

FAUNAL REMAINS FROM THE EARLY IRON AGE SITE ON MOUNT EBAL

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This report describes the faunal remains recovered from the excavations of the Iron Age I site on Mount Ebal in the Manassah hill country near Shechem. Since few animal assemblages from this period have been analysed in detail, the Mount Ebal remains provide a unique set of data concerning faunal exploitation at this time. In addition, the excavator (Zertal 1986-1987) suggests that the site was utilized for ritual purposes and that these may have included animal sacrifices. If so, then the faunal assemblage should reflect this and differ from that at living sites where animals were exploited for consumption, secondary products or labour.

SAMPLE AND METHOD

Of the 2862 bones recovered at the site 770 (27%) were identifiable. Four species of large mammals were represented and comprised 96% (741 bones) of the total diagnostic bone sample. Species present were: sheep (*Ovis aries*), goat (*Capra hircus*), cattle (*Bos taurus*) and fallow deer (*Dama dama mesopotamica*).

The remaining 4% of the material represented hare (*Lepus capensis*), marbled polecat (*Vormella peregusna*), an unidentified small carnivore, hedgehog (*Erinaceus europaeus*), tortoise (*Testudo graeca*), starred lizard (*Agama stellio*), an unidentified reptile (possibly snake), mole rat (*Spalax ehrenbergi*), partridge (*Alectoris* sp.), rock dove (*Columba livia*), an unidentified bird of prey (*Falconiformes* sp.), grey lag-goose (*Anser anser*) and an as yet unidentified species of fish. A fragment of marine shell (*Glycymerys violacescens*) was also recovered.

The material was classified according to the following provenances specified by the excavator (Figs. 1-3):

- 1) The main structure, including its fill and the surrounding ledges.
- 2-3) The northwest and southeast courtyards of the main structure, here referred to as the northern and southern courtyards, respectively; in each of these courtyards were small stone-built installations filled with ash and animal bones or ceramics. Where specified in this study, data from the main structure and courtyards were pooled, as the courtyards by themselves contained very small quantities of bones.
- 4-5) The installations to the northwest and southeast of the main structure, here referred to as the northern and southern installations; these contained pottery with a few bones scattered among them.
- 6) The area termed east of the main structure is to its northeast.
- 7) The area termed west of the main structure (actually southwest) comprises most of Area B, including the four-room house of Stratum II and Courtyard 139 of Stratum IB.
- 8) Entrance Structure 220 in Area B.

FAUNAL ASSEMBLAGE

Sheep and goat

Sheep and goat remains dominated the assemblage in all areas (Table 1) representing 65% of all the diagnostic bones. According to two different methods of differentiating between the species (Payne 1969; Boessneck 1969), at least eleven sheep bones and 14 goat bones were identified; the others were too poorly preserved to be identified to species.

At least seven caprovines were identified as juveniles on the basis of dental eruption and epiphyseal fusion (Silver 1969; Payne 1973). The measurements in Table 2 reflect the similarity in size of the animals in Israel during the Early and Late Iron Ages. Table 3 shows that nearly equal proportions of sheep/goat hind and forelimbs were present. A higher proportion of cranial elements than foot bones was present in the caprovines. This may indicate either the selection of crania or the better preservation of teeth.

Fallow deer

One of the most intriguing finds was the high incidence of fallow deer (*Dama dama mesopotamica*) remains, which comprised 10% of the total diagnostic bone sample (Table 1). Of further note was their high concentration in the main structure (20% of all bones identified from this provenance). Indeed, of all the *Dama* remains identified from the site, those from the main structure comprised 63% (Fig. 1).

When compared with tooth eruption and attrition data for British wild and park deer (Chaplin and White 1968), all the fallow deer mandibles are aged at two years or slightly older, with the third molar just in wear or coming into wear. Age data based on epiphyseal fusion stages of the post cranial remains support that of the dentition, indicating young adult animals. According to the dentition, a minimum number of six animals was obtained. Five antler fragments and a frontal bone with the remains of the antler bases were found (Pl. 19:9-10), indicating that at least one male animal was present. The measurements of the fallow deer (Table 4B) show that the post cranial material falls within the range of measurements from other sites in this region from different periods. No comparable measurements of the dentition were available, but a sample of recent European *Dama* from England (Garrard 1982) indicates that the Ebal material is slightly larger (Table 4A), a finding previously noted by Davis (1981) for remains of the Late Pleistocene and Holocene *Dama* from this region.

Table 3 shows that there is a marked preference for cranial bone remains in the *Dama* sample from all over the site: 49% in the main structure and 48% in all other areas combined. The hind and forelimb proportions from the main structure showed a dominance of forelimbs over hindlimbs and, like the low number of foot bones and absence of trunk remains, may reflect some selection.

