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## **Survey of the Remains of Mammals Recovered in the Middle Bronze Age Burials at Sidon (Lebanon)**

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The discovery, at Sidon, of a group of burials dated to the Middle Bronze Age – most of which contained animal remains together with human burials – presents a new corpus of funerary offerings and animal sacrifices. The analysis of the animal remains was undertaken in the field at the time of the excavations at Sidon in July 2001. There is little in the way of archaeozoological data on the practices of burying animals and providing food offerings for the dead in the northern Levant and more generally in the Near East; in the southern Levant, however, a larger number of Middle Bronze Age sites have provided data on the animal remains found in burials. For a true understanding of burials and funerary rites it is essential that the animal remains are studied, in addition to and in parallel with the study of the other grave goods found in burials.

Of the three types of burials found in the part of the necropolis of Sidon that has been excavated: simple inhumations, jar burials and burials in constructed graves, it is the last which are the richest in animal remains. Very few such remains accompanied the burials in the sand and the jar burials. Altogether, fifteen burials of the twenty excavated contained skeletal material, mainly of mammals, although some fishbones, some fragments of the plastrons of turtles and tortoises and a few shells that have not yet been positively identified were recovered.

Among the species of mammals identified, only domestic animals are represented. Given the difficulty, in certain cases, of distinguishing the bones of sheep from those of goats, those remains that could not be precisely determined have been placed in the category 'ovi-caprines'. Also, the terms sheep (*Ovis aries*), goat (*Capra hircus*), cow (*Bos taurus*) and pig (*Sus scrofa*) are used generically to describe domestic ovines, caprines, bovines and suiforms. The ovi-caprines, that is the sheep and the goats, were found in quantity, whereas the bovines and the pigs were far less numerous. No wild species were found, except for one bone of a small carnivore, which can probably be attributed to a mustelid.

Cutmarks were found on some of the bones. Some were burnt.

## **Inventory of the animal remains in the burials.**

### ***I Simple Inhumations***

Three of the four simple inhumations contained animal remains.

#### Inhumation 3

Only two fragments of animal bone were recovered from this burial: one fragment of the pelvis of a pig with a cutmarks on the edge of the acetabulum and a fragment of the rib of a small mammal.

#### Inhumation 10

Only one fish vertebra was found.

#### Inhumation 26

Some remains were found in the fill of the burial: a tooth, the diaphysis of a humerus, a cervical vertebra of ovi-caprines as well as one phalanx I of an adult goat and three cow bones ( frontal bone, calcaneum and phalanx I of an adult). Three ribs also probably belong to ovi-caprines (these are mentioned in the table under small mammals).In addition, parts of the plastron of a turtle were identified.

### ***II Jar burials***

Four jar burials out of eight contained some skeletal remains of animals.

#### Jar Burial 1

In this inhumation jar, the finds include: bovines – fragments of skull (premaxilla) and hindlimb (patella and metarsal) as well as a thoracic vertebra and a rib; ovi-caprines – a tooth, some radius and metapodial diaphyses, fragments of tibia (from an individual less than two years old), a phalanx with fused epiphyses (from an individual more than two years old), as well as a vertebra and a rib. The phalanx could be identified as belonging to an adult goat.

In addition, a fragment of a bivalve was present.

#### Jar Burial 2

A fragment of bovine mandible; a tooth and a fragment of zygomatic bone of ovi-caprines, two goat scapulae – one right and one left from the same individual, a juvenile less than a year old – as well as some elements of tortoise plastron were present in this jar. Many fragments of long bones of ovi-caprines have remained undetermined.

#### Jar Burial 8

One sole root of a tooth of an ovi-caprine was recovered from within this jar.

#### Jar Burial 15

The animal remains in this jar consisted of one fish vertebra only.

### ***III Inhumations in Constructed Graves.***

All of the eight constructed graves excavated yielded animal remains.

