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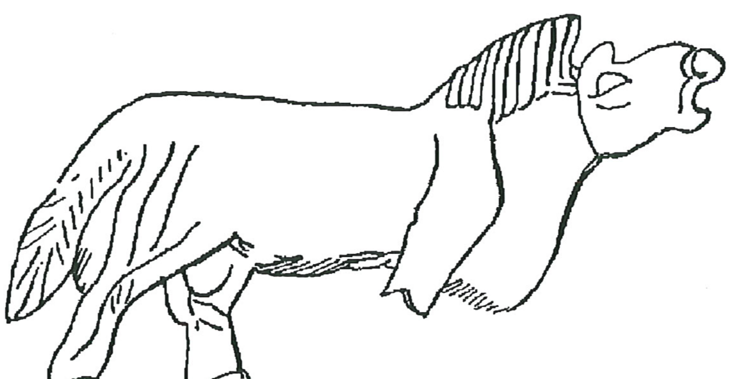

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VOLUME A

CATTLE OFFERING FROM THE TEMPLE OF MONTUHOTEP SANKHKARA (THEBES, EGYPT)

László Bartosiewicz[1]

Abstract

A well preserved right cattle foot from the foundation deposit of the Temple of Montuhotep Sankhkara is indicative of preservation by salting. The paper reviews arguments *pro et contra* this interpretation in the context of the small animal bone assemblage.

Résumé

La bonne conservation d'un pied droit de bœuf dans le dépôt de fondation du temple de Montuhotep à Sankhkara (Thèbes, Égypte) est un indice de conservation au sel. Cet article passe en revue les arguments pour et contre cette interprétation dans le contexte d'assemblages fauniques de petits animaux.

Key Words: Egypt, Cattle, Offering

Mots Clés: Égypte, Boeuf, Offrande

Introduction

Animal domestication, in a much simplified way, may be looked upon as a creation of live reserves of animal protein that have helped to bridge gaps in natural food supplies. Sophisticated meat and milk preservation techniques developed in Antiquity further evened out fluctuations in the availability of precious nutrients. Meat preservation must have been especially important in the case of large bodied, unipara animals of slow reproduction and great utilitarian value, such as cattle which also embodied a multitude of symbolic meanings. The special find under discussion here offers an opportunity to review some important aspects of this problem in 11th Dynasty Egypt.

Find circumstances

The cattle remains discussed in this paper originate from the foundation deposits of the temple of Montuhotep Sankhkara. This building is located 492 m asl on Thoth Hill in an arid, eocene limestone landscape overlooking the Kings' Valley on the West Bank of the Nile at Thebes in Upper Egypt (ca. 85 m asl; Fig. 1).

At this site recent excavations have uncovered a mud-brick temple (the feature under discussion here) built sometime between 2010 and 2003 BC, during the 11th Dynasty, as well as the remains of an archaic stone temple below it (Vörös and Pudleiner, 1997: 284; Fig. 2), both built on a stone ramp. Similarly to his father's famous temple at Deir el-Bahari (Arnold, 1979: 52), when the king founded this mud-brick construction, he had offerings placed, presumably, at all four corners of the building oriented largely toward the east. As is shown by the best preserved NW foundation deposit, stone rubble from the archaic temple had been removed, to form a depression in the corner. The inner surface of the resulting 50-60 cm deep pit was plastered. The contents of the thus prepared sacrificial pits included offering saucers, alabastron-type vessels, and terra-cotta animal figurines.

Bones were best preserved under the temple's the NW corner. The diagonal deposit in the SE had been disturbed, while the presence of animal remains in the remaining two (NE and SW) heavily

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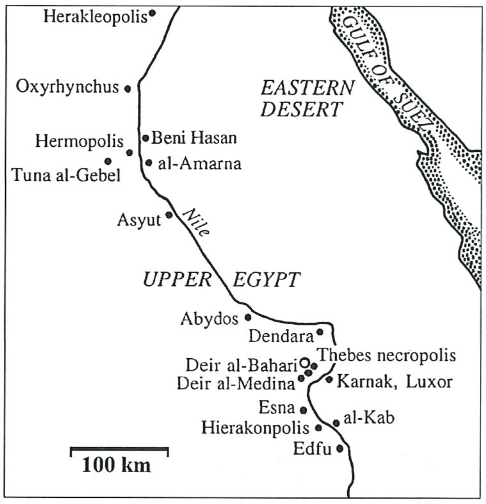

Fig. 1. The location (open circle) of Thoth Hill on the left bank of the Nile in relation to the best known sites in Upper Egypt