Cattle

Remains of domestic cattle (*Bos taurus*), comprise 21% of the total identifiable bone remains found at Mount Ebal (Table 1; Fig. 2). Although they were present in all provenances, there is a slightly higher concentration in the area of the main structure,

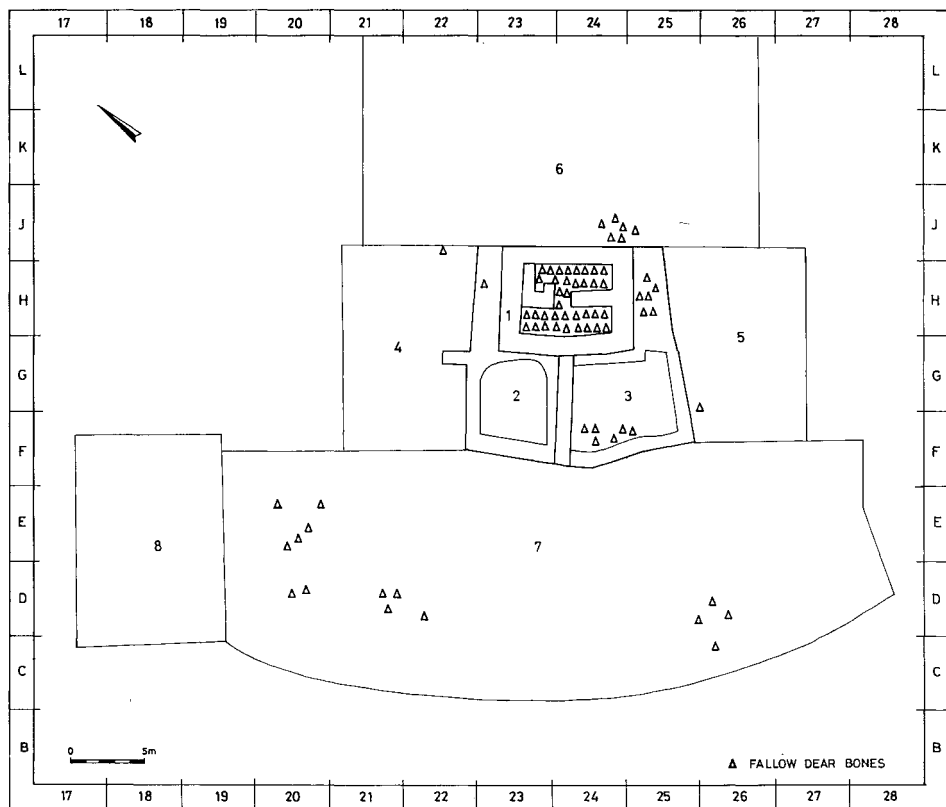


Fig. 1. Distribution of fallow deer bones.

northeast of the main structure (perhaps debris spilled from the fill of this structure) and west of the main structure in Area B, which may reflect some special activity preference. There is a predominance of cranial elements, paucity of foot bones and nearly equal proportions of fore and hindlimbs. This may reflect differential preservation rates of the different bones or else body part selection (Table 3).

On the basis of bone fusion stages (Silver 1969), most of the cattle remains were identified as those of adult animals except for eleven unfused bones that are aged at approximately 3 ½ years, which is the optimal slaughter age for meat yield in European cattle (Uerpmann 1973).

Measurements of the cattle bones (Table 5) show the similarity in size between the Mount Ebal sample and cattle remains from other sites. A calcaneum found in the main structure is of particularly large, robust proportions that distinguishes it from the other cattle bones from the site. It is possible that this bone represents the remains of an ox or a bull.

Small faunal remains

In addition to the large mammal remains, 29 bones (4% of the diagnostic sample) representing other animal species were identified. Most of the material was identified by