#### Constructed Grave 4

The most numerous remains are those of ovi-caprines. The only bones whose articulation could be determined with certainty are those of the right forelimb of a sheep two to four years old. Cutmarks are visible near the proximal head and on the distal trochlea of the humerus and on the medial side of the proximal end of the diaphysis of the radius.

Elements of a left hindlimb of a sheep and of the pelvis, as well as a metatarsal, were also recovered. An axis (2nd cervical vertebra) belongs to a sheep, as does a horn-core, which may be attributed to an ewe. Two lower molars, attributable specifically to sheep, indicate ages of one and two years respectively.

An axis with cutmarks under the odontoid process and on the ventral side of the vertebra, a fragment of mandible as well as some elements of hind extremity have been attributed to goat.

Among the other very fragmentary ovi-caprine remains that could not be precisely determined, are fragments of skulls, elements of the right forelimb of one juvenile (less than one year old) and fragments of left forelimbs: two left scapulae and some fragments of radius of which one, proximal, bears a cutmark on its medial side. Elements of two left hindlimbs (pelvis, femurs, tibia), from one individual less than four years old and from another more than four years old are present; a fragment of pelvis has a cutmark on the ramus of the ilium. One atlas (1st cervical vertebra) among the four present had been cut in two transversally. The vertebral column is represented by numerous cervical, thoracic and lumbar vertebrae. One lumbar vertebra has a cutmark on its ventral face.

To conclude, skeletal elements of at least four ovi-caprines are represented in this burial: one sheep two to four years old (one forelimb interred complete; one hindlimb? one atlas), one goat of indeterminate age (axis, atlas, one hind extremity, one mandible?), one juvenile ovi-caprine under a year old (one complete forelimb placed in the burial? one atlas), one ovi-caprine more than four years old (one hindlimb? one atlas).

Some remains of bovines were recovered: elements of a skull of which the left maxilla with its deciduous teeth and molar 1 with no signs of wear belongs to a juvenile; this maxilla has fine cutmarks above the deciduous molars; an axis, as well as parts of a hindlimb were recovered along with some fragments of hind extremity and a lumbar vertebra. The remains of the hindlimb have their epiphyses fused and belong to an adult. There are thus vestiges of at least two individuals in this burial, one juvenile and one adult.

Elements of a skull, an axis and a fragment of femur are attributable to pig. The axis and the femur are burnt.

Finally, the presence in this burial of a fragment of bivalve and fragments of twelve small gasteropods should be noted.

#### Constructed Grave 5

The only animal remains found in Burial 5 are of ovi-caprines: none of these remains could be positively attributed to sheep, although a certain number have the osteological characteristics of goat. These last include elements of a skull, of right and left forelimbs,

of left hindlimb and of vertebral column. These remains belong to one sole individual. According to estimates of the age of the living animal by the degree of ossification of the epiphyses and by the degree of wear on the teeth, this goat was between two and four years old at the time of its death. Cutmarks are visible on the supraglenoid tubercle of the left scapula, on the antero-proximal part of the left radius and on the trochlea of the right humerus.

There is not a single element that attests to the presence of the right hindlimb. Moreover, the absence of any foot bones (metapodials and phalanges) no doubt indicates that the lower parts of the limbs were cut off below the tarsus and the carpus. It seems that the goat was not interred complete: probably only three limbs were placed in the burial together with the head and the vertebral column.

#### Constructed Grave 7

Two goat bones – one tibia and one phalanx – were recovered from Burial 7 as well as some bones from the extremities of bovines: a metacarpal, a talus and two phalanges. Butchering marks are visible on one phalanx and on the bovine talus, on which last the marks of a knife and an axe can be distinguished.

#### Constructed Grave 9

In Burial 9 some remains of ovi-caprines were found: parts of fore- and hindlimbs as well as some teeth (of an individual two to four years old) and some vertebrae, of which an atlas could be identified. A fragment of tibia and a vertebra of bovines were also recovered. The presence of a cuttlefish bone should also be noted.

