



Interpreting the faunal remains of El Kowm 2 - Caracol (IVth millenium BC, Syria)

Emmanuelle Vila

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Emmanuelle Vila. Interpreting the faunal remains of El Kowm 2 - Caracol (IVth millenium BC, Syria). H. Buitenhuis, L. Bartosiewicz, A. M. Choyke. Archaeozoology of the Near East III. Proceedings of the 3rd international symposium on the archaeozoology of south-western Asia and adjacent areas , ARC Publicaties, pp.120-129, 1998, 903670791-9. halshs-01675611

HAL Id: halshs-01675611

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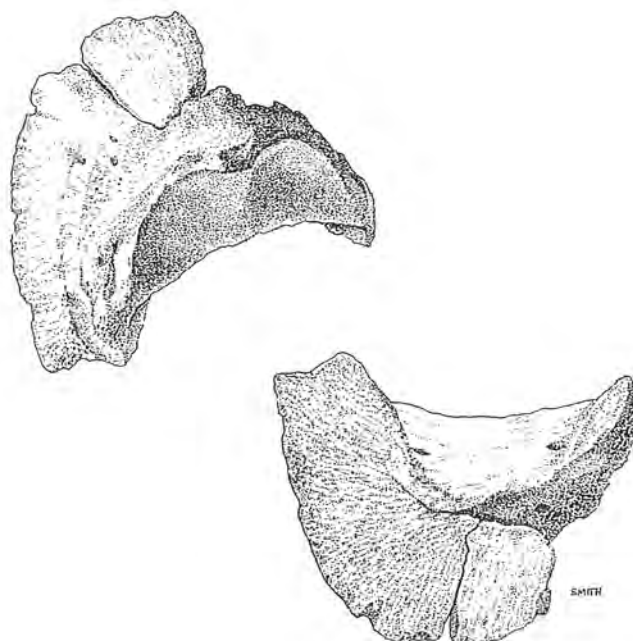


ARCHAEOZOOLOGY OF THE NEAR EAST III

Proceedings of the third international symposium on the
archaeozoology of southwestern Asia and adjacent areas

edited by

H. Buitenhuis, L. Bartosiewicz and A.M. Choyke



**ARC - Publicaties 18
Groningen, The Netherlands, 1998**

Cover illustration: Dorsal and palmar aspects of a
Bronze Age horse phalanx from Arslantepe, Turkey,
identified by Sándor Bökönyi.
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Printing: RCG -Groningen

Parts of this publication can be used if source is clearly stated.
Information: Centre for Archeological Research and Consultancy
Poststraat 6, 9712 ER Groningen, The Netherlands

ISBN 903670791-9
NUGI 644/821/835

Preface

This publication is the result of the third international symposium on archaeozoology of southwestern Asia and adjacent areas, held in Budapest, Hungary from 2 - 5 September 1996. The editors would like to thank all colleagues of the Working Group who helped with the translation of abstracts. Financial support for the publication was given by the Acker Stratingh Stichting, Groningen, The Netherlands.



Participants of the 3rd ASWA Conference, Budapest 1996
(Photo: Péter Komjáthy, Aquincum Museum)

Standing, left to right: B. De Cupere (Belgium), G. Bar Oz (Israel), H. Buitenhuis (The Netherlands), R. Rabinovich (Israel), L. Leblanc (New Zealand), N. Benecke (Germany), H. Hongo (Japan), N. Russell (USA), J. Speth (USA), A. Patel (India), E. Stephan (Germany), C. Cavallo (The Netherlands), W. Van Neer (Belgium), A.T. Clason (The Netherlands), T. Dayan (Israel), L. Van Es (The Netherlands), C. Becker (Germany), R. Meadow (USA), M. Mashkour (France), F. Poplin (France), E. Vila (France), Mrs. Poplin (France), L. Bartosiewicz (Hungary), E. Pellé (France), P. Ducos (France).

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Participants not shown in picture: D. Carruthers (Great Britain), D. MacHugh (Ireland), S. Whitcher (Great Britain).