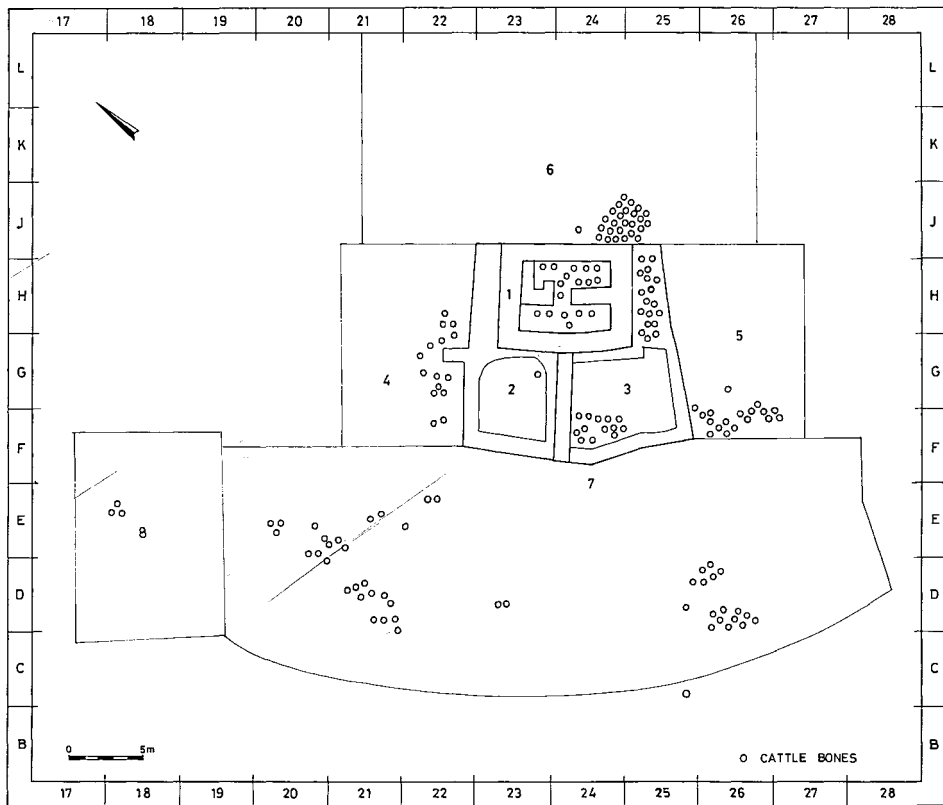


Fig. 2. Distribution of cattle bones.

Prof. E. Tchernov, Department of Zoology, Hebrew University. Present in the main structure were remains of a marbled polecat (*Vormella peregusna*), a lizard (*Agama stellio*), a reptile, probably snake, and two unidentified fish vertebrae. Cranial and post-cranial remains of the mole rat (*Spalax ehrenbergi*) were present in the area east of the main structure, as was a fragment of metacarpal identified as hare (*Lepus capensis*). In the northern installations two metatarsals of hare were found as well as an ulna identified as partridge (*Alectoris* sp., possibly chukar partridge) and the last phalanx of a bird of prey (*Falconiformes* sp.). West of the main structure a tarsometatarsus of a rock dove (*Columba livia*) was found. From the same area came remains of a hare (*Lepus capensis*), mole rat (*Spalax ehrenbergi*), other unidentified rodent remains, a broken mandibular condyle of a small carnivore and carapace fragments of a tortoise (*Testudo graeca*). The mandible of a hedgehog (*Erinaceus europaeus*) was also identified.

The rodent and reptile remains as well as the hare and hedgehog appear to be of recent origin and are probably intrusive. However, the fish, polecat and bird bones seem to have the same patina as the archaeological material, suggesting that they belong with the assemblage.

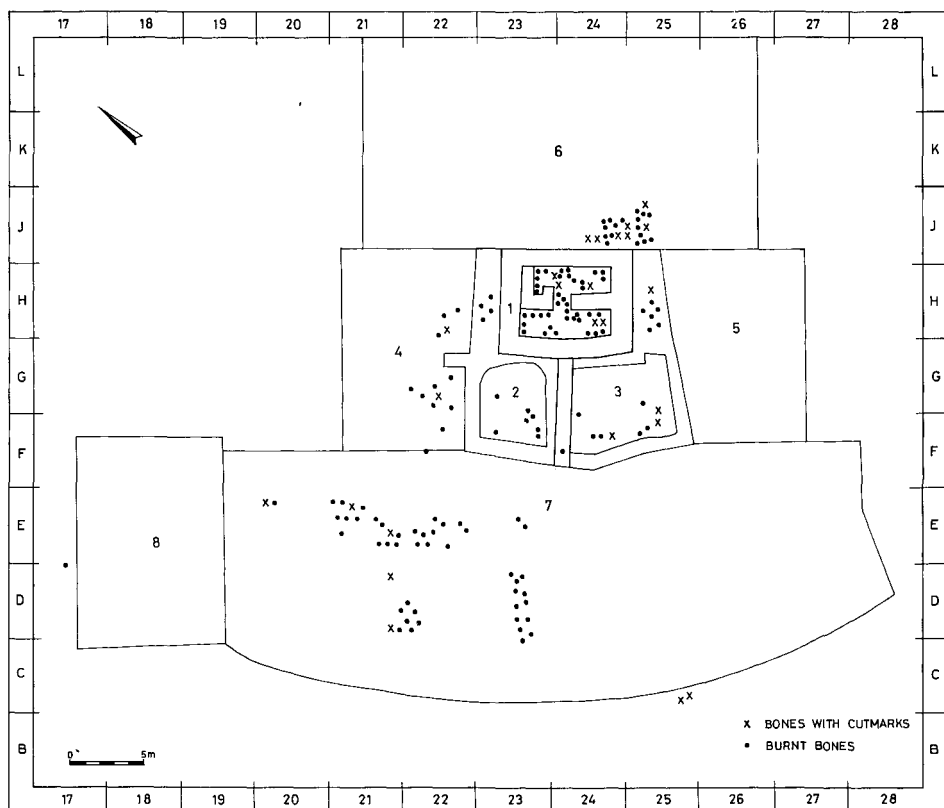


Fig. 3. Distribution of bones with cutmarks and burnt bones.