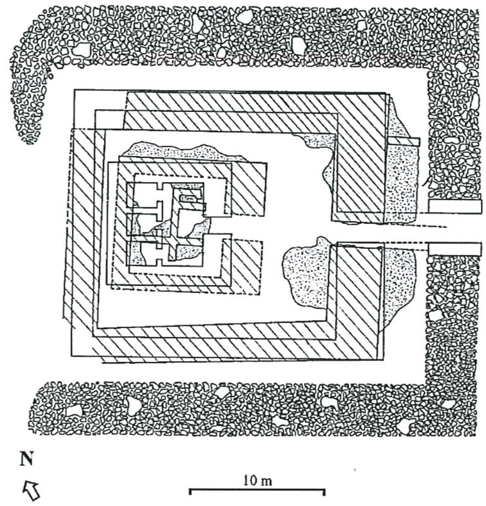

Fig. 2. The ground plan of the 11th Dynasty mud-brick temple (continous outline) built between 2010 and 2003 BC and the archaic stone temple (shaded) on Thoth Hill (stipling indicates the remains of the archaic floor level; redrawn after R. Pudleiner)

damaged corners can only be hypothesized on the basis of quadruple foundation offerings in analogous sacral buildings with rectangular groundplans (Weinstein, 1973: 134). It is worth mentioning, however, that of the votive animal figurines found in all four corners of the temple, two originated from each of the better preserved NW and SE deposits, while only single specimens came to light in the NE and SW corners respectively.

Taphonomic observations

Of all provenances containing faunal remains at this site, only two (the NW and SE foundation deposits) may be considered closed features. The rest were either disturbed by robbing or contaminated and damaged by weathering and trampling following the exposure of deposits. Differential preservation resulting from selective taphonomic processes, may be clearly seen in the upper and lower portions of the foundation deposit in the temple's SE corner. Some bones in this feature must have been, at least temporarily, exposed to the elements (which at this location means broad oscillations in daily temperatures). Their bones cracked, producing bleached, chalk-like and often scaly surfaces. Their complex taphonomic histories may even have included pre-depositional cooking that would have made the bone less resistant. The other extreme is represented by the completely preserved cattle foot in the closed NW deposit. Even the dried soft tissues of this specimen remained intact and the organic, gluey smell was noticeable during analysis.

Chemical analyses (Csapó *et al.*, 1998) have shown an unusually high concentration of salt (NaCl) in this latter find. Since this phenomenon is of utmost importance regarding the conclusions from this find, the possible natural source behind this observation had to be considered. Although no soil samples were available for analysis from this deposit, high salt concentration has been identified as an anthropogenic phenomenon on the basis of indirect evidence:

1. As a result of hydrodynamic activity, salination is known to develop in low lying desert areas (e. g. Bökönyi and Bartosiewicz, in this volume). In hilltop locations, however, leaching is expected to be more characteristic.
2. In spite of the presence of bones from several animals, no other soft tissue survived in the same deposit. The probability of selective preservation for untreated cattle feet is very small.

3. Similarly small is the statistical probability of natural salt accumulation in this find reaching exactly a level comparable to concentrations in present-day cured meat products (in this case minimal natural leaching, a logical possibility in desert environments, is hypothesized).

Material and method

Of the 43 animal bones recovered at this site, 37 originated from foundation deposits. Within this latter group, 21 bones belonged to cattle, while 3 could only be identified as remains of ungulates within the same size range. The fact that cattle remains dominate in the faunal material both in a quantitative and a qualitative sense is not a surprise in and of itself, since bovine sacrifice is known to have been a common form of food offering in the Old and Middle Kingdoms (Weinstein, 1973, 134). Individual animal bones are listed in the Appendix to this paper. This is all the more important since (with the exception of a small sample for chemical analyses) animal remains could neither be exported nor saved with the "proper" archaeological finds from this site. Measurements were taken following international standards (von den Driesch, 1976).

Cattle (*Bos taurus* L. 1758)

Cattle bones from various body regions are summarized in Table 1 by deposits. Underlined figures in this table indicate articulated bones from the same individual within the deposit.