Contents

Preface

E. Tchernov	7
An attempt to synchronise the faunal changes with the radiometric dates and cultural chronology in Southwest Asia	
R. Rabinovich	45
"Drowning in numbers" - gazelles dominance and body size groups in the archaeozoological record	
G. Bar Oz, T. Dayan and D. Kaufman	72
Taphonomic analysis of the faunal remains from Neve David	
L. Kolska-Horwitz and P. Ducos	80
An investigation into the origins of domestic sheep in the southern Levant	
S. Bökönyi	95
Animal husbandry, hunting and fishing in the Ras Al-Junayz area: a basis for human subsistence	
S. Whitcher, C. Grigson and Th.E. Levy	103
Recent faunal analyses at Shiqmim, Israel: a preliminary analysis of the 1993 assemblage	
L.J.M. van Es	117
A weasel femur (<i>Mustela nivalis</i> Linne 1766) from the Iron Age of Tell Deir 'Alla (Jordan)	
E. Vila	120
Interpreting the faunal remains of El Kowm 2 - Caracol (IVth millennium BC, Syria)	
M. Al-Zawahra and A. Ezzughayyar	130
Equid remains from Bronze Age periods of site 4 of Tell Jenin, Palestine	
D. MacHugh, R.T. Loftus, C.S. Troy and D.G. Bradley	135
DNA and the origin of domestic cattle	
N. Russell	145
The Mesolithic-Neolithic transition in the faunal assemblage from Konispol Cave, Albania	
L. LeBlanc	160
The accumulation and significance of micromammals in an Albanian cave site	
C. Becker	166
New data on the distribution of fallow deer in Europe during the Late Pleistocene and Holocene	
N. Benecke	172
Animal remains from the Neolithic and Bronze Age settlements at Kirkclareli (Turkish Thracia)	
R. Meadow and A. Patel	180
The exploitation of wild and domestic waterbuffalo in prehistoric northwestern South Asia	
M. Mashkour	200
The subsistence economy in the rural community of Geoktchik Depe in Southern Turkmenistan: Preliminary results of the faunal analysis	
L. Bartosiewicz	221
Interim report on the Bronze Age animal bones from Arslantepe (Malatya, Anatolia)	
A.T. Clason and H. Buitenhuis	233
Patterns in animal food resources in the Bronze Age in the Orient	
W. Van Neer and M. Uerpmann	243
Fish remains from the new excavations at Troy	
H. Hongo	255
Patterns of animal husbandry in Central Anatolia in the second and first millennium BC: faunal remains from Kaman-Kalehöyük, Turkey	
B. De Cupere and M. Waelkens	276
The antique site of Sagalassos (Turkey): faunal results from the 1990 - 1994 excavation seasons	
B. De Cupere, W. Van Neer and M. Waelkens	285
Modern and ancient Ovicaprines herding in the Sagalassos area (Burdur Province, Turkey)	

INTERPRETING THE FAUNAL REMAINS OF EL KOWM 2 - CARACOL (IVTH MILLENIUM BC, SYRIA)

Emmanuelle Vila¹

Abstract

Le site d'El Kowm 2 - Caracol est situé dans la steppe syrienne. L'analyse des restes osseux animaux des niveaux de l'époque Uruk témoigne d'une économie alimentaire basée sur l'élevage presque exclusif des caprinés et sur la chasse à la gazelle et aux équidés, activité originale car peu pratiquée sur les sites de même période de l'Euphrate. La fréquence des équidés, mélange d'ânes et d'hémiones, particulièrement élevée, et l'étude de la distribution des âges indiqueraient qu'il s'agit d'une chasse programmée. Le site d'El Kowm semble être une halte de transhumance, où se repose la question de l'origine de la domestication de l'âne.

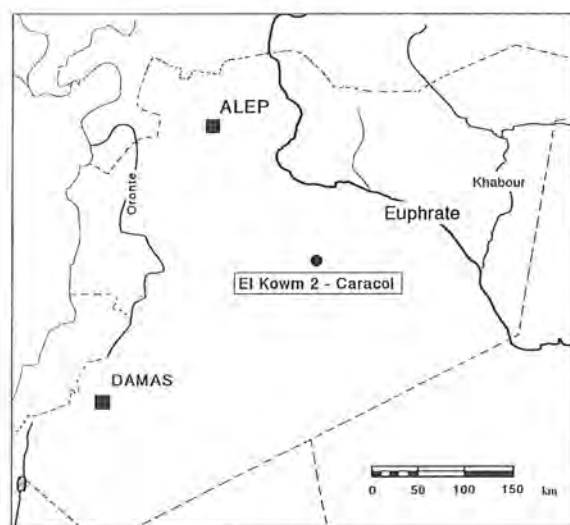


Figure 1. Map of Syria and the location of El Kowm 2 - Caracol.

Introduction

El Kowm 2- Caracol is located northeast of Palmyra, one hundred kilometers from the Euphrates river, in a depression surrounded by mountains (Fig. 1). North of the village of El Kowm is the only eastern passage through the mountains from the steppes which stretches from the Arabic desert towards the northern regions of the Euphrates valley. A very dense network of wadis scores the mountainside. It is the great number of artesian springs which give the invaluable richness to the depression. It is certainly the only place for miles around where water was always available. The springs have enabled the development of vegetation and especially the maintenance of animal life. Nowadays, the dry season from April on is very severe and the steppe vegetation may be poorer than in prehistoric times.