Molluscs and shells

A piece of eggshell, probably belonging to the grey lag-geese (*Anser anser*) came from the southern wall of the main structure. Its patina is similar to that of the archaeological deposit and could possibly be associated with it. A fragment of a Mediterranean marine shell (*Glycymeris violacescens*) was found west of the main structure. There were also numerous fragments of the land snail (*Levantina caesarina*), which is prevalent today in the region and is most likely an intrusive element.

Burnt bones

A total of 128 burnt bones (4% of the total bone sample) were recovered, of which 57 (44%) came from the main structure and courtyards (Fig. 3; Table 6A). Thirty-one of the bones could be identified as to body part and/or species (Table 6B).

Most of the bones show signs of scorching, while only two were burnt to a white-grey colour. Two studies of changes in bone colouration offer a tentative temperature range needed to produce such blackening on the bones. Bonnucci a.o. (1975) propose a temperature range of 300-350°C, while Shipman, Foster and Schoeninger (1984) suggest a range of 285-525°C. The bones coloured white-grey would have required a temperature

TABLE 1. SPECIES FREQUENCY ACCORDING TO PROVENANCE AND PERCENTAGE OF TOTAL IDENTIFIED BONES

	<i>Provenance</i>	<i>Sheep/goat</i>		<i>Cattle</i>		<i>Fallow deer</i>		<i>Other</i>		<i>Total</i>
		<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	
1.	Main structure	152	31.0	33	10.1	49	63.0	8	27.5	242
2.	Northern courtyard	16	3.2	1	0.6	—	—	—	—	17
3.	Southern courtyard	42	9.0	13	8.0	6	8.0	—	—	61
4.	Northern installations	32	6.4	18	11.0	—	—	6	21.0	56
5.	Southern installations	27	5.4	19	11.5	1	1.2	—	—	47
6.	East of main structure	66	13.2	29	17.6	7	9.0	5	17.2	107
7.	West of main structure (Area B)	157	32.0	48	29.2	15	19.2	10	35.0	230
8.	Entrance 220 (Area B)	7	1.4	3	2.0	—	—	—	—	10
	Total	499	100	164	100	78	100	29	100	770

of 645-940°C according to the latter or 650°C according to Bonnucci a.o. (1975). Considering the discrepancy between the two estimates and the unreliability of using only colouration to identify temperature (Shipman, Foster and Schoeninger 1984), these figures should be treated with caution. In addition, it is difficult to judge whether the colouration is indicative of the temperature of the fire or the proximity of the bone to the flames. If meat covered the bone, it would have been insulated from the fire and the signs of burning would not provide an accurate picture of fire temperature (Merbs 1967).

Cut marks

Cut marks were present on 25 bones (3% of the diagnostic material) from the site (Fig. 3; Table 7). Three fallow deer antlers had deep cut marks, two of them presumably where the antlers had been removed from the cranium. One horncore of *Bos taurus* showed evidence of having been cut, possibly also to facilitate removal. Three metapodial distal ends (two fallow deer and one caprovine) had horizontal cut marks across the distal epiphysis, while one metapodial shaft, two proximal radii (fallow deer) and three distal humeri (cattle) exhibited multiple cut marks. The cut marks on the bones of sheep, goats and cattle were primarily on lower foot bones such as metapodia, astragali, calcanea and phalanges. These cut marks take the form of parallel lines almost horizontal to the axis of the bone (Pl. 19:9-10).

DISCUSSION

There are significant differences between the assemblage from the main structure and other parts of the site. This structure stands out in that:

1) It contains a very high concentration of bone material (35% of the diagnostic and non-diagnostic material compared to the other areas).

TABLE 2. SHEEP/GOAT MEASUREMENTS (IN CM.) FROM MOUNT EBAL AND THREE OTHER IRON AGE SITES

	<i>Mt. Ebal</i>		<i>Tel Dan</i> ¹		<i>Lachish</i> ²		<i>Beer-sheba</i> ³	
	<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>
<i>Humerus</i>								
Distal width	3	2.9						
Distal height	4	1.4						
<i>Metapodia</i>								
Distal width	12	2.6	4	2.7	8	2.6	4	2.4
<i>Astragalus</i>								
Maximum length	12	2.9	1	3.3	2	2.9	27	
Distal width	12	1.8					27	2.0
<i>1st phalange</i>								
Maximum length	4	3.8						
Distal width	10	1.1						
<i>2nd phalange</i>								
Maximum length	5	2.3					12	2.4

1 Wapnish, Hesse and Olgiviy 1977

2 Drori 1979

3 Hellwing 1984.

2) Of the diagnostic bones, fallow deer forms 21% of the diagnostic material in the main structure as compared to 5% in all the other areas combined.

