages less convincingly so given the very small number of remains although here too hare frequencies decrease from the Iron Age (*table 4, 5*). In addition, there appears to be an inversion of the red and fallow deer frequencies, from a high proportion of red deer in the Bronze Age decreasing through the Iron Age until the Hellenistic-Byzantine period, when fallow deer predominates (*fig. 10*).

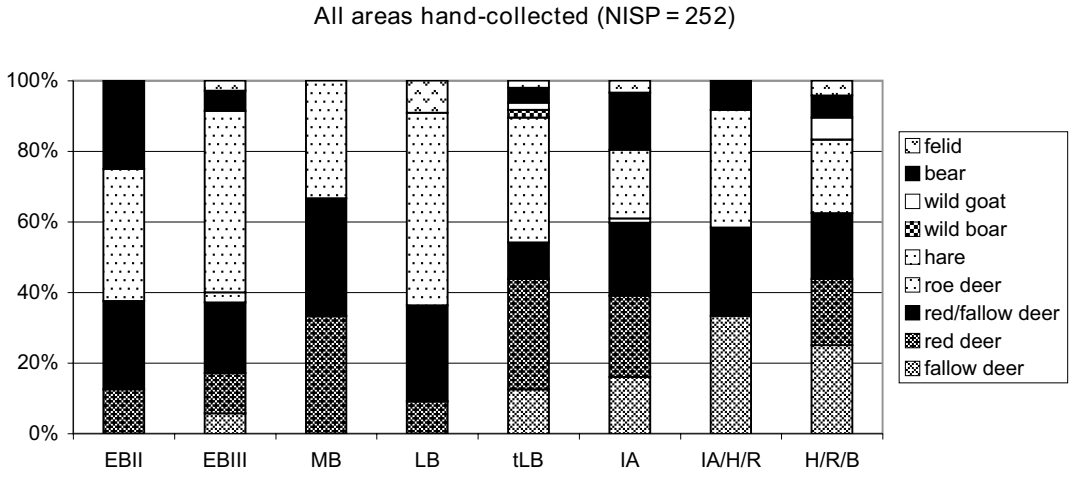

Fig. 10—Distribution of wild mammals in the hand-collected assemblage (NISP; data in table 2*). Fox, Mustelidae, Sciuridae and other small mammals are excluded. H/R/B includes mixed H/R/B and LR/B. Mixed Bronze Age and Bronze-Iron Age levels excluded.*

The possible influence of differential preservation on small and large mammals aside, these shifts may be indicative of changes in environment, land use and/or hunting practices. Hare is said to prefer open grassy country and may be abundant in areas of cereal cultivation. High densities of livestock may deter these animals however (MacDonald, Barrett 1993, p. 285; Nowak 1999, p. 1737). Both red and fallow deer may inhabit a range of environments including open and wooded areas. Fallow deer prefers to feed in the open, using woodland for shelter, while red deer will feed in forested areas and at their edge (MacDonald, Barrett 1993, p. 201-205). The increase in fallow deer may indicate a degree of deforestation in the site hinterland; they are said to inhabit mainly "maquis scrub" in Turkey (Chapman, Chapman 1975, p. 173). It is not clear how the shifts in hare and fallow deer marry up; the creation of more open landscapes should not have been detrimental to hare, unless heavily pastured. A complementary scenario may be a change in hunting culture, from a focus on small game such as hare, waterfowl and small birds (see below), to the pursuit of larger game including red and fallow deer, and a preference for one or the other of these large cervids.

Birds

Over 300 bird bones belonging to more than 35 species have been identified to date, providing an opportunity to examine their role in diet, social life and as indicators of environmental change (*table 3-5*). As with the wild mammals, comparison of distributions by period is problematic given the many species present and different assemblage sizes. In most periods, small Phasianidae—mainly *Alectoris* sp. (probably chukar, *Alectoris chukar*, based on geographical distribution; Snow, Perrins 1998)—, duck, goose and columbids make up over 80% of hand-collected remains (*fig. 11-12*). It was rarely possible to identify the duck and goose bones to species. *Branta* sp. and *Anser* sp. including *A. anser* (greylag/domestic goose) are present, as are shelduck, teal/garganey and mallard/domestic duck (*Anas platyrhynchos*). Both *A. anser* and *A. platyrhynchos* are considered here to be the wild species, although it is possible that the domesticated forms are present. In the wet-sieved assemblage passerines are predominant in the early levels but decrease from the Late Bronze in favour of the small Phasianidae and other species. Passerines are included as edible species as there is no reason not to believe that they were consumed, since this has been and still is a widespread practice in various European and Middle Eastern countries. Some remains may of course be from commensals or accidental deaths (*e.g.* Gourichon 2002).