Vegetation mostly grows in the wadis and the hollows, providing nutrition for sheep, goats and camels which come up to the Kuwait.

The village is situated in the south of the depression and includes two tells. The larger has prepottery neolithic (PPNB) and pottery neolithic levels. The smaller, called El Kowm 2 - Caracol, was excavated in six campaigns (1978 until 1982 and 1985) and soundings (1986 and 1987). This work was led by D.Stordeur as part of the program of the "*Mission Permanente à El Kowm*" under the directorship of J.Cauvin (Cauvin and Stordeur, 1985 ; Stordeur et al., 1991).

The main part of the site consists of a series of levels of houses dating from the late PPNB. The upper surface was cut either by pits from the pottery Neolithic or by levels from the Uruk period, which cover nearly half of the excavated area (135m²). The Uruk site consists of huge areas, half-buried, filled by regularly alternating layers, and of pits with a non-stratified content. Most of them were later disturbed. The badly-preserved state and the unclear stratigraphical context of some architectural remains which could be related to this culture, do not allow for any interpretation.

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The eastern area (120m²), located at the top of the tell, is half-buried. It is restricted in the north by a wall of big blocks of stone, more recent than the PPNB. On the west side, steps are grooved to a depth of one meter, opening out on the southern and eastern slopes of the tell. In the northern part, ash lenses and layers of clay follow. Pits are found around this area.

In the western area, running north-south between the remains of two PPNB walls, a large pit was dug twice; The first pit was perhaps dug for an oven and contains a lot of mud bricks forming a circle. The second pit might have been aimed at the emptying of the oven.

The sample of fauna which was analysed comes from the Uruk levels and from one pit (Pit 88) as the pottery would suggest. In this assemblage, 2494 bones of mammals were identified. The bones were separated according to layers and squaremeters and sometimes sieving was applied. These bones were analyzed mostly in Syria in the spring of 1985 and autumn of 1986. A selection of part of the material was brought back to France, to the "Institut de Préhistoire Orientale" in Jalès for closer analysis.

Some particular problems are raised at this site. First, the frequency of equid bones is unusually high, and in order to understand why, their specific identification is very important. Another problem is that hunting activity seems very significant which is quite surprising. Usually game does not play much of a role in the subsistence patterns of Uruk sites. Finally, the geographical position of El Kowm outside the river valleys where most Uruk settlements were located, is an unusual phenomenon.

species	NR	%	% weight	MNI	%
Small ruminants	573	23,0			
Sheep/Goat	594	23,8	54,8	71	44,7
Sheep (<i>Ovis aries</i>)	160	6,4	(29,3)	(18)	
Wild sheep (<i>O. orientalis</i>)	(2)			1	0,6
Goat (<i>Capra hircus</i>)	139	5,6	(25,5)	(15)	
Wild goat (<i>C. aegagrus</i>)	(2)			1	0,6
Gazelle (<i>Gazella subgutturosa</i>)	193	7,7	11,8	31	19,5
Cattle (<i>Bos</i> sp.)	52	2,1		13	8,2
Aurochs (<i>B. primigenius</i>)	(6)				
Equids (<i>Equus</i> sp.)	738	29,6		22	13,8
Donkey (<i>E. asinus/africanus</i>)	(23)				
Onager (<i>E. hemionus</i>)	(35)				
Dog (<i>Canis familiaris</i>)	21	0,8		7	4,4
Fox (<i>Vulpes vulpes</i>)	17	0,7		8	5,0
Hare (<i>Lepus capensis</i>)	4	0,2		4	2,5
Weasel (<i>Mustela nivalis</i>)	1	0,1		1	0,6
Total	2492			159	
Small carnivores	4				
Rodents	21				
Birds	5				
Reptile	1				
Total	2523				
Undetermined	6048				

Table 1. List of animal species found at El Kowm 2 - Caracol.
(NR= number of identified remains; MNI= minimum number of individuals).

The Faunal Analysis

General overview of the bones

The general record of the mammal bone remains shows that the range of species is not very wide (Table 1). The main animals in all places are domestic: mostly sheep and goats. The ratio between sheep and goat is the same on average, about 1:1.

There are few cattle bones. The bones of cattle are comparable in size to those of wild oxen as seems typical for the Uruk Period (Vila, in print). Half of them belong to juvenile animals younger than 4 years. They were slaughtered young, most certainly for consumption.