#### Constructed Grave 12

The complete skeleton of a goat had been interred in Burial 12: all parts of the skeleton are present, the skull, the vertebral column, the limbs and their extremities. Judging by the degree of fusion of the epiphyses, the goat was one to two years old. No cutmarks are visible on the surface of the bones.

Also found were: one diaphysis of a radius, apparently of a bovine, as well as the distal end of a sheep humerus which has traces of a circular cut round the diaphysis.

#### Constructed Grave 13

Aside from one upper molar of a bovine, the animal remains in this burial are of ovi-caprines. Two half mandibles, elements of fore- and hindlimb as well as thoracic vertebrae all belong to an ovi-caprine nine to twelve months old.

#### Constructed Grave 16

One metacarpal of a pig (adult), a phalanx I and an axis of ovi-caprine, as well as one fish vertebra were found in this burial.

#### Constructed Grave 19

One mandible of a pig (adult) and a mandible of a fish were recovered from this burial.

### **Species of Animals Selected for Offering in the Burials at Sidon**

Among the species of animals which were found in the burials, it is useful to distinguish between those species that were common locally and that were intentionally placed in the burials and those which were accidentally buried in the sediment, such as rare or exotic imported species. These distinctions have been categorized by Liora K. Horwitz (2001, 79). It is also useful to make a distinction between partial offerings and an ‘integral’ offering of a complete animal (Vila, forthcoming).

The mammals found in funerary contexts consist entirely of domesticated species. Those that occur most frequently are the ovi-caprines, which are present in eleven burials out of fifteen. Bovines are represented in eight burials and pigs in four. Fish remains occur in four contexts, in two of which they appear on their own (Simple Inhumation 10 and Jar Burial 15).

All four domesticated species are found together only once, in Constructed Grave 4, which is particularly well supplied with animal remains. Except for Constructed Graves 5 and 12, in which only ovi-caprines – goats to be precise – were placed, the commonest combination is that of bovines with ovi-caprines. Pigs appears only twice (in Simple Inhumation 3 and in Constructed Grave 19).

The abundance of animal remains is clearly dependent on the type of inhumation. All the species are found in all three types of burials; however, the richest deposits are found in the constructed graves, all of which contain animal remains. It is also in the constructed graves that complete animals were placed (Constructed Grave 12: a goat), or complete limbs as indicated by associations between bones that attest to the presence of complete parts of skeletons (one goat in Constructed Grave 5; some ovi-caprines and one bovine in Constructed Grave 4). These deposits consist first and foremost of ovi-caprines; no complete bovines or pigs were recovered. The only complete limb of a bovine, a forelimb, was placed with other offerings in Constructed Grave 4.

The lack of coherence sometimes found among the recovered remains could indicate that in certain interments one is contending with a mixture of remains buried accidentally and those buried intentionally, difficult to distinguish from one another or separate.

There does not appear to have been a strict selection by age of the sacrificed animals. Juveniles, sub-adults and adults are all found as readily among the ovi-caprines as they are among the bovines.

### **Funerary Butchering, Jointing and Carving**

The cutmarks noted on some of the bones suggest that butchering had taken place before they were interred. Although the purpose of the cuts is not always easy to determine, the marks on the respective parts of the skeleton generally accord with the disarticulation of the limbs, or with the removal of the flesh, or, lastly, with the removal of the skin.

In the category ‘disarticulation of the limbs’, a number of examples may be considered. In Simple Inhumation 3, the cutmarks on the pelvic bone of a pig is the result of the disarticulation of the femur. In Constructed Grave 4, the cutmark on the ventral side of a lumbar vertebra of an ovi-caprine, and in Constructed Grave 9, the mark on the centrum of a bovine vertebra are no doubt the result of the disarticulation of the vertebral column; nonetheless, these marks could also attest to the removal of flesh or even to evisceration. In Multiple Burial 7 the cutmark and axemark on the talus of a bovine indicate the disarticulation of the hind extremity from the limb (fig. 1a).

