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The Faunal Remains from the Burial Caves at Sha'ar Efrayim

Liora Kolska Horwitz

During excavations at Sha'ar Efrayim (see van den Brink, this volume), fauna were recovered from four of the five Chalcolithic–Bronze Age burial caves (Caves 1, 3–5). A wide range of both domestic and wild taxa are represented, especially in Caves 3 and 4, which produced the largest faunal assemblages (Tables 1, 2). All domestic species (sheep, goat, cattle, etc.) are assumed to have been intentionally introduced into the caves by people, with the possible exception of the dog. All the wild taxa may be either anthropogenic in origin, or the result of natural mortalities of wild animals that used the caves, with the exception of the freshwater turtle and ostrich eggshell fragments, which represent wild species that do not occur naturally in this habitat. The faunal remains from the caves were attributed to two main periods, in accordance with the other finds in the caves.

Late Chalcolithic Period

Cave 3

In L112, 78 fragments of ostrich eggshells were found, the largest fragments measuring 30 × 18 mm, with the majority of smaller dimensions. None of the pieces exhibit decoration, and most are quite worn with the outer surface exfoliated. Four pieces had been rodent gnawed, indicating post-depositional damage and exposure following placement in the cave. No other faunal remains were recovered from this cave.

Cave 5

Of the seven identified bones from this cave, five belong to species that were introduced by people: sheep/goat, donkey and freshwater turtle. It is unclear whether the dog bone is anthropogenic in origin.

The freshwater turtle remains in Cave 5 (L139) comprise two carapace scutes, both very thick, indicating an animal of advanced age. The freshwater turtle (*Trionyx triunguis*) still inhabits some of the coastal rivers of Israel (Bouskilla and Amitai 2001).

The donkey is represented by a worn, lower PM3 and a fragmented lower molar, both from L139. They are identified as donkey, as neither exhibits a caballine fold and the PM3 has a V-shaped protocone (Davis 1980). The sheep/goat is represented by a radius shaft (L139) and the dog, by a right jaw bone with all three permanent molars present (L139). Dental measurements indicate that the dog was slightly smaller than modern Pariah dogs from Suez, Egypt (see Appendix).

Late Chalcolithic Period–Early Bronze Age I

Cave 1

A total of 28 identified bones were recovered from this cave. Three of the bones belong to potentially intrusive taxa: a badger (L116, B1074) and a dog (L128, B1121). The remaining 25 are anthropogenically introduced taxa, mostly domesticates: sheep/goat, goat and cattle. At least one of the cattle bones represents a young animal (lower M2, Grant Dental Wear Stage = C), while the goat is a juvenile aged 2–3 years on the basis of dental attrition (Payne Wear Stage = E). Pig is represented by two bones: a medium-sized, fused distal humerus and a large, robust proximal radius (measurements Bp: 36.0, Dd: 24.7); the latter may belong to a wild boar rather than a domestic pig. A

Table 1. Species Representation by Period, Cave and Origin

	Late Chalcolithic		Late Chalcolithic		Late Chalcolithic/ EB IA		Late Chalcolithic to Late Bronze Age		Late Chalcolithic to Byzantine	
	Cave 3		Cave 5		Cave 1		Cave 4		TAU Cave*	
	N	%	N	%	N	%	N	%	N	%
Anthropogenic Species										
Goat *Capra hircus*					2		1			
Sheep/goat *Capra hircus/ Ovis aries*			1		5		16		10	
Cattle *Bos taurus*					5		6		5	
Pig *Sus scrofa*					2**		3		1	
Donkey *Equus asinus*			2				21		6	
Mountain gazelle *Gazella gazella*					4		1			
Fallow deer *Dama mesopotamica*							6		3	
Cervid sp.					2					
Large mammal					4		3			
Freshwater turtle *Trionyx triunguis*			2							
Ostrich eggshell *Struthio camelus*	78				1					
Total Anthropogenic	*78*	*100*	*5*	*83*	*25*	*89*	*57*	*83*	*25*	*39*
Natural Species										
Dog*** *Canis familiaris*			1		1		4		2	
Hare *Lepus capensis*							3			
Badger *Meles meles*					2				1	
Red fox *Vulpes vulpes*							5		5	
Green toad *Bufo viridis*									1	
Spur thighed tortoise *Testudo graeca*									30	
Total Natural	*0*	*0*	*1*	*17*	*3*	*11*	*12*	*17*	*39*	*61*
N Cave Total	*78*	*100*	*6*	*100*	*28*	*100*	*69*	*100*	*64*	*100*

* Data for this cave from Smith and Horwitz 1998.
** One of the pig bones may represent a wild boar.
*** It is debatable whether the dog remains represent a natural or anthropogenic element, as wild/feral dogs are known to inhabit caves and similar locations.