Among the wild species, gazelles are present but not in high numbers. In contrast, remains of equids appear in high frequencies. Wild and domestic carnivores are also rare; only one bone of weasel, a mandible, and a few bones from dogs and foxes were found. The hare is not common.

The appearance of the weasel could be attributed to the human presence. The environment of the El Kowm depression was probably too dry to allow life in the wild for this species, which needs a more humid and wooded biotope. It could have been kept in captivity by people. The archaeological records have shown that cages existed for small mammals: one such cage was found, for example, at Mari, in Syria (Weygand, 1993).

Cut and burnt marks on the bones of foxes show that they were probably hunted for their meat.

Judging from the sizes, three fragments of goat belong to their wild ancestor, *Capra aegagrus*: a fragment of humerus, one second phalange and a very large straight horncore with an elongated section which can be attributed to a wild male. Three first phalanges of the sheep family are larger in size compared to the others and could perhaps belong to the wild sheep, *Ovis orientalis*.

According to the classification by stratigraphical units, the proportions of species are the same in the different layers (Fig. 2), the only exception being layers A4 and B1d. But the very low number of remains (73 and 65 identified bones respectively) makes this difference non-significant. The relative frequencies of sheep and goats are always high: more than 40% of the total. The ratio between the two species changes from 4.5:1 to 0.4:1. The frequencies of equids are between 33 and 44%. The proportion of cattle varies from 0.8 to 5%. In all the layers, except layer A3 (14%) the frequencies of gazelles fall under 5%. Pit 88 differs: the equid remains are not as numerous (5.6%) and the gazelle frequencies are much higher (27%).

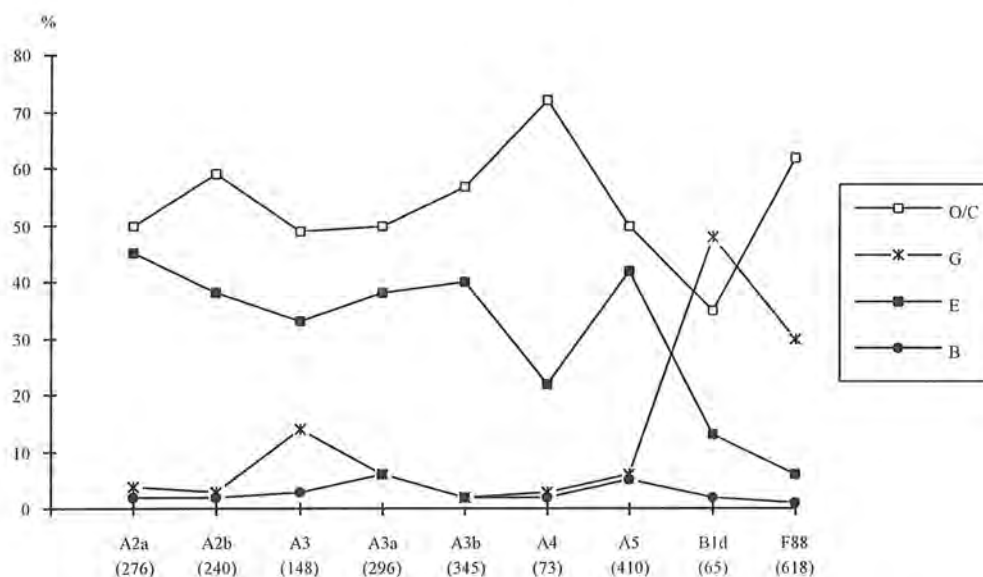


Figure 2. Comparison of species frequencies between the different stratigraphic units and Pit 88. (OC= sheep and goats; G= gazelle; E= equids; C= cattle. In brackets: number of identified bones).

The Equid remains

The specific identification of the equids was an important part of this analysis. According to recent research (Ducos, 1970; 1975; 1986; Uerpman, 1986; 1991), the geographical distribution of wild ass was spread throughout South-West Asia. At the end of the IVth millennium, late Uruk period, asses are found at the site of Uruk (Uruk IV) in Iraq (Boessneck et al. 1984). In the same period, they have been identified by the size of the bones in Iraq, at Tell Rubeidheh (Payne, 1988), in Syria at Habuba Kebira (Ziegler, manuscript), in Turkey at Hassek Hüyük (Stahl, 1989) and Arslantepe (Bökönyi, 1983). Distinguishing between donkeys and onagers is a difficulty which faces every archaeozoologist working in the Near East. According to work done on the teeth (Eisenmann, 1976; 1980; 1981) and the morphological and morphometrical characteristics described by some authors (Boessneck and Kokabi, 1981; Boessneck, 1987; Uerpman, 1986; 1991) as well as those spotted using the comparative collection of modern specimens (Paris, Berlin, Genève; Vila, in print), it would seem that the two species appear in the material found at El Kowm. Of the 738 equid remains, 23 bones could be identified as donkeys, 35 as onagers. The ratio between these animals is nearly two donkeys for every three onagers.

