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Animal-Bone Remains from Tel Magal

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The excavation at Tel Magal (see 'Ad and Yannai, this volume) yielded 853 bones. A large number of them were heavily broken, and only 285 (33.41%) could be identified. The startigraphic sequence comprised strata from the Neolithic period (Stratum IX), Wadi Raba (Strata VIII, VII), Early Bronze Age IB (Stratum VI), Early Bronze Age II (Strata V–II) and Early Bronze Age III (Stratum I), and bones were recovered throughout the sequence, with the highest percentage in strata dating to the Early Bronze Age periods (Table 1).

Method

The bones were covered with a thick layer of solidified brown mud. Once it was removed by soaking in water, a layer of gray cement-like material mixed with gravel was exposed. It was removed using diluted acetic acid and an ultra sonic bath. Following this treatment, it was possible to see the outline of the bones and identify cut-marks and signs of other modifications. The bones were compared with recent specimens from the Hebrew University Natural History Collection. For the study of body-part representation, the bones were grouped into five categories, following Horwitz (1998): cranial—skull, maxilla, mandible and teeth; forelimb—scapula, humerus, radius, metacarpal, carpals; hindlimb—pelvis, femur, tibia, patella; trunk—vertebrae and ribs; and foot—phalanges. All bones were examined for

Table 1. Species Representation at Tel Magal, by Period and Stratum

Period and Stratum / Species	Neolithic		Wadi Raba		EB IB		EB II		EB III	
	IX		IX–VII		VI, V		V–II		I	
	NISP	%	NISP	%	NISP	%	NISP	%	NISP	%
Sheep/goats (*Ovis/Capra*)	15	62.50	1	6.25	5	41.66	42	37.16	1	10.00
Cattle (*Bos*)	4	16.66	5	31.25	4	33.33	59	52.21	9	90.00
Red deer (*Cervus elaphus*)	-	-	-	-	-	-	1	0.88	-	-
Gazelle (*Gazella*)	-	-	1	6.25	-	-	2	1.76	-	-
Pigs (*Sus*)	4	16.6	9	56.25	3	25.00	6	5.30	-	-
Carnivores (*Carnivora*)	1	4.16	-	-	-	-	2	1.76	-	-
Birds (*Aves*)	-	-	-	-	-	-	1	0.88	-	-
Total	*24*	*100.00*	*16*	*100.00*	*12*	*100.00*	*113*	*100.00*	*10*	*100.00*
UV	-	-	-	-	-	-	1	1.72	-	-
Small mammals	-	-	-	-	-	-	1	1.72	-	-
Medium mammals	3	75.00	7	87.50	4	50.00	31	53.44	2	40.00
Large mammals	1	25.00	1	12.50	4	50.00	25	43.10	3	60.00
Total	*4*	*100.00*	*8*	*100.00*	*8*	*100.00*	*58*	*100.00*	*5*	*100.00*
Total NISP	*28*		*24*		*20*		*171*		*15*	

Table 2. Distribution of Body Parts Within Early Bronze Age II Strata: Sheep/Goat, Cattle and Pig

Species \ Body Part	Cranial	Forelimb	Hindlimb	Trunk	Feet
Sheep/goats	7	13	7	6	8
Cattle	18	20	10	5	8
Pigs	3	-	1	-	1
Total	*28*	*33*	*18*	*11*	*17*
Large mammals	4	3	1	12	1
Medium mammals	1	5	2	6	-
Small mammals	-	-	-	-	-
UV	-	-	-	-	
Total	*33*	*41*	*21*	*29*	*18*

modifications, such as cut-marks and burning marks, which were duly recorded. Goat (*Capra hircus*) and sheep (*Ovis aries*) bones were not separated and will be referred to as 'Ovicapra.'