Table 2. Breakdown of Domestic versus Wild Taxa per Cave

	Late Chalcolithic		Late Chalcolithic		Late Chalcolithic/ EB IA		Late Chalcolithic to Late Bronze Age		Late Chalcolithic to Byzantine	
	Cave 3		Cave 5		Cave 1		Cave 4		TAU Cave*	
	N	%	N	%	N	%	N	%	N	%
Total Domestic	0	0	4	67	15	53.5	54	78	24	37.5
Total Wild	78	100	2	33	13	46.5	18	22	40	62.5
Total Per Cave	*78*	*100*	*6*	*100*	*28*	*100*	*69*	*100*	*64*	*100*

* Data for this cave from Smith and Horwitz 1998.

single bone in this group shows anthropogenic modification—a cattle tibia shaft with a short cut mark on its distal end.

Remains of wild fauna from Cave 1 comprise two metatarsal shafts probably belonging to a large, male fallow deer, a burnt fragment of ostrich eggshell and two pairs of adult-male, mountain-gazelle horncores. Each pair was found in association with a Gray Burnished Ware bowl (L124, B1102; L131, B1150), implying that they also date to EB I.

Mixed Assemblages: Late Chalcolithic Period, Early, Middle and Late Bronze Ages

Cave 4

A total of 69 bones were recovered from this cave. As the cave was exploited in four different periods, it was not possible to determine the specific chronological association of the fauna.

The fauna of Cave 4 closely resembles that from the TAU burial cave probed in 1995 at the same site (see van den Brink, this volume). Both caves yielded similarly large faunal assemblages comprising a wide range of domestic and wild species, the latter also including carnivores that may naturally occur in caves (Table 1). The presence of carnivore tooth punctures on a human shaft fragment and rodent gnawing on an unidentified long bone shaft are further evidence of animal activity in both caves. The TAU cave has been more severely disturbed, as attested to by the higher frequency of potentially naturally occurring wild taxa in comparison with domestic species in the sample (Table 1).

Conclusions

The faunal remains from Caves 1, 3 and 5 comprise a small, but important sample, as they provide the first convincing evidence of animal offerings in Late Chalcolithic/EB IA contexts from the Mediterranean region of the southern Levant. Although food offerings are well documented from Pre-Pottery Neolithic contexts in the southern Levant (Horwitz and Goring-Morris 2004; Goring-Morris and Horwitz 2007), they are rarely encountered in the subsequent Pottery Neolithic period. With respect to the Chalcolithic/EB I, the nature of the association between faunal remains and human interments in burial caves, such as Ben Shemen (Davis 1980), Naḥal Qana (Horwitz 1996), Sha'ar Efrayim (Smith and Horwitz 1998) and Shoham (Horwitz 2007), is uncertain, as these sites were used for multiple purposes or experienced intensive post-EB activities. Consequently, it was suspected that the animal remains from these sites represented later activities of human and/or non-human agencies, rather than *in-situ* funerary offerings.

As Caves 3 and 5 were not robbed in antiquity, nor reused in later periods apart from a short exploitation of Cave 3 for burial purposes in EB IA, the animal remains from these caves can be considered to represent funerary offerings exclusively. In Cave 1, the

roof had partially collapsed in antiquity, thus sealing the Chalcolithic remains prior to the EB I occupation. Only bones derived from the loci defined as *in-situ* Chalcolithic or EB IA remains were studied and are presented here. However, it should be noted that even in this selected sample, some of the animal bones, such as the badger and dog, may represent intrusive elements.