The most spectacular find undoubtedly was the spontaneously mummified, complete right front foot that came to light from the best preserved, NW deposit (Fig. 3). It belonged to a gracile individual (a heifer, in all probability). On the basis of the incomplete epiphyseal fusion of the metacarpus, this animal was at most 2.5 years old by modern standards (Schmid, 1972: 75, Table IX). Due to this tender age, the measurements taken even on the distally located extremity bones of the subadult animal only indirectly characterize its phenotype (Bartosiewicz, 1984: 254). It is unlikely that the relatively robust carpal bone (*os carpi intermedium*) found here would have belonged to this same individual. Moreover, the mummified foot was cut off distally from the proximal end of the metacarpus, so that this important connecting piece is missing. The carpal joint may either have been severed at once, using a sharp knife, or carefully dismembered by disarticulating the joint with smaller cuts.

Table 1. The anatomical distribution of cattle bones in foundation deposits

Skeletal element	NW	SE	SE	disturbed
mandibular tooth		2		
corpus mandibulae		1		
thoracic vertebra			1	
lumbar vertebra	1			
rib fragment				1?
humerus			1	
carpal bone	1			
metacarpus	<u>1</u>+1	<u>1</u>		
phalanx proximalis, anterior	<u>2</u>	<u>1</u>+1		
phalanx media, anterior	<u>2</u>	<u>1</u>		
phalanx distalis, anterior	<u>2</u>			
femur			1	
metatarsus (worked)			1	
long bone splinter				1?
flat bone fragment				1?
Total	**10**	**7**	**4**	**3?**