In the category ‘removal of flesh’ there are several examples of cutmarks of a particular kind: in Constructed Grave 4, the knifemarks on the forelimb of a sheep – on the proximal and on the distal parts of the humerus and on the proximal part of the radius; in the same grave, the cutmarks on the ramus of the ilium from the pelvis of an ovi-caprine and on the proximal part of another radius of an ovi-caprine; in Constructed Grave 5, this same type of cut is attested on the trochlea of the humerus and on the proximal part of the radius of the goat, as well as on the supraglenoid tubercle of the scapula; in Constructed Grave 12, the cut encircles the diaphysis of the humerus of a sheep (fig. 1c).

In the category ‘removal of the skin’ there are two examples: one in Group Burial 7, a cutmark on a bovine phalanx II, the other in Constructed Grave 4, some cutmarks on a bovine maxilla (fig. 1b).

On the other hand, the cutmarks on the ventral side of the neural spine and centrum of the axis of a goat from Constructed Grave 4 may attest to the slitting of its throat (fig. 1d).

Finally, the marks of burning on a proximal metacarpal of a sheep and on a femur and an axis of pig in Constructed Grave 4 are somewhat enigmatic. Are these indications of cooking and evidence of roasting?

The presence of marks of butchering raises the question of the form in which the parts of the skeletons were placed in the burials. It is certain, in at least two examples, that the entire animal, or very nearly the entire animal, was deposited as a sacrifice to the deceased, as in Constructed Graves 5 and 12. On the other hand, in other cases, when it is a matter of limbs that were placed in the graves still articulated but bearing cutmarks, as in Constructed Graves 4 and 5, one may well wonder whether some flesh had not been removed. In that case the remains could as well represent the residue of a funeral repast eaten by the living as food offerings for the dead. To return to isolated bones and fragments, they probably represent offerings of small portions of meat.

It should be noted that in the burials at Sidon, the goat is the only animal to have been placed in a burial in its entirety. The other species are represented only by quarters or by isolated bones or fragments. There would thus have been two different funerary rites. The first involves the sacrifice of an animal to the deceased, the goat being preferentially selected and its meat not eaten by the living: this rite was evidently uncommon. In the second the animals were sacrificed, cut into quarters and into portions of which some

were placed in the burial and others apparently consumed elsewhere: this rite occurs more frequently, is more complex and is more difficult to understand.

### **Funerary Offerings of Animals in Middle Bronze Age Burials in the Levant**

As yet there have not been very many archaeozoological studies of the funerary assemblages of the Middle Bronze Age in the Levant. Most of the comparative data are from the southern Levant, where recent work on excavated material has taken into account the skeletal remains of animals found in burials, cf. Horwitz (2001).

The site nearest to Sidon, Tel Dan, has provided an assemblage of animals from infant burials in jars and from constructed graves (Horwitz 1996). The jar burials, like those at Sidon, are the poorest in animal remains, whereas the constructed graves contain larger numbers of remains and above all a greater variety of species. At Tel Dan, in fact, the range of fauna recovered from the burials is greater than that at Sidon. Wild species such as fallow deer, red deer, gazelles, lions and birds appear in addition to the domesticated species sheep, goat, pig and cow. In the burials at Tel Dan none of the skeletal remains are articulated with one exception, the post-cranial skeleton of a young goat found in a jar (burial 8096). In all the other examples, the skeletal remains are of isolated bones and come from all parts of the skeleton. A few bear cutmarks, mainly on the bones of the hind extremities, but also on the proximal part of a humerus and on the diaphysis of an ovi-caprine ulna. Juvenile and adult ovi-caprines and bovines appear to be represented in equal numbers. Most of the remains of pigs, on the other hand, are of immature animals.

At Sasa, two Middle Bronze Age burials (BM II A/B and BM II A/C) have provided animal remains (Horwitz 1987). These consist entirely of domesticated species: sheep, goat, cow and pig; there are also some fish. No complete skeletons were found within the burials. Some of the bones, however, display articular associations and it is probable that complete limbs were placed in the burials. At Djebel Qa'aqir, the animal remains found in nine burials out of sixteen are mostly of sheep and goats; one sole bovine bone was identified, and a fragment of the antler of a fallow deer (Horwitz 1987). No remains of pig were found in these burials.