The large size of most remains which probably originate from donkeys, could indicate that one is dealing with wild asses. A metacarpus III with the robust index of a donkey (13.5) is a good example of this possibility. According to the comparative data, the average of this index in domestic donkeys (*Equus asinus*) is 13.7; in wild ass (*Equus africanus*) it is 13.5; whereas in onagers, the average is 12. The metacarpus from El Kowm overlaps the distribution of the domestic ones from archaeological sites (Fig. 3). It is comparable to those from wild asses.

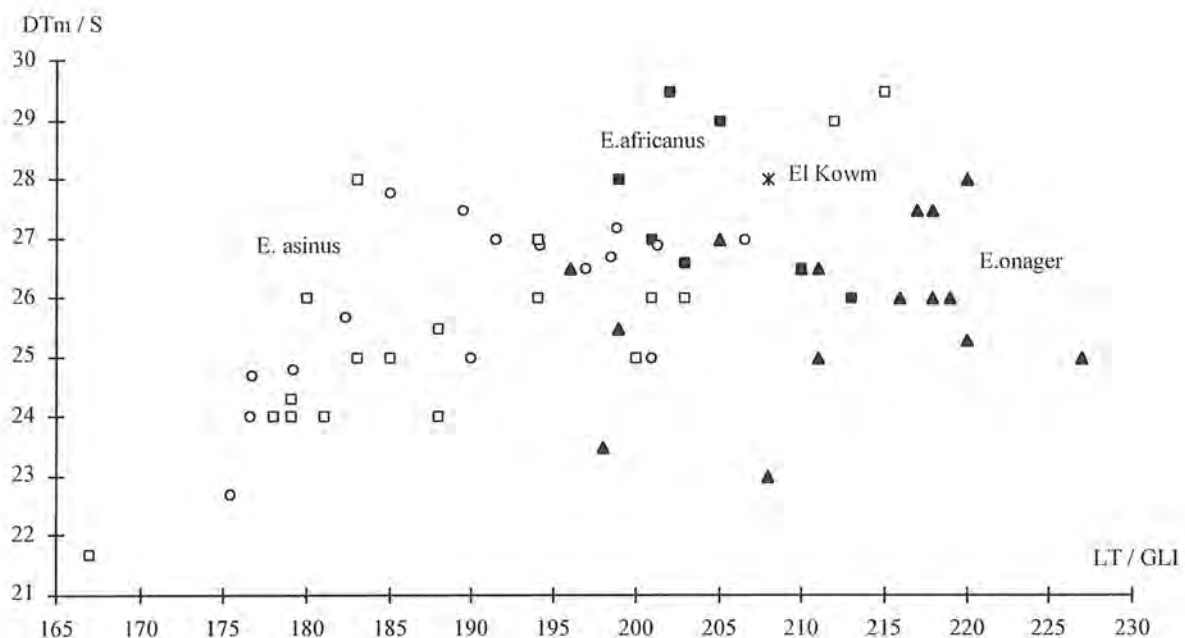


Figure 3 : Scatter-diagram of the metacarpus III of equids (SD/GLI).

E. onager: black triangles, *E. africanus*: black squares, *E. asinus*: square (modern) and circle (some hybrides ?); Tell Chuera, Halawa, Tell Razuq, Tell Abu Salabikh, Tell Madhhur, Hadidi, El Qitar, Tell-es-Sweyhat. (Data from Eisenmann and Bekouche, 1986; Buitenhuis, 1991; von den Driesch and Boessneck, 1989; Clutton-Brock, 1986; Boessneck, 1987).

Age distribution

Age estimates were made on the one hand by looking at the epiphyseal fusion of the post-cranial bones; this method takes a large number of remains into consideration but is not very precise. On the other hand, ages were also identified using tooth eruption and wear, and based on the different heights of the teeth (Gromova, 1952; Levine, 1982). It is possible to classify the teeth into four relative age groups, using the initial height of the crown divided in four parts. The wear of a tooth, till a quarter of its original length, irrespective of its place in the tooth row, would indicate that the equid is in the age range of five to eight years. The wear to the half of the original length would imply an age range of nine to eleven years and the three quarter wear would suggest that the equid is above thirteen years.