3) Of the 128 burnt bones recovered, 57 were found in the main structure and courtyards (44% of all burnt material).

4) Of the 25 bones with cut marks, nine came from the main structure.

5) The only fish remains recovered were from the main structure, as was the goose eggshell, although both of these elements may have been intrusive.

In all areas caprovines were the dominant group, followed by cattle and lastly by fallow deer. The area west of the main structure contained a similar frequency of sheep/goat and cattle to that found in the main structure, but had a significantly lower frequency of fallow deer. The area termed east of the main structure had a relatively high frequency of caprovines and cattle but a low frequency of deer relative to the main structure. The area west of the main structure has a high proportion of caprovine remains, similar to that found in the main structure but nowhere else at the site. We suggest that this is not a function of preservation or other such factors, but must reflect some difference in activity. The courtyards themselves contained few bone remains (predominantly bone fragments). Those that were present came from the stone-built installations and from under the floor of the southern courtyard.

The presence of cut marks on a number of bones, especially the crania of the fallow deer and the lower limb bones of the caprovines and cattle, provides evidence that the

TABLE 3. COMPARISON OF BODY PART DISTRIBUTION FROM MT. EBAL AND OTHER IRON AGE SITES (ALL DATA IN PERCENTAGES)

	<i>Mt. Ebal</i> (Main structure & courtyards)	<i>Mt. Ebal</i> (All other areas)	<i>Tel</i> <i>Miqneh</i> ¹ (Context B)	<i>Beer-sheba</i> ² (IX-VI)	<i>Tel Dan</i> ³ (Area B)	<i>Tel</i> <i>Masos</i> ⁴ (III-I)
<i>Sheep/goat</i>						
Cranial	35	44	*	34	22	30
Forelimb	12	15	41	23] 32	34
Hindlimb	18	16	47	22		29
Foot	5	8	12	5	13	6
Trunk	30	17	*	15	33	*
<i>Cattle</i>						
Cranial	29	25	*	30	27	11
Forelimb	14	33	25	19] 36	27
Hindlimb	16	21	36	21		34
Foot	6	11	—	14	33	27
Trunk	35	10	*	15	—	*
<i>Fallow deer</i>						
Cranial	49	48	*	—	16	—
Forelimb	38	26	—	—] 42] 1
Hindlimb	11	18	—	—		
Foot	2	8	—	—	42	90
Trunk	—	—	*	—	—	*

1 Hesse 1985

2 Hellwing 1984

3 Wapnish, Hesse and Olgivy 1977

4 Tchernov and Drori 1983

Cranial = horncores, skull fragments, maxilla, mandible and loose teeth; Forelimb = scapula, humerus, radius, ulna, metacarpal and carpals; Hindlimb = pelvis, femur, tibia, astragalus, calcaneum, metatarsal; Foot = 1st, 2nd and 3rd phalanges; Trunk = vertebrae and ribs

* = no data as to distribution

— = none present

The trunk numbers for Ebal may be inflated as they reflect fragment counts. For Tel Masos the metapodial numbers as given by Tchernov and Drori 1983 have been halved and each half added on the fore and hindlimbs respectively, as no distinction was made in their text between metacarpals and metatarsals. The Beer-sheba data has been calculated from Hellwing 1984 following the body part breakdown used here.

animals had been butchered or dismembered, though not necessarily at the site itself. Circular cut marks around the base of antlers has been suggested by Binford (1981) to indicate removal of the skin, although the cut marks on the antlers shows that they may have been removed after skinning (Pl. 14:9). Cut marks on other bones were made on the lower limb and foot bones of the fore and hindlimbs (Pl. 14:10), indicative of butchery or dismemberment practices (Binford 1981).

Amongst the burnt bones were found remains of all the main species (Table 6B). None

TABLE 4A. FALLOW DEER MEASUREMENTS (IN CM.) OF CRANIAL BONES FROM MT. EBAL AND RECENT DEER (AFTER VON DEN DRIESCH 1976)

	<i>Mt. Ebal</i>			<i>Recent male</i>		<i>Recent female</i> ¹	
	<i>N</i>	<i>x</i>	<i>Range</i>	<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>
<i>Crania</i>							
Greatest frontal breadth	1	(124.5)					
Least frontal breadth	1	(10.4)					
Least breadth between orbits	1	(7.7)					
Circumference of proximal antler base	1	(11.5)					
<i>Mandibles</i>							
Length tooth row	2	9.9	9.7-10.2				
Length to gonion	3	4.7	4.5- 5.0				
Length molar row	5	6.1	5.9-6.2				
Length premolar row	3	3.6	3.6-3.8				
Length 3rd molar	6	2.3	2.2-2.5	23	2.0	19	2.1