When these three cave assemblages (Caves 1, 3 and 5) are examined together, it is evident that a wide range of faunal taxa were exploited, both wild and domestic elements. Of special interest are the ostrich eggshell fragments, perhaps from one egg, found in Cave 3. They recall the ostrich eggs recovered from a later, Early Bronze Age grave in Terqa (Syria) dated to 2450–2650 BCE (Tomczyk et al. 2010). Of similar significance are the paired gazelle horncores found in close association with two GBW bowls in Cave 1, corroborating the close association between the faunal and cultural assemblages.

The closest chronological parallels to the Sha‘ar Efrayim caves are the Chalcolithic–Bronze Age *nawamis* burial structures in Southern Sinai. These tombs yielded small amounts of animal remains including bones of gazelle, goat, hare, reptiles and rodents—the last three possibly representing intrusive elements, as well as fragments of ostrich eggshell (Bar-Yosef et al. 1977; 1986; Horwitz, unpublished data). Of note are two gazelle and one goat horncores from the ‘Ein Huderah *nawamis*, suggesting that horncores and/or crania may have been a preferred burial offering at that time. A gazelle skeleton, complete with skull and horns, found at the entrance of an EB I shaft tomb at Bab edh-Dhra, Jordan (Hesse and Wapnish 1981), may offer some support to this claim. The intentional selection of crania may also be reflected in the predominance of teeth and jaws in the Sha‘ar Efrayim samples (Table 3). However, this may equally be a result of the better preservation of tooth enamel.

In both the *nawamis* and the Sha‘ar Efrayim caves, the taxa used as funerary offerings are also found in coeval domestic sites (Grigson 1987; 1995; Whitcher 1999; Horwitz et al. 2002; Horwitz 2007). However, given the high frequency in the caves of game animals in the anthropogenic species category, especially considering the small sizes of the faunal samples (Cave 1: 44% wild taxa; Cave 3: 100% wild taxa; Cave 5: 40% wild taxa; see Table 2), as well as the rich diversity of the wild species in the samples (gazelle, deer, wild boar(?), freshwater turtle, ostrich and possibly also hare,

Table 3. Skeletal Element Representation in Late Chalcolithic/EB IA Cave Assemblages

	Late Chalcolithic	Late Chalcolithic/ EB IA
	Cave 5	Cave 1
	N	N
Sheep/Goat		
Teeth		4
Radius	1	
Pelvis		2
Tibia		1
Pig		
Radius		1
Humerus		1
Cattle		
Teeth		4
Jaw		1
Ulna		2
Pelvis		1
Tibia		1
Donkey		
Teeth	2	
Cervid		
Metatarsal		2
Gazelle		
Horncore		4 (2 pairs)
Dog		
Jaw	1	
Calcaneum		1
Badger		
Ulna		2 (1 pair)

badger, carnivores and reptiles), it is likely that they were preferred as grave offerings. In societies engaged primarily in husbandry and cultivation, where domestic taxa are the norm, hunted animals as a protein source are rare and are commonly considered luxury or elite items. Indeed, as discussed by van der Veen (2003), luxury or high-status foods are those that are distinguished by their high quality and/or rarity: "desired by many but attained by few" (van der Veen 2003:407). As elites in a society have greater economic means, as well as wider social contacts, it is to be expected that they would have greater access to a wider range of foods, including exotic items. Consequently, the intentional selection of game animals as burial offerings at Sha'ar Efrayim may be an added reflection of either the status of the deceased, or the importance attributed to funerary rites in Late Chalcolithic and EB I societies.

APPENDIX: SELECTED FAUNAL MEASUREMENTS (in mm)
(after von den Driesch 1976)

Gazelle horncores	Cave 1 L124 (left horncore)	Cave 1 L131 (left horncore)	Cave 1 L131 (right horncore)
Length	31.6	24.4	26.4
Breadth	20.8	19.5	19.8

Dog mandible	Cave 1 (right)	Cave 5 (right)	Cave 4 (left)	Cave 4 (right)	Pariah dogs* (N = 10)		
					X SD	Min.	Max.
M1 Length		8.6	10.6	8.1			
M1 Breadth		6.1	6.3	5.9			
M2 Length		20.2	21.2	20.9	22.8 1.0	21.2	24.8
M2 Breadth		7.7	8.4	8.2	8.4 0.3	7.9	9.1
M3 Length		5.4					
M3 Breadth		4.6					
Calcaneum length	29.2						
Calcaneum breadth	12.0						

* Pariah dogs from Suez, held in the zoological collection of the Hebrew University of Jerusalem

REFERENCES

Bar-Yosef O., Belfer A., Goren A. and Smith P. 1977. The Nawamis near 'Ein Huderah. *IEJ* 27:65–88.