At Hazor, the bones of ovi-caprines, and particularly those of sheep, predominate among the remains recovered from a Middle Bronze Age burial (BM II) (Horwitz 1997). All the remains are from individuals sacrificed when they were two to three years old. The parts of the skeleton that occur most frequently are the bones of the forelimb and the vertebrae. The extremities, the hindlimb and the skull are considerably less well represented. It seems that the fleshiest parts were preferentially selected.

At Jericho, the twenty-three Middle Bronze Age burials contained animal remains consisting mainly of ovi-caprines, probably mainly sheep, as well as remains of birds and equids (Grosvenor-Ellis and Westely 1965). Pigs appear to be absent. It is thus in the Middle Bronze Age that equids, which appear to be absent in Early Bronze Age burials, emerge in funerary contexts. Fifteen individuals in all were found in nine burials dated to

Middle Bronze II (Grosvenor-Ellis 1960). As only one individual has been described (burial J3), it is impossible to say whether the other skeletons were preserved in their entirety.

Instances of the interment of equids – horses or asses – in association with human burials are fairly numerous in the southern Levant in the Middle Bronze Age, cf. Wapnish (1977). In general the complete animals were placed in the burials. This represents a type of funerary rite different from that in which food offerings were deposited when, with a few exceptions, only parts of the skeletons are found.

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Archaeozoological studies have shown that, in the Middle Bronze Age, it is deposits and sacrifices of ovi-caprines that are found most frequently in burials. The ovi-caprines, the sheep and the goats, are thus *par excellence* the species connected with funerary rites (Horwitz 1996; 2001).

## Conclusion

Very little is known about funerary rites in the Ancient Near East. Although sacrifices of animals on the occasion of important events, very often religious ones, or as offerings to the gods are sometimes described in ancient texts (Borowski 2002), sacrificial rites relating to death have rarely been touched on in the textual sources. The occasional Mesopotamian text does nonetheless provide some food for thought on the subject. Zarins (1986, 180–81) and Limet (2000, 46–7 and n. 18), have published several Mesopotamian texts that relate equids to human burials. One text that accords with a passage on the death of Gilgamesh – cf. Kramer (1944), cited by Zarins (1986) – indicates that the deceased is accompanied by a certain number of people (sacrifices?), offerings and presents, the latter two categories not being elucidated. Another text on the death of the king Ur Nammu, killed in battle (Kramer (1967) mentions that the dead king offers gifts to the deities of the Netherworld, including offerings of bovines, lambs and fatted sheep; in addition, the text alludes to the fact that his main gift for a warrior called Ningiszida seems to consist of an assortment of asses. Yet another text – cf. Gelb (1979) – contains a list of produce and objects for the funeral rites of a certain Bilalla and his wife Lalla, which largely coincides with the actual finds from the burials at Ur, Kish and in the Hamrin basin, as remarked by Zarins (1986). This text also mentions equids harnessed to a chariot. Likewise, equids (four mules?) are alluded to in a Girsu text that lists objects and other equipment for the funeral of a certain Nin-e-ni-se – cf. Steinkeller (1980), cited by Zarins (1986). These texts are important in that they attest to the interment of equids much as they were recovered from burials of the end of the third millennium BC. Moreover, they give a reason for this practice: they would have been offerings to the divinities who lived in the earth. On the other hand, there is no explicit mention in the texts, so far as is known, of food offerings – that is of the fleshy parts of animals – nor is anything said about the selection of animals or the disjuncting and further subdivision of their carcasses. Animal sacrifice is not attested at Mari in the context of burial rites or mourning rituals (Lafont 1999, 66). At Lagash, on the other hand, there

were sacrifices of sheep, lambs and bovines in the rituals connected to repasts for the dead (Rosengarten 1960, 305 ff). However, these sacrifices do not, according to this study, appear to have taken place at the time of the funeral, but rather to have been connected to ritual (commemorative?) feasts. Two practices that seem to me to be of particular interest can be extracted from the Mesopotamian example: first, at Lagash one animal – in this case a sheep – may be sacrificed for several people (Rosengarten 1960, 311–312); second, in one instance some of the offerings would have been made in the vicinity of the body of the deceased, while others would have been made elsewhere (Rosengarten 1960, 313). This alludes to the existence of a practice of apportioning the carcasses as has been observed among the funerary offerings from the archaeological contexts; the details of the rituals connected with the latter remain completely unknown.