¹ Measurements for recent male and female deer from Garrard 1982

() = measurements may be inaccurate

of the bones of the small animals were burnt which may be another indication that they were intrusive. The burnt bones point to the use of fire; although it is impossible to tell whether this was the result of cooking, roasting, sacrificial burning or the burning of defleshed bones. Only two severely calcinated bones (usually indicative of high intensity fire or long duration exposure to fire) were found and were identified as fragments of fallow deer antler.

When compared to material from other Iron Age habitation sites, some interesting differences are apparent between them and Mount Ebal (Table 8). The first concerns the species present. Equids (donkeys/horses), pigs, carnivores (both wild and domesticated) and gazelles are absent at Mount Ebal but at least one of these species is present at each of the other sites. The species represented and their frequencies suggest that only edible animals are present at Mount Ebal, while at the other sites animals possibly used for various purposes (such as equids) are present. The absence of gazelle and pig remains is of interest considering their presence in the immediate vicinity of the site, both in antiquity and today (Bodenheimer 1958; Tchernov 1982; Mendelssohn 1974). This is further emphasized by the high frequency of fallow deer which shares a similar environment to wild pig. The high frequency of *Dama* suggests that there was genuine forest parkland in this region, since such an environment is necessary to support a large fallow deer population. On the average, fallow deer form a much lower proportion of the hunted animal component of Iron Age sites (Table 8), so their relatively high frequency at Mount Ebal suggests some selection.

TABLE 4B. FALLOW DEER POST CRANIAL MEASUREMENTS (IN CM.) FROM MOUNT EBAL AND OTHER NEAR EASTERN SITES

	<i>Mt. Ebal</i>		<i>Range</i>	<i>Tel Dan</i> ¹		<i>Mureybit</i> ²		<i>En Gev P</i>	
	<i>N</i>	<i>x</i>		<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>
Scapula									
greatest width	3	3.8	3.4-4.1						
Distal humerus									
distal width	1	4.7							
Pelvis									
length of acetabulum	1	4.8							
Metatarsal									
distal width	2	3.7	3.6-3.8	6	3.4	1		16	3.7
Metacarpal									
distal width	5	2.8	2.1-3.3	1	3.8	4 ³	3.4	9	3.3
Astragalus									
distal width	1	3.5							
Calcaneum									
maximum length	3	8.5	7.9-9.5						
1st phalange									
maximum length	3	4.7	4.5-5.2	2	4.9	4	4.9	5	4.8

1 Wapnish, Hesse and Olgivy 1977

2 Ducos 1975

3 Davis 1972

Table 3 presents the comparable proportions of body parts from Mount Ebal to those of other Iron Age sites. Although the information from the other sites is incomplete, an overall similarity between the sites may be seen, with the exception of the cranial remains of *Dama* which are significantly higher at Mount Ebal. Ben-Tor (1980) has reported a high frequency of right forelegs of goats associated with cultic vessels in a dwelling of the 12th-11th centuries at Tel Qiri. As a possible explanation, he mentions the biblical texts Ex. 29 and Lev. 7, where the Israelites are commanded to sacrifice the right foreleg of the animal and to give the right hind leg to the priests. Hellwing (1984) reported that there was a predominance of caprovine foreparts at a number of Near Eastern sites. However, he included the lower jaw (mandible) in the forepart counts, thereby inflating the number. When his data for the early Iron Age strata at Beer-sheba are recalculated to exclude the mandible, the fore and hindparts are represented in approximately equal numbers (Table 3).

An aspect that further highlights the difference between Mount Ebal and other Iron Age sites is the number and distribution of burnt or scorched bones from Ebal (128 bones forming 17% of the diagnostic bone sample) compared with eight bones (0.4%) from the Iron Age II levels at the City of David (from a bone sample of approximately 2000 bones; Horwitz (unpublished). Wapnish (forthcoming) has reported that 15% of the equid

TABLE 5. CATTLE MEASUREMENTS (IN CM.) FROM MOUNT EBAL AND THREE OTHER IRON AGE SITES

	<i>Mt. Ebal</i>		<i>Tel Dan</i> ¹		<i>Lachish</i> ²		<i>Beer-sheba</i> ³	
	<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>	<i>N</i>	<i>x</i>
<i>Humerus</i>								
Distal width	1	6.7						
Distal height	1	3.1						
<i>Metatarsal</i>								
Distal width	2	4.9	2	5.2	2	5.1		
<i>Metacarpal</i>								
Distal width	1	2.8						
<i>Astragalus</i>								
Maximum length	3	6.4	4	6.4	4	6.7	4	5.7
Distal width	3	3.7					4	3.5
<i>Calcaneum</i>								
Maximum length	2	1.2						
<i>1st phalange</i>								
Maximum length	3	5.5						
Distal width	4	2.5						
<i>2nd phalange</i>								
Maximum length	7	3.6	4	3.5	5	3.4	10	3.4
Distal width	7	1.9					6	1.9
<i>3rd phalange</i>								
Maximum length	1	6.4	1	6.1			5	6.0