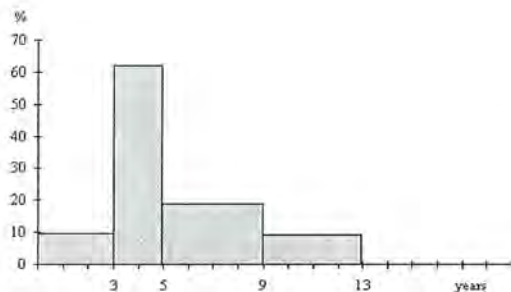


Figure 4. Histogram of age frequencies of equids (all stratigraphic units together: 109 teeth).

This age distribution points to a slaughtering of adults for consumption. It is, however, not the typical age structure characteristic of random hunting, in which case there will be a straight-forward representation of the age in the group of wild animals. That means a greater proportion of individuals in the age class zero to three years and the class older than thirteen years, and less in the class three to five years. One can suppose that the curve at El Kowm exhibits the result of programmed hunting, which tends towards the young adults and preserves the life of juveniles, without any special interest in old animals.

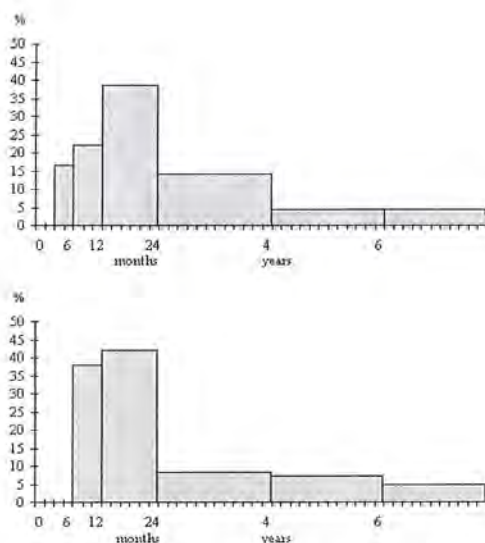


Figure 5. Histogram of age frequencies for sheep and goat (upper: all stratigraphic units together: n=140 teeth; lower: Pit 88 (53 teeth)).

The age estimates were done without any species distinction, because only very few bones could be identified to species.

The histogram of the age structure (Fig. 4) indicates that equids were preferentially killed between three and five years old. The number of young animals is very low and specimens older than thirteen years do not appear. Most equids died when they were adult, between three and nine years old. The teeth which could be attributed to donkey are distributed in the different age classes. The data on epiphyseal fusion show that some bones belong to juveniles (Table. 2).

Sheep and goats

Age distribution for sheep and goat was also done on tooth eruption, height and wear of the crown and by looking at epiphyseal fusion. The use of an index (height/distal breadth of the tooth) has allowed the use of isolated teeth.

The combined sheep and goats curve established for the teeth from the layers (Fig. 5) points to the absence of animals less than two months old. Juveniles younger than one year are not very frequent (15 %). The slaughtering peak appears later between the first and second years of the animal's life. Moreover, many individuals are in the age class of two to four years. Pit 88 yields another curve: Animals younger than six months do not appear; sheep and goats mostly died between the ages of six months and two years (Fig. 5). However some old individuals are present.

The state of epiphyseal fusion shows the presence of mostly adults, but in the layers there are also some bones from very young animals (Table 2).

The age structures, especially in Pit 88, first reflect meat output. Use of secondary products, such as milk or wool seems not to have developed here. This, however, does not mean that the shepherds did not consume milk, but would suggest that they did not have as much need of milk as to kill the lambs and kids for it.

	no epiphyseal fusion				epiphyseal fusion			
Groups	1	2	3	4	1	2	3	4
Ovis/Capra	4	11	1	1	10	16	3	4
Ovis		3	2	4	16	18	3	3
Capra		6	1	2	8	25	3	5
OC/Gazella	17+8*			14	25	15		13
Gazella		1	2			26		
Bos	1		3			3	1	
Equids	6		20		54	18	23	
Canis				1				

Table 2a. Layers (A2, A3,A4,A5,B1d); (* Birth/some months old).

	no epiphyseal fusion				epiphyseal fusion			
Groups	1	2	3	4	1	2	3	4
Ovis/Capra		5	6	1	7	23		3
Ovis			1	6	10	12		5
Capra		2	1	5	8	4	1	3
OC/Gazella	5			23	1	10		4
Gazella	79*				2			
Bos			1					
Equids					2			
Canis	15				1			

Table 2b. Pit 88 (*Birth / some months old).

Table 2. Epiphyseal fusion of bones (the groups are according to Vila, in print).

Gazelles

Age estimates based on epiphyseal fusion indicate that the hunting of gazelles generally targeted adults, except for Pit 88 where a lot of remains of very young gazelles were found (Table. 2, a and b) (Vila, 1991). According to the cranial remains, mandibles and teeth, a minimum of 17 individuals were counted. Every tooth is in the same state of eruption: The gazelles were no more than a few days old (Davis, 1980; Legge and Rowley-Conwy, 1987).