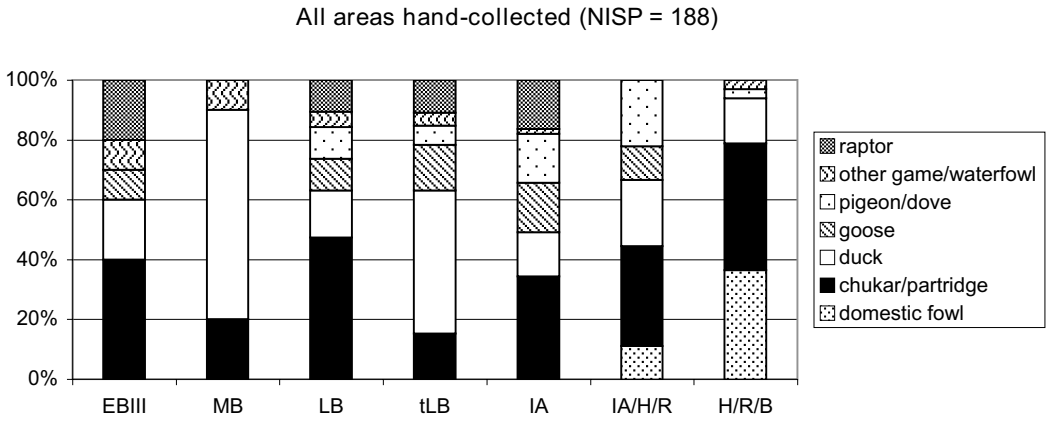

Fig. 11—Distribution of bird taxa in the hand-collected assemblage (NISP; data in table 3*). Excludes owl, roller, Corvidae and small passerines. H/R/B includes mixed H/R/B and LR/B. Mixed Bronze Age and Bronze-Iron Age levels excluded.*

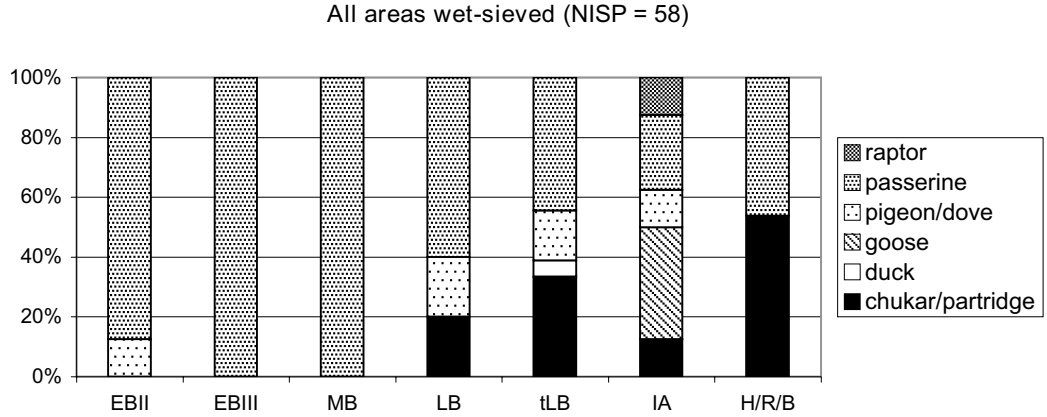

Fig. 12—Distribution of bird taxa in the wet-sieved assemblage (NISP; data in table 5*). Mixed Bronze Age and Bronze-Iron Age levels excluded.*

The appearance of domestic fowl in mixed Iron Age/Hellenistic and more recent levels reduces the contribution of wild fowl in these periods. Furthermore, *Alectoris* sp. seems to make up a much higher proportion of the non-domestic fowl taxa in the Hellenistic-Byzantine levels, perhaps indicating a restriction of fowling pursuits and/or a change in available habitats. The chukar is said to prefer bare stony slopes and hillsides, semi-desert conditions, and may be found in arable fields also (Snow, Perrins 1998, p. 452). Other game/waterfowl (this category includes a range of species of which rarely more than one appears in each period) appear to decrease from the Bronze-Iron Age levels, possibly supporting the above suggestions.

A wide range of raptors is present, including harrier, hawk, falcon, buzzard, kite, golden eagle, Egyptian and Griffon vulture (*table 5-6*). Some of these species may be simple scavengers of rubbish left near or in the settlement, while others may have held different roles, for example for hawking (*e.g.* Dobney 2002) or for their plumage (Russell, Martin 2000; Gourichon 2002). It is interesting in this respect to note that the skeletal elements are almost exclusively from the wings. There is no evidence to suggest that individual species were more or less prominent in particular periods, although raptor remains are absent from the mixed Iron Age/Hellenistic and more recent levels.

Other species present which may or may not have been exploited for food include Corvidae and roller (the Corvid remains from the EBIII assemblage are probably from a single individual). Identification of a few remaining specimens (including waders) is pending, as is verification of some of the current ones.