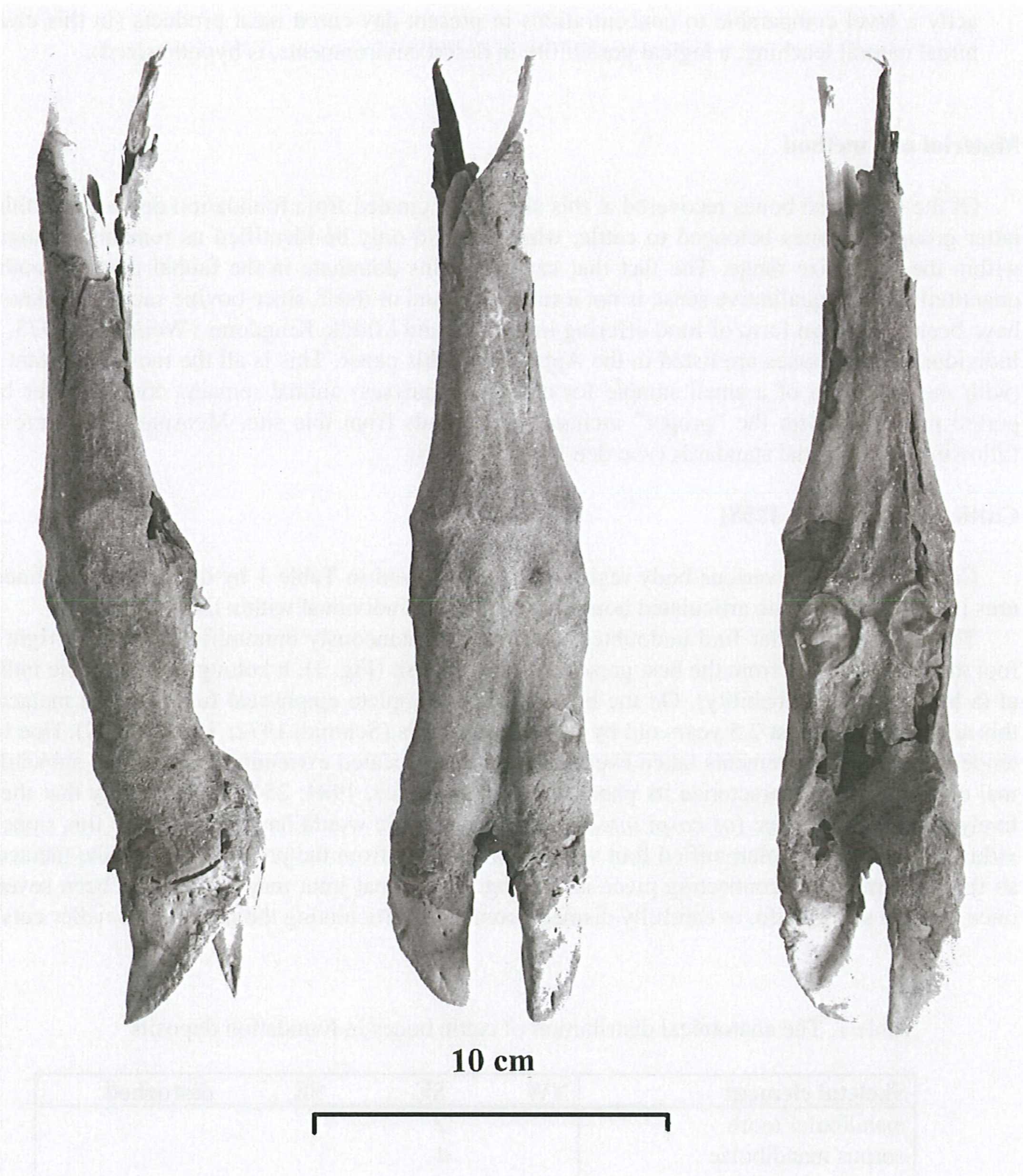

Fig. 3. The medial (left), dorsal (middle) and palmar (right) aspects of the well-preserved cattle foot found in the NW deposit (Photo K. Kozma)

Bones from the right front foot of another, very similar but somewhat larger animal were found in the relatively intact, deeper portion of the foundation deposit in the SE corner (No. 1). The medial toe was, however, missing and only a fingernail-sized piece of dried hide was preserved on the remaining proximal phalanx (Fig. 4, left). The proximal epiphysis of this bone was only partially fused, and the distal epiphysis of the metacarpus had actually fallen off. This animal may thus have been only at most a few months younger than the previously discussed cattle (c.a. 2 years old).

Table 2. The mesurements of cattle bones found in the foundation deposits

Measurement, mm	NW		SE No. 1	SE No. 2
Metacarpus	*right*		*right*	*right*
SD	24.5			-
smallest depth	17.4		-	-
Bd	49.3		55.0	-
medial trochlea breadth	24.0		25.7	-
Dd	28.7		29.8	-
Phalanx proximalis	*lateral*	*medial*	*lateral*	*anterior lateral*
GL	55.0	54.8	56.5	66.5
GL (abaxial)	52.8	52.2	56.1	64.6
Bp	24.1	25.2	27.3	34.2
Dp	27.9	26.8	27.1	35.9
SD	21.8	21.8	21.9	28.9
smallest depth	16.1	16.1	18.1	20.3
Bd	24.1	24.9	25.4	31.9
Dd	18.9	19.1	21.4	23.2
Phalanx media	*lateral*	*medial*	*lateral*	
GL	36.1	36.8	37.2	-
GL (abaxial)	36.1	36.1	37.0	-
Bp	25.4	21.9	26.0	-
Dp	24.1	24.9	26.5	-
SD	19.9	20.0	21.2	-
smallest depth	18.9	19.5	22.1	-
Bd	21.2	21.1	22.9	-
Dd	23.2	24.9	29.0	-

The same, deeper section of the deposit also contained a right and a left cheektooth from a third animal, as well as a small mandible fragment, all originating from (an) adult individual(s). Cattle remains found in the mixed, upper portion of this deposit included another proximal phalanx (No. 2: Fig. 4, middle) which, however, originates from a larger, most probably adult individual (early fusing phalanges permit only *terminus post quem* aging).

The small distal right humerus fragment (Fig. 4, right), and two associated diaphysis splinters from this deposit also represent an older animal. A thoracic vertebra with unfused cranial articular surface may be attributed to adult cattle as well, since these bones fuse only at a mature age. As opposed to the bones of the feet, these larger bones were more poorly preserved and had scaly, white surfaces indicative of extensive weathering.

Other animals

Goat (*Capra hircus* L. 1758) was unambiguously represented by a relatively broad centrotarsal bone in the northwestern (NW) foundation deposit. The proximal articular surface of this bone had been damaged by a transversal cut, while its measurable, distal surface was 27.1 mm broad. The robusticity of this bone can be better appreciated in light of the 23 mm greatest breadth of a similar bone from Elephantine, representing the time of the 5/6th Dynasty (Boessneck and von den Driesch, 1982: 20). Nevertheless, this bone is still too small to have originated from ibex, well known from Egyptian iconography.

Sheep/goat (subfamily: Caprinae Gill 1872) bones, not identifiable to species, included the *processus transversus* of a lumbar vertebra in the NW deposit and a *processus jugularis* fragment from the skull that came to light from the less disturbed, lower portion of the SE foundation deposit. The mixed layer above this deposit also contained a weathered frontal bone fragment that could have

Fig. 4. Lateral views of the right proximal anterior phalanges found in the SE deposit (No. 1 left, No. 2 right) and medial aspect of the distal right humerus fragment (right) with poorly preserved surface found in the upper, disturbed layer of the same deposit. Note the remains of soft tissue on specimen No. 1 (Photo K. Kozma)

come from either of these two species. Other non-characteristic bone fragments from small ruminants, especially ribs, must also originate from these domesticates. Sheep and especially the non-demanding, practically omnivorous goat (Anderson, 1902: 342) are the domesticates probably best adapted to the arid environment under discussion here, even if the climate was presumably less harsh 4000 years ago.