Considering the morphology of the horn cores, it is likely that the species of gazelle present in the Uruk period at El Kowm was *Gazella subgutturosa*. In this species, birth is between March-April (Harrison, 1968; Lange, 1972). An interesting aspect is that the young gazelle, until the age of three months, does not run away from predators, but has the reflex to lie flat on the ground. Consequently, the remains of Pit 88 relate to a spring time hunting operation on a herd of female gazelles with their offspring, and perhaps to the manual capture of those young.

The Uruk site at El Kowm: migratory camp?

The absence of architectural remains at El Kowm is a bit curious. The Uruk culture to which this site undoubtedly belongs (judging by the pottery and other objects), is characterised by the development of the first towns. It seems obvious that El Kowm was not a sedentary site. A more detailed look has been taken of the eastern area. Two juxtaposed types of fills were observed during the excavation, one being mostly sandy (A2a), the second consisting of a succession of ash lenses and layers of clay (A2b). This situation has led to the hypothesis that it could have been two different places separated by a light, thin and perishable wall. The bone remains from these two fills were analysed more precisely in order to find differences between them. The first type (A2a) contains a lot of material: pottery and bone remains. The second one (A2b) is less rich in material. The faunal inventories do not display great differences, but the proportion of equid bones is higher in A2a. The comparison of the size of bones (identified and not identified: $n=2350$) and the observation of their surfaces indicate, that A2b contains much bigger fragments than A2a, and more fragments with a weathered surface. In A2a bones are more burnt and with more concretions on them (Table 3). The Chi square test done on the size of bones shows that this difference is significant (Chi square: 15.68; $\alpha=0.05$; $d=4$).

unit/size	<2	2-4	4-8	8-12	>12	scaled	concretions	burnt	neutral
A2a	55.5	31.8	7.8	3.6	1.3	3.5	5.9	4.0	86.6
A2b	54.7	27.4	11.8	3.8	2.2	10.2		1.5	88.3

Table 3: Layers A2a ($n = 1012$) and A2b ($n = 1338$), size of bones (cm^2) and surface preservation. (n = number of observed fragments).

The spatial distribution of the bone remains by square meter indicates, especially in A2a, a clear concentration of bones at the juxtaposed limit of the two fills (Fig. 6). Such distribution of the bones is entirely different from one from a pit. It could result (particularly in A2a) from an accumulation of bones along a material limit and the pushing aside of remains from the paths. The original hypothesis of the presence of a narrow wall is strongly reinforced by these observations.

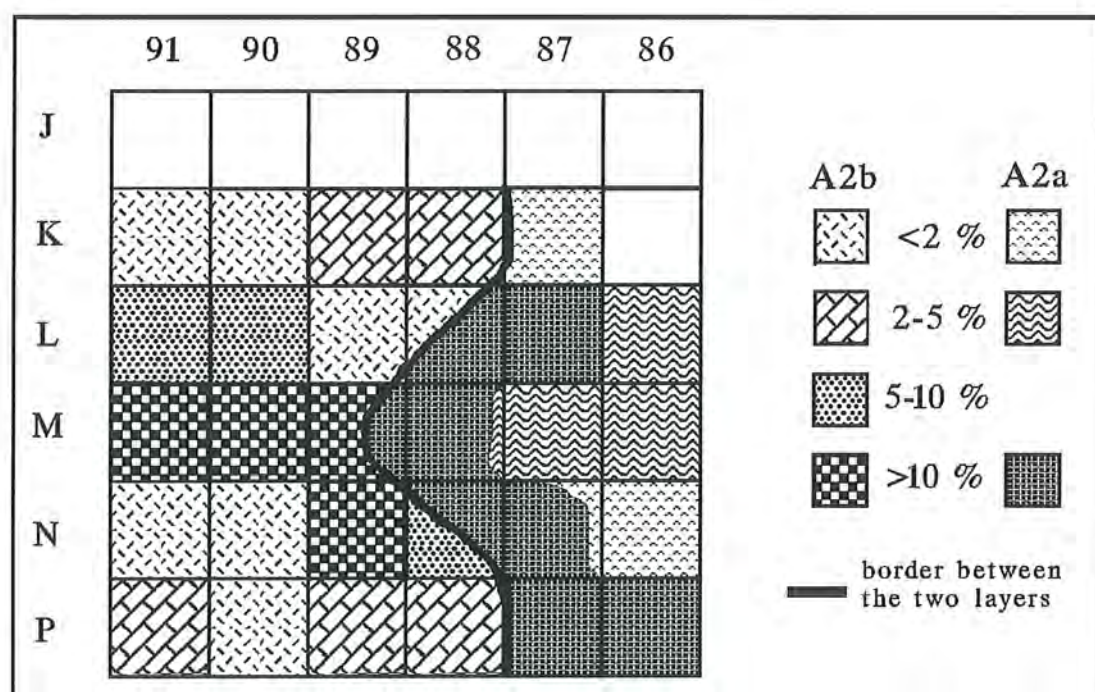


Figure 6. Distribution of bone fragments in layers A2A and A2b (% of bones; square= 1m^2)