Results and Discussion

Table 1 shows the frequency of each species (NISP) by period and by stratum. Three mammals are dominant throughout: sheep/goats (*Ovicapra*), cattle and pigs. The EB II stratum yielded remains of two more mammals: three bones of *Gazella* and an antler fragment of *Dama mesopotamica* (Mesopotamian Fallow Deer). In addition to mammal-bones, there were one bone of Hyena, two carnivore teeth and one bone of a bird. When compared with other EB II sites, the ratio of cattle bones to sheep/goats bones is surprisingly high. Early Bronze Age II sites, which were examined by Hesse and Wapnish (2001), showed a ratio of 14%–31% of cattle:sheep/goats. Even when the bones from all of the Early Bronze Age strata at Tel Magal are counted together, cattle bones dominate the assemblage. Domestic cattle have higher meat-yield potential than sheep and goats (Horwitz and Tchernov 1989), but the reason for its unusually high proportion in the Tel Magal assemblage is not clear.

The largest quantity of identified bones is from the EB II strata (NISP = 171); nevertheless, only 23% of the total number of bones in these strata were identified. 2.76% of the bones in the EB II strata exhibited cut-marks, 1.65% had burning marks, 7.18% were worked, and 5.52% had gnawing marks.

In Table 2, the distribution of sheep/goats body parts within EB II strata shows that the parts that are rich in meat (axial + limbs) are the most common, accounting for 64.08% of all bones (including identification to body size only), or 57.94% of the sheep/goats, pigs and cattle. The lean parts (head + toes) are 35.91% of all bones or 42.05% of sheep/goats, pigs and cattle. These results are very similar to those from the EB II strata at Tel Yaqush, where the body parts that are rich in meat constituted 58.5% of the bone assemblage (Hesse and Wapnish 2001). The high level of fragmentation of the bones at Tel Magal, taken in conjunction with the low number of gnawed bones and the body parts breakdown, may indicate that the faunal remains represent the leftovers from a meat preparation process.

Nineteen fragments of worked bones, identified as tools, and one complete bone tool were found at the site (Fig. 1; two points were identified by Yannai, see 'Ad and Yannai, this volume: Fig. 21:12, 13). None of the bone tools were ornamented. Exept for a spatula and a handle of a shovel-like tool, all the tools are awls

Fig. 1. Worked bones.

or points. Two small fragments of unidentified antlers were found (L135), as well as a base part of *Dama mesopotamica* antler, which could be used as raw material for tools (MacGregor 1985); there were no marks of sawing or other processing on these antlers. Some of the tools were blackened by fire, a process which is used to strength the tool (Ayalon and Sorek 1999), and some were polished. The bones were metapodials, ulna, scapula and rib of medium-sized mammals, probably domestic. One bone was identified as cattle, and at least two were of young animals.

REFERENCES

‘Ad U. and Yannai E. This volume. Remains from the Pottery Neolithic Period and Early Bronze Age at Tel Magal.

Ayalon E. and Sorek C. eds. 1999. *Bare Bones: Ancient Artifacts from Animal Bones* (Hebrew; English summary, pp. 6*–7*). Tel Aviv.

Hesse B. and Wapnish P. 2001. Commodities and Cuisine: Animals in the Early Bronze Age of Northern Palestine. In S.R. Wolff ed. *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas L. Esse* (SAOC 59/ASOR Books 5). Chicago–Atlanta. Pp. 251–282.

Horwitz L.K. 1998. Animal Bones from Ḥorbat Rimmon: Hellenistic to Byzantine Periods. *‘Atiqot* 35:65–76.

Horwitz L.K. and Tchernov E. 1989. Animal Exploitation in the Early Bronze Age of the Southern Levant: An Overview. In P. de Miroschedji ed. *L’urbanisation de la Palestine à l’âge du bronze ancien (Actes du Colloque d’Emmaüs. 20–24 octobre 1986)* II (BAR Int. S. 527ii). Oxford. Pp. 279–296.

MacGregor A. 1985. *Bone, Antler, Ivory and Horn: The Technology of Skeletal Materials since the Roman Period*. London–Sydney–Totowa, N.J.