Bar-Yosef O., Belfer-Cohen A., Goren A., Hershkovitz I., Ilan O., Mienis H. and Sass B. 1986. *Nawamis* and Habitation Sites near Gebel Gunna, Southern Sinai. *IEJ* 36:121–167.

Bouskilla A. and Amitai P. 2001. *Handbook of Amphibians and Reptiles of Israel*. Jerusalem.

Brink E.C.M. van den. This volume. A Chalcolithic and Early Bronze Age I Burial Ground near Sha'ar Efrayim in the Sharon Plain.

Davis S.J. 1980. Late Pleistocene and Holocene Equid Remains from Israel. *Zoological Journal of the Linnean Society* 70:289–312.

Driesch A. von den. 1976. *A Guide to the Measurement of Animal Bones from Archaeological Sites* (Peabody Museum Bulletin 1). Harvard.

Goring-Morris A.N. and Horwitz L.K. 2007. Funerals and Feasts during the Pre-Pottery Neolithic B of the Near East. *Antiquity* 81:902–919.

Grigson C. 1987. Shiqmim: Pastoralism and Other Aspects of Animal Management in the Chalcolithic of the Northern Negev. In T.E. Levy ed. *Shiqmim* (BAR Int. S. 356). Oxford. Pp. 219–241; 535–546.

Grigson C. 1995. Cattle Keepers of the Northern Negev: Animal Remains from the Chalcolithic of Grar. In I. Gilead ed. *Grar: A Chalcolithic Site in the Northern Negev* (Beer-Sheva 7). Be'er Sheva'. Pp. 377–452.

Hesse B. and Wapnish P. 1981. Animal Remains from Bab edh-Dhra: Evidence for Food Offerings and a Possible Sacrifice. *AASOR* 46:133–136.

Horwitz L.K. 1996. Faunal Remains. In A. Gopher and T. Tsuk eds. *The Nahal Qanah Cave: Earliest Gold in the Southern Levant* (Tel Aviv University Institute of Archaeology Monograph Series No. 12). Tel Aviv. Pp. 181–199.

Horwitz L.K. 2007. Faunal Remains from Late Chalcolithic–Early Bronze Age Dwelling and Burial Caves at Shoham (North), Lod Valley. *'Atiqot* 55:1*–16*.

Horwitz L.K. and Goring-Morris A.N. 2004. Animals and Ritual during the Levantine PPNB: A Case Study from the Site of Kfar Hahoresh, Israel. *Anthropozoologia* 39(1):165–178.

Horwitz L.K., Tchernov E., Mienis H.K., Hakker-Orion D. and Bar-Yosef Mayer D.E. 2002. The Archaeozoology of Three Early Bronze Age Sites in Nahal Besor, North-Western Negev. In E.C.M. van den Brink and E. Yannai eds. *In Quest of Ancient Settlements and Landscapes: Archaeological Studies in Honour of Ram Gophna.* Tel Aviv. Pp.107–133.

Smith P. and Horwitz L.K. 1998. Burial Cave at Sha'ar Efrayim Central. *Tel Aviv* 25:110–115.

Tomczyk J., Jedrychowska-Danska J., Ploszaj T. and Witas H.W. 2010. Anthropological Analysis of the Osteological Material from an Ancient Tomb (Early Bronze Age) from the Middle Euphrates Valley, Terqa (Syria). *International Journal of Osteoarchaeology.* www.interscience.wiley.com. DOI:10.1002/oa.1150 (accessed 26.2.2011).

Veen M. van der 2003. When is Food a Luxury? *World Archaeology* 34:405–427.

Whitcher S. 1999. *Animals, Environment and Society: A Zooarchaeological Approach to the Late Chalcolithic–Early Bronze I Transition in the Southern Levant.* Ph.D. diss. University of Edinburgh. Edinburgh.