Conclusions

Finally, the different aspects of the faunal analysis and of the archaeological record at El Kowm lead to the interpretation of this site as a seasonal settlement in the steppe occupied by migratory shepherds. As a matter of fact, until now, no architectural structure has been excavated, whereas evidence of a light structure (wall of a tent?) has been found. This group of people had pottery and other objects typical of the Uruk culture.

The site's location in a depression is something peculiar because it is one of the few known examples of Uruk settlements in the steppes. However, the very well developed agricultural activity and the practice of intensive sheep and goat husbandry during the Uruk period imply the movement of herds and flocks. It is likely that in El Kowm we are dealing with a group of shepherds coming from sedentary sites on the edge of the Euphrates, such as Tell Sheikh Hassan, Habuba Kebira or Jebel Aruda, who in the springtime, judging by the remains of gazelles, might have migrated southwards.

The depression offers propitious surroundings indeed for shepherds to make a halt because of the water resources and many attractive deposits such as flint, salt and bitumen. But it is perhaps not the only attraction of this place, as there are also other such deposits and resources along the Euphrates. One wonders whether the hunting activity, strongly oriented toward equids, does not hide another interest beyond the quest for meat, particularly at this period when donkeys appear at various sites in Mesopotamia and Turkey.

The hypothesis I would like to present is therefore as follows: The scarcity of bones of juvenile equids could mean that only adult wild ass and onagers were hunted and slaughtered for food, while the young individuals were kept alive, captured to be tamed. The fact is, that the distribution of wild ass was not only located in Africa but had also spread into Asia. According to the newly found remains of probably domestic donkeys at the end of the fourth millenium in the Near Eastern region, which are seemingly contemporaneous with the ones in North Africa (Maadi 3500 bc, Bökönyi, 1985), it is justified to consider again the question of its origins and domestication. A reason to explore the possibility of the domestication of the donkey in the Near East, if it was living there in the wild, stems from the notion of the "zeal for domestication of the *wild* by man" (Digart, 1990): It has actually been established that many plants (cereals and legumines) and animals (goat, sheep, cattle and pig) were domesticated in this area since the VIIIth millennium. That did not happen in other regions even though the same wild species were living there. So, from the beginning, the local potential of each region in "domesticable" animals seems to have been exploited only in the Near East. Therefore in this area a special human behaviour developed in the VIIIth millennium, which could not have started in any other socio-cultural context (Cauvin, 1992). The domestication of the ass could be the logical consequence of this behaviour.

The question is if and how one can verify such a hypothesis. By its location the depression of El Kowm, which favoured the hunting and capture of wild asses, could have been one of the motives behind their domestication.

Another important fact is that, besides Tepe Farukhabad (Redding, 1981) in Iran and Umm Qseir (Zeder, 1994) in North-Syria, El Kowm is the only known site of this period which has such a high percentage of equids. At Tepe Farukhabad, there is between 16 and 27 % of equid remains and an emphasis on gazelle hunting in the Early and Middle Uruk period. Unfortunately, the relative frequencies are counted on a very low number of identified bones (98 for the Early Uruk and 232 for the Middle Uruk). The equids are not specifically determined and, as no measurements are published, it is impossible to know whether asses appear in this material. The site of Umm Qseir is comparable to El Kowm. It would also seem to be a temporary settlement, characterised by a fauna where the animals are mostly wild: of 500 identified bones, 40% were from gazelles and 26 % from equids, identified by the author as onagers. But neither measurements nor age distribution are given. At those last two sites gazelle hunting plays a greater role than in El Kowm. It would be interesting to interpret those sites and especially the reason of the high frequencies from equids. Umm Qseir for instance could have been a nomadic camp which used its natural environment mainly for food procurement. It

could also have been a camp of inhabitants from a village or a town taking advantage of a migratory halt to hunt and to try to tame animals.

Acknowledgements

I would like to thank Michael Ojake and Jules Pettitt for their kind help in correcting the English version of my manuscript.

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