1 Wapnish, Hesse and Olgivy 1977

2 Drori 1979

3 Hellwing 1984

material from Tell Jemmeh (total of 65 bones) had cut marks and burning, although the exact period associated with this 15% is not specified. This and the data from the City of David indicates that the burnt material from Mount Ebal is slightly, but not significantly, higher in proportion to the total bone sample. However, the most salient feature of the Mount Ebal burnt material is its concentration in the area of the main structure (57 of the 128 bones or 44% of the total burnt bone sample; Fig. 6A). This further suggests differences in activities between the various areas at the site.

The dating of the site to the Early Israelite period and the interpretation of the main structure as an altar by Zertal (1986-1987) raises two issues. These concern the relation between the animal remains excavated at the site and the Mosaic laws pertaining to animals permitted for consumption and those permitted for sacrifice. Deut. 14 and Lev. 11 contain lists of animals prohibited and permitted for consumption. Domesticated animals permitted are sheep, goats and cattle, while the wild animals listed include

TABLE 6A. DISTRIBUTION OF BURNT BONES BY PROVENANCE

<i>Provenance</i>	<i>N</i>	<i>%</i>
Main structure	44	34.4
Southern courtyard	6	4.6
Northern courtyard	7	5.5
Northern installations	11	8.6
East of main structure	16	12.6
West of main structure (Area B)	43	33.6
Entrance 220 (Area B)	1	0.7
Total	128	100

TABLE 6B. DISTRIBUTION OF BURNT BONES BY SPECIES AND BODY PART

<i>Species</i>	<i>Sheep/goat</i>	<i>Cattle</i>	<i>Fallow deer</i>	Total
<i>Body part</i>				
Antlers/horns	2	—	2	4
Mandible	3	—	2	5
Humerus/femur	3	—	—	3
Ulna	—	1	—	1
Pelvis	2	—	—	2
Tibia	1	1	—	2
Metapodia	5	—	—	5
Calcaneum	1	—	—	1
Astragalus	2	—	—	2
Phalanges	2	—	—	2
Vertebrae	4	—	—	4
Total	25	2	4	31

TABLE 7. DISTRIBUTION OF BONES WITH CUT MARKS BY PROVENANCE

<i>Provenance</i>	<i>Sheep/goat</i>	<i>Cattle</i>	<i>Fallow deer</i>	Total
Main structure	1 Metatarsus 1 Calcaneum	1 Horncore 1 1st phalange	3 Antlers 1 Radius 1 Metatarsal	9
East of main structure	1 Humerus	2 Calcanea 1 1st Phalange 1 Astragalus	1 Antler 1 Metapodial	7
Northern installations		2 1st Phalanges		2
West of main structure	2 Astragali	3 Humeri	1 Metapodial	7
Total				25

TABLE 8. SPECIES FREQUENCY AT MOUNT EBAL AND OTHER IRON AGE SITES

	Sheep/goats		Cattle		Fallow deer		Gazelles		Pigs		Equids		Dogs		Total
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Mount Ebal	499	68	164	22	78	10.5	—	—	—	—	—	—	—	—	741
Tell Qasile ¹	181	75	55	23	3	1	X	X	3	1	X	X	X	X	242
Hazorea ¹	632	86	79	11	5	0.5	4	0.5	14	2	2	X	X	X	736
Lachish ²	58	85	8	12	—	—	1	1	—	—	1	1	1	1	69
Tel Dan ³	31	17	124	70	19	11	—	—	4	2	—	—	—	—	178
Tel Miqneh ⁴	X	45	X	37	—	—	—	—	X	18	—	—	—	—	502
Beer-sheba ⁵	1010	83	164	13	8	1	—	—	3	0.02	24	2	13	1	1222
Tel Masos ⁶	278	66	109	26	10	2	6	1	1	0.2	13	3	2	0.4	419
Tel Michal ⁵	X	59	X	30	—	—	—	—	X	0.7	—	—	X	1	406
Shiloh ⁵	X	68	X	28	X	2	—	—	X	0.7	X	0.5	X	0.2	677
'Izbet Sartah ⁵	X	53	X	34	X	3	—	0.08	X	0.4	X	1	X	0.3	1203

1 Davis 1982.

2 Drori 1979.

3 Wapnish, Hesse and Olgivy 1979.

5 Hellwing 1984.

6 Tchernov and Drori 1983.

— = Absent at the site.