For all that, the absence in the Levant – so far as is known – of textual sources on funerary rites places severe limits on the interpretation of the archaeological data, while endowing them with enormous significance: for our knowledge of these practices rests entirely on the archaeological evidence. One of the Ugaritic rituals interpreted by Pardee (1996) as a funerary rite for the king, a bird on this occasion being sacrificed to the ancestors, should nonetheless be mentioned. Thus, offerings of animals or of parts of animals should not be omitted from the inventory of the contents of burials, even if these offerings are far from systematic. Indeed, they have an aspect that recurs in the practices linked to the death of individuals of the second millennium along the entire Levantine littoral.

## **Bibliography**

Borowski, O. (2002) Animals in the Religions of Syria-Palestine. Pp. 405-424 in B.J.Collins, *A History of the Animal World in the Ancient Near East*, Brill: Leuven.

Gelb, I.J. (1979) Household and Family in Early Mesopotamia. Pp. 1-97 in E. Lipinski (ed.) *State and Temple Economy in the Ancient Near East* vol. 1. *Orientalia Louvaniensia Analecta* 5. Louvain.

Grosvenor-Ellis, A. (1960) The Equid in the Shaft of Tomb J3, in K.M. Kenyon, (ed.), *Excavations at Jericho I*. British School of Archaeology. Jerusalem, Pp. 535-536.

Grosvenor-Ellis A. and Westely, B. (1965) Appendices J and K. Pp. 694-701 in K.M. Kenyon (ed.), *Excavations at Jericho II*. British School of Archaeology. Jerusalem.

Horwitz, L. K (1987) Animal Offerings from Two Middle Bronze Age Tombs. *Israel Exploration Journal* 37, 251-255.

Horwitz, L. K. (1996) Animal Bones from the Middle Bronze Age Tombs at Tel Dan. Pp.268-277 in A. Biran, D. Ilan and R. Greenberg (eds.) *Dan I*. Annual of the Nelson Glueck School of Biblical Archaeology. Jerusalem.

Horwitz, L. K. (1997) The Animal Bone Assemblage from the Middle Bronze II Tomb (T1181, Area L) at Hazor. Pp. 344-347 in A. Ben-Tor, R. Bonfil, Y Garfinkel et al. (eds.) *Hazor V*. Jerusalem.

Horwitz, L. K. (2001) Animal Offerings in the Middle Bronze Age: Food for the Gods, Food for Thought. *Palestine Exploration Quarterly* 133, 78-90.

Lafont, B. (1999) Sacrifices et rituels à Mari et dans la Bible. *Revue d'assyriologie et d'archéologie orientale* XCIII/1, 57-77.

Limet, H. (1999) Le contenu archéozoologique des tombes « royales » d'Ur: Réflexions sur son interprétation. Pp. 41-61 in L. Bodson (ed.): *Ces animaux que l'homme choisit d'inhumer: Contribution à l'étude de la place et du rôle de l'animal dans les rites funéraires*, Colloques d'histoire des connaissances zoologiques 11. Journée d'étude. Université de Liège, 20 mars 1999. Liège.

Pardee D. (1996) Marzihu, Kispu, and the Ugaritic Funerary Cult: A Minimalist View. Pp. 237-287 in *Ugarit, Religion and Culture*. Proceedings of the International Colloquium on Ugarit, Religion and Culture, Edinburgh, July 1994. Essays Presented in Honour of Professor John C.L. Gibson. UBL 12. Ugarit-Verlag: Münster.