DISCUSSION

Excavations at Kilise Tepe from 1994-1998 have yielded a huge faunal assemblage, of which to date 13,000 specimens of mammal and birds have been identified to taxon/taxonomic group. The data reveal continuity and change in stockraising practices, meat consumption and use of wild animals from the early Bronze-Byzantine period. These in turn may provide insight into the shifting cultural and political status of the settlement, for example in the period of Hittite rule in the Late Bronze Age and "decentralisation" of the area to governance of a Southern dynasty in the "terminal Late Bronze". The data also suggest that changes occurred in the environmental conditions in the site hinterland.

Throughout the occupation at Kilise Tepe, the main livestock economy was based on the raising of sheep and goats, and to a lesser extent pigs and cattle. The data show that from approximate parity between sheep and goats in the Early Bronze II and III, the proportion of goats increased relative to sheep in the Middle Bronze and again in the Late Bronze Age, reverting to Middle Bronze levels in the "terminal Late Bronze Age". There is also clear evidence for an increase in cattle and decrease in pigs from the Late Bronze Age. It is unclear why an increase in goats occurred in the Middle Bronze; possible reasons include environmental shifts or increasing competition between cattle and sheep for pasture (*e.g.* Redding 1992). The rise in goats precedes the cattle increase in the Late Bronze Age, although when this occurs the goat: sheep ratio rises again, perhaps supporting the pasture conflict model.

Nonetheless, it is possible that an increase in goat husbandry in the Middle Bronze, whether a deliberate choice or consequence of environmental changes, was actively promoted under Hittite rule in the Late Bronze period. Certainly Cilicia was renowned for goat hair, as testified by Roman writers (see Postgate 2008d; De Cupere 2001). Furthermore, the decrease in goats in the "terminal Late Bronze Age" does not seem to agree with the sheep-cattle conflict model given that the relative frequency of cattle did not shift at this time, so perhaps the goat high point represents an "experiment" under the Hittites. A return to the Middle Bronze ratio in the period of "decentralisation" ("terminal Late Bronze") may reflect the resumption of a traditional practice best suited to local environmental and socio-economic conditions.

It is tempting to see the rise in cattle during Hittite rule as evidence of intensification of meat/cereal production, perhaps to feed administrators and the garrison. The age data, albeit limited, suggest that there was a gradual increase in age at death of cattle, from the Early and Middle Bronze when juvenile-immature animals were relatively common, to the Late Bronze Age when subadults were present, and the proportion

of adults and elderly animals increased. From the Late Bronze through to the Byzantine period, animals were killed mainly when adult and elderly suggesting a focus on traction and secondary products.

The age data for sheep/goat reveal broad continuity in their use but also some interesting shifts which may be tied to changing cultural practices. The kill-off profiles suggest a focus on meat and secondary products, mainly hair/wool. The older age groups are not well represented, but this may be more a reflection of area excavated (only the Tell) than of local production strategies; older animals used for dairying and reproduction may have been consumed away from the administrative centre. Indeed, the increase in very young animals from the "terminal Late Bronze Age" suggests that dairying may have increased in importance at this time. A complementary hypothesis for the kill-off of subadults in the Late Bronze/Hittite period and of very juvenile animals in the "terminal Late Bronze" is that the demand for good quality meat by non-producers involved in administration increased during this time. In contrast, the slight increase in older age groups in the Iron Age and mixed Hellenistic-Byzantine levels may indicate less discrimination in meat supply. Whether the shifts between the different phases reflect changes in taste, stockraising practices or environmental conditions will be explored in future work. The role of seasonal movement and/or slaughter of livestock and trade of particular age groups into or export of prime meat animals away from the settlement are of particular interest.

Wild taxa, including mammals and birds, make up a relatively small part of the assemblages and certainly of meat weight. They probably represented a limited albeit regular contribution to meat consumption, as well as providing hunting opportunities or "trophies" for social display. Clear shifts in taxonomic abundance are evident. There is a decrease in hare and rise in cervids, as well as a change in the proportions of deer (increase in fallow, decrease in red deer). The bird data suggest a decrease in hunting of some game/waterfowl and small birds, and an increase in *Alectoris* sp., this latter in recent levels. Some of these changes may result from destruction or disturbance of habitat (*e.g.* increased pasturing of cattle, grazing by goats, arable agriculture, deforestation), a shift from hunting of small game to larger prey or perhaps in the case of fowling a restriction of hunting practices and introduction of domestic fowl. There also appears to be some variation in the presence of larger prey animals. While no doubt related in part to assemblage size, the presence of large felids, large game birds and large raptors in the "terminal Late Bronze" and Iron Age may reflect a need or taste for exhibiting authority and power by the local administrators during periods of decentralisation and/or militarization.

Forthcoming analyses will explore the above issues and additional topics in detail, including taphonomy, biometry, skeletal element representation, butchery patterns, and provide comparative analysis with published sites. Further excavations at Kilise Tepe planned for 2007-2011 will no doubt provide a wealth of new zooarchaeological material which will allow us to test and verify some of the preliminary conclusions based on current results and to apply new or different methodological and analytical approaches.

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