Gazelle (*Gazella cf. dorcas* L. 1758) was probably represented by the right distal radius fragment (SD=10.9 mm, Bd=18.6 mm, Dd=14.1 mm) from the top of the SE deposit. A few slender, small ruminant rib fragments also seem to originate from this genus. Although the morphological species identification of gracile gazelle bones remains uncertain, of the two similarly sized forms, Dorcas and mountain gazelle (*Gazella arabica* Licht. 1827), the latter was known to have occurred more toward the Sinai Peninsula and along the Red Sea coast, at least at the beginning of our century (Anderson, 1902: 342). The other possibly larger species, Isabella gazelle (*Gazella isabella* Gray 1846; Gaillard, 1934: 44), has recently been considered only a subspecific form of the most commonly occurring Dorcas gazelle (Boessneck and von den Driesch, 1982: 20). From an ecological point of view, it is interesting that Isabella gazelles were observed to keep close to the base of hills, rather than preferring open plain habitats, which may mean that the local topography below Thoth Hill may have been a preferred habitat for this species. More interesting than its minutiously defined taxonomic affiliation (further complicated by secondary sexual dimorphism manifested in size), is the mere presence of gazelle bones in the material. Although there is iconographic evidence concerning the sacrificial killing of gazelles, with the notable exception of one largely coeval pyramid foundation offering (Weinstein, 1973: 36), the bones of this small ruminant have not been found in this type of sacrificial deposit. It is therefore even more regrettable that all gazelle bone fragments originate from disturbed contexts at the Thoth Hill temple.

Pig (*Sus domesticus* Erxl. 1777) is represented by two bones found in the well preserved NW deposit. They represent the left foot of possibly the same individual that, on the basis of the unfused distal epiphysis of the radius (Bd=34.0 mm, Dd=22.9 mm), was less than 3.5 years old (Schmid, 1972: 75, Table IX). The measurements of the completely fused proximal phalanx (at least 2 years in modern pig: Schmid, 1972: 75, Table IX) compare very well with the dimensions of corresponding "*schlank*" bones from Graves 8429A and 8449A of the 5/6 Dynasty necropolis of Elephantine, also described as remains of 3 years old animals (Boessneck and von den Driesch, 1982: 21).

Table 3. Measurements of anterior proximal phalanx from pig from Thoth Hill and Elephantine

Measurement, mm	NW deposit	Grave 8429A	Grave 8449A
GL (abaxial)	33.2	30.0	34.0
Bp	damaged	14.0	15.0
SD	11.9	11.0	11.7
Bd	13.0	12.5	14.5

The slender skeletal makeup of pigs from Egypt is in concordance with the unimpressive meat forms of pigs depicted in Thebes at the time of the New Kingdom (Wilkinson 1873: 100, Fig. 360). In Upper Egypt this light constitution is, in part, explained by the hot and dry climate (Boessneck and von den Driesch, 1992: 30). One is undoubtedly looking, however, at a genetically unimproved, prehistoric type here. Pig has not even been listed among the foundation deposits discussed in Weinstein's 1973 dissertation. Bones of pig as well as of its wild ancestor, however, are known from the Egyptian Neolithic (Gaillard, 1934: Pl. VIII), although the domestic pigs of Egypt supposedly originate from Anatolian and/or Mesopotamian stocks (Epstein, 1971: 361). It must be noted, however, that owing to their omnivorous nature and favorable ethological characteristics, proliferant wild pigs are relatively easy to domesticate and have also often been known to interbreed with domestic populations throughout Europe (Bartosiewicz, 1995: 50). The unimproved character of domestic pigs in ancient Egypt is clearly shown by a striped piglet depicted in the Theban tomb-chapel of Nebamun from the time of the 18th Dynasty (Houlihan, 1996: 26, Fig. 20.). In the offspring of modern domestic pig, this trait is considered an atavism.