Rosengarten, Y. (1960) *Le concept sumérien de consommation dans la vie économique et religieuse: Etude linguistique et sociale d'après les textes présargoniques de Lagash*, Edition E. De Boccard: Paris.

Vila, E. (forthcoming) Offrandes animales dans les tombes de la nécropole de Abu Hamad sur les piémonts du Bischri (Syrie, 3e millénaire av. J.-C., Bronze ancien), in C. Falb, K. Kraznik, J.-W. Meyer and E. Vila (eds.) *Das Gräberfeld von Abu Hamed (Syrien)*. Archäologisches Institut. Frankfurt am Main.

Wapnish, P. (1997) Middle Bronze Equid Burials at Tell Jemmeh and a Reexamination of a Purportedly "Hyksos" Practice. Pp. 335-367 in E.D. Oren (ed.) *The Hyksos: New Historical and Archaeological Perspectives*. University Museum Monograph 96, University Museum Symposium Series 8. University of Pennsylvania. Philadelphia.

Zarins, J. (1986) Equids Associated with Human Burials in Third Millenium B.C. Mesopotamia: Two Complementary Facets. Pp.164-193 in R.H. Meadow and H.P. Uerpmann, *Equids in the Ancient World I*. Beihefte zum Tübinger Atlas des Vorderen Orients A.19/1. Wiesbaden.

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## Constructed Grave 5

		right	left	fragments	epiphyses unfused	Total Number of Finds				
						OC	Ovis	Capra	Bos	Sus
<i>CAPRA</i> skull frontlimb     hindlimb	frontal bone	horn-core		1	3					1 female
	scapula		1	1						2
	humerus	complete	1			1				1
	humerus	proximal		1		1				1
	radius	complete		1		1				1
	carpal	semilunaire		1						1
	tibia	distal		1						1
	talus			1						1
<i>OVIS/CAPRA</i> skull       axial skeleton	frontal bone	orbit			1					1
	zygomatic bone				2					2
	petrous part of temporal bone				1					1
	temporal bone				3					3
	skull				6					6
	teeth	upper		4						4
	mandible		1	1						2
	cervical vertebra ?					1				1
	thoracic vertebra					6				6
	lumbar vertebra					4				4
sacrum					1				1	
<b>Total Number of Finds</b>						<b>26</b>				<b>9</b>
<i>indeterminate fragments</i>	ribs of small mammals				45					
<b>Fish</b>	7 fragments									

## Multiple Burial 7

		right	left	fragments	epiphyses unfused	Total					
						OC	Ovis	Capra	Bos	Sus	
<i>CAPRA</i> hindlimb hind extremity	tibia	distal	1							1	
	phalanx II				1					1	
<i>OVIS/CAPRA</i> <i>indeterminate fragments</i>	rib				1						
<i>BOS</i> frontlimb hindlimb hind extremity	metacarpal	distal	1							1	
	talus		1							1	
	phalanx I	anterior								1	
	phalanx II	anterior								1	
<b>Total Number of Finds</b>										<b>2</b>	<b>4</b>

## Jar Burial 8

		right	left	fragments	epiphyses unfused	Total				
						OC	Ovis	Capra	Bos	Sus
<i>OVIS/CAPRA</i> skull	tooth				1					1
<b>Total Number of Finds</b>						<b>1</b>				

## Constructed Grave 9

		right	left	fragments	<i>epiphyses unfused</i>	Total				
						OC	Ovis	Capra	Bos	Sus
<b><i>OVIS/CAPRA</i></b>										
<i>skull</i>	teeth	lower	1	1			2			
<i>frontlimb</i>	scapula		1			1				
	radius	diaphysis	1	1		2				
<i>hindlimb</i>	tibia	diaphysis				1				
<i>axial skeleton</i>	atlas				1	1				
	thoracic vertebra				1	1				
	ribs				3					
<b><i>BOS/Large Mammals</i></b>										
<i>hindlimb</i>	tibia	proximal				1				1 ?
<i>axial skeleton</i>	vertebra				1	1				1 ?
<i>indeterminate fragments</i>					3					
<b><i>Total Number of Finds</i></b>						<b>6</b>	<b>2</b>			<b>2 ?</b>
<b><i>cuttlefish bone</i></b>	1 fragment									