X = Present but number not specified.

Data from Hellwing 1984 (5) gives percentages computed for all faunal species at the sites, although only the major faunal elements are given here. As such the numbers often do not add up to 100% but were computed on this basis.

Data from Tchernov and Drori 1983 (6) has been computed for the Early Iron Age only.

gazelles and deer (see Levinger and Dor 1975 for a more detailed discussion of other species). It is uncertain which deer is referred to since three species are known from this region: fallow deer (*Dama dama mesopotamica*), red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*) (Bodenheimer 1958). Many translations favour fallow deer over the other two. Of the animals that may be consumed, sheep, goat, cattle and fallow deer are present at Mount Ebal. The other animals found at the site in extremely small quantities, such as the hare and hedgehog are listed as unclean (Deut. 14; Lev. 11), but it is uncertain if they belong to the Iron Age deposits.

The two passages (Deut. 27 and Jos. 8) that mention the building of an altar on Mount Ebal refer to two types of sacrificial offerings: the burnt offering and the peace offering. Both offerings refer only to domesticated animals (sheep, goats and cattle) as well as turtle doves and pigeons. No mention is made concerning the acceptability of wild animals for sacrifice, even if they were permitted for consumption.

The burnt offering was burnt whole on the altar after being skinned and having its innards and legs washed. This offering could be of three types: confession, vow and of free will. The first two categories (confession and vow offerings) required that the animal be perfect but it could be of either sex. The third category, free will offerings, allowed for the animal to be less than perfect (Lev. 1, 3 22). Likewise for the peace offering only domesticated animals of both sexes could be sacrificed. The animal was skinned and only the fat surrounding the intestines, the kidneys and oblong lobe of liver were burnt on the altar (Lev. 9). The priest was given the breast and thigh (right shoulder) of the animal, while the rest of the meat was eaten (Lev. 7). For both the burnt and peace offerings the blood of the animal was prohibited for consumption and was sprinkled on the altar.

The Mount Ebal faunal assemblage is comprised mainly of sheep, goats and cattle, all of which are prescribed sacrificial animals. However, the fallow deer remains appear to fall outside of the prescribed laws for offerings as stated in Deuteronomy, Joshua and Leviticus. It was not possible to determine the age or sex of the domestic animals, although the fallow deer remains show great homogeneity of age (prime adults) and the presence of at least one male animal. In addition, the distribution of body parts of the various species shows no significant differences to those from other Iron Age sites, a feature that would be expected from a ritual/sacrificial site as opposed to a settlement. The cut marks on the fallow deer cranium are suggestive of skinning, and the presence of burnt fallow deer antlers is of interest in the light of the practice of burning the whole animal (including the head) for the burnt offering. However, the use of wild animals, such as fallow deer, for sacrifice does not appear to be sanctioned by Mosaic law.

CONCLUSIONS

This analysis shows the presence of a pattern of differential spatial utilization at Ebal probably associated with activity differences. In the area of the main structure we find a relatively dense concentration of bones with the highest proportions of fallow deer (especially cranial parts), burnt bones and bones with cut marks. The other areas contain the same species as found in the area of the main structure, though in lower

concentrations. This suggests that the main differences are in species and/or element frequency. Mount Ebal differs from other Iron Age sites in the absence of certain species such as equids, pigs, gazelles and domestic and wild carnivores, and in the presence of a high frequency of fallow deer. In addition, the comparative data on burnt bones suggests a slightly higher (though not significant) frequency at Mount Ebal than that expected from a bone sample of this size. All of these features indicate a different pattern of animal utilization at Mount Ebal to that found at other Iron Age habitation sites.

Mazar (1981) has proposed that the spread of the Israelite tribes into the hill country of Canaan west of the Jordan may have been governed both by their economy (stock breeders) and their ideology (national and religious). He states that "It is only gradually that the early Israelites adapted to the conditions of settled life, to living in permanent villages, and to direct contact with their non-Israelite neighbours whose influence made itself felt in the establishment of their settlements and in their gradual transition to an economy based mainly on agriculture" (Mazar 1981:76). In the light of this hypothesis, the Mount Ebal faunal assemblage appears to best reflect a pastoral economy based primarily on caprovine herding and to a lesser extent cattle. In addition, the high proportion of hunted animals (fallow deer) supports the hypothesis of a nomadic or semi-nomadic society.

It is suggested that the Ebal faunal assemblage represents a narrow range of activities either in function or time. The absence of animals prohibited for consumption but frequent at other Iron Age sites, suggests conformity with biblical tenets. However, the presence of fallow deer, an animal unacceptable for sacrifice, in the area of the main structure, tends to detract from this hypothesis.

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