Birds (*Aves*) at this site are represented by bones originating from uncertain stratigraphic contexts. Only one of them, the right humerus fragment (SD=3.7 mm, Bd=10.3 mm, Dd=5.8 mm) of a turtle dove (*Streptopelia turtur* L. 1758) could be identified with reasonable certainty on the basis of similar finds from Elephantine (Boessneck and von den Driesch, 1982: Taf. 4/22). Although "quail (or pigeon [*sic!*]) offerings placed in foundation deposits" are known from the Old Kingdom through Ptolemaic times (Weinstein, 1973: 425), there is no way of linking our stray find with any of the deposits at the Thoth Hill temple.

Of the other bird bones, a proximal ulna fragment may originate from goose (another common sacrificial animal), however, due to its poor preservation no precise identification could be made. The rest of the bones had no diagnostic features left on the basis of which identification beyond class level could even have been attempted.

A fish (*Pisces*) precaudal vertebra (GL corpus=17.9 mm, cranial diameters=19.2x16.9 mm, caudal diameters=18.2x16.8 mm), tentatively identified as originating from a rather large Nile perch (*Lates cf. niloticus*), came to light from the Middle Kingdom rubble excavated in the courtyard zone of the northern pylon. In addition to its find circumstances, due to the ritually unclear nature of fish meat, this piece is the least likely to have been associated with the foundation deposit. Nevertheless, it had to be carried uphill at one point as part of a meal.

Meat processing

While no direct evidence of cooking on the aforementioned cattle bones could be proven, the well preserved right foot showed not only excellent amino acid preservation but also an unusually high concentration of sodium (Csapó *et al.*, 1998). Since water transport of this substance through the fossil diagenesis process at this arid hilltop location is least likely, this phenomenon may be, with good reason, attributed to intentional salting. The sodium content of modern-day bacon may be 20-25 times higher than that of untreated beef (Paul and Southgate, 1978: 90, 95) and the archaeological find under discussion here is, to say the least, this rich in salt. The hypothesis that this increase in the weight ratio of sodium is the consequence of deliberate salting is additionally supported by the fact that the potassium concentration of this well preserved find is comparable to other fresh and cured meat products (Fig. 5).

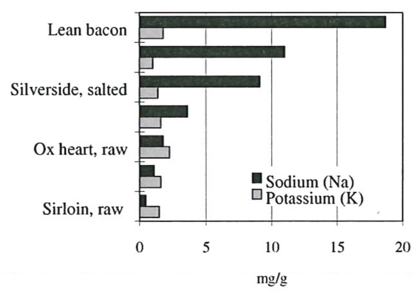

Fig. 5. The relative sodium and potassium contents (mg/g) of the Thoth Hill find and present-day meat products.

Scientific evidence for meat salting in Ancient Egypt has recently been discussed by Salima Ikram (Ikram, 1995). Methods of meat preservation have developed from an interplay be-

Table 4. Major types of meat preservation: a morphological classification

	Carcass part	Curing	Examples	Reference
1	complete joints, *stricto sensu* victual mummies: often with articulated bones and other features in their natural connections	salting or soaking in rind, sun/air-drying	in addition to the Thoth Hill find, *prosciutto* = "pre-dried" Italian ham; *fenalår* = Norwegian sheep's thigh; *Bündnerfleisch* = meat dried in the Alps at c.a. 12°C and 18% relative humidity	Csapó *et al.* (1998) Gross *et al.* (1990: 86)
2	strips or slivers of pure meat: the original muscle tissue structure is retained	(pounding), curing and sun/air-drying	Ancient Egyptian finds; *biltong* = "buttock-tongue" in Afrikaans (referring to both carcass part and the shape of the end product); *charqui* = Quechuan for strips of dry llama meat (c.f. "jerky")	Ikram (1995: 285) Miller (1981)
3	chopped meat and other animal tissue, esp. fat: completely destructured	cooking over fire with additives such as salt and other foodstuffs (can be pulverized) and sealing for storage	*lahma mahfooz* = meat preserve in modern day Egypt; *pemmican* = shredded, native American dry meat cake (the Cree word refers to high fat content); AD 14th c. beef stock in Hungary	Ikram (1995: 285) Bartosiewicz (1995: 40)

tween climate, species-dependent meat composition and culinary tradition. On a purely formal basis, three gross utilitarian types may be distinguished in the increasing order of destroying morphological characteristics of the animal tissue (Table 4).

Naturally, there are overlaps between these categories, which also disregard detail in treatment (e. g. smoking, this very important method has not been included here). The purpose of this presentation, however, is to give an idea of the various types of information available in each category.

Clearly, Type 1 is most tangible by the traditional osteomorphological method used by archaeozoologists. The mostly indirect evidence of Type 2 may be expected at ordinary, temperate climate sites, where the preservation of