## Simple Inhumation 10

<b><i>Fish</i></b>	1 vertebra
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## Constructed Grave 12

		right	left	fragments	epiphyses unfused	Total					
						OC	Ovis	Capra	Bos	Sus	
<b>CAPRA</b>	<i>skull</i>										
		mandible	1	1						2	
		maxilla	1	1						2	
	<i>frontlimb</i>		scapula			2					2
			scapula			2					2
			humerus proximal			1	1				1
			humerus distal	1							1
			ulna	1							1
			radius distal	1	1		2				2
			radius proximal	1							1
			carpal			6					6
	<i>hindlimb</i>		pelvis ilium			1					1
			pelvis acetabulum			1					1
			femur proximal	1			1				1
			femur distal	1		3	4				4
			femur diaphysis			1					1
			tibia proximal			2	2				2
			tibia distal	1			1				1
			tibia diaphysis			1					1
			malleolus			1					1
			tarsal	4							4
	<i>hind extremity</i>		metacarpal complete	1	1		2				2
			metatarsal proximal	1	1						2
			metatarsal distal				1				1
			metapodial distal				1				1
			phalanx I complete				6				6
			phalanx I proximal				4				4
			phalanx I distal			2					2
			phalanx II complete				5				5
			phalanx II proximal				1				1
			phalanx II distal				1				1
			phalanx III			8					8
			sesamoid bone			6					6
<i>axial skeleton</i>			atlas			1					1
			axis			1					1
		cervical vertebrae			4					4	
		thoracic vertebrae			7					7	
		lumbar vertebrae			4					4	
		caudal vertebrae			5					5	
		sacrum			1					1	
		vertebrae			26					26	
		ribs			30					30	
	<b>OVIS</b>										
<i>frontlimb</i>	humerus distal	1								1	
<b>OVIS/CAPRA</b>											
<i>hind extremity</i>	metatarsal distal				1	1					
<b>Bos/Large Mammals</b>											
	radius/ulna diaphysis			1							
<b>Total Number of Finds</b>						<b>1</b>	<b>1</b>	<b>155</b>	<b>1?</b>		
						equals 1 skeleton					
<i>indeterminate fragments</i>		ribs of large mammals			1						
		ribs of small mammals			2						



Figure 1: Sidon, examples of cutmarks on bones recovered from the burials.

a – Multiple Burial 7, bovine talus cut off on the ventral side.

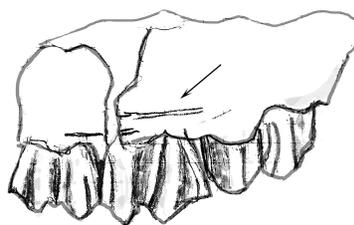
b – Constructed Grave 4, bovine maxilla, cutmarks.

c – Constructed Grave 12, distal end of a humerus of a sheep, caudal view, circular cutmark around the diaphysis.

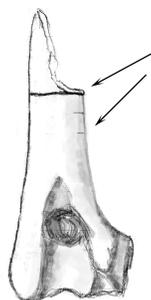
d – Constructed Grave 4, axis of a goat, ventral aspect, cutmarks.



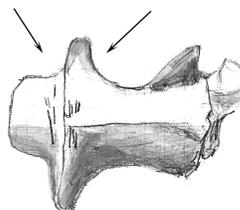
a - Tombe 7, talus de bos tranché sur la partie ventrale.



b - Tombe 4, maxillaire de Bos, traces de découpe.



c - Tombe 12, humérus distal, de mouton vue caudale, découpe circulaire sur la diaphyse



d - Tombe 4, axis de chèvre, face ventrale, traces de découpe

Fig. 1 : Sidon, exemples de traces de découpe sur des ossements récoltés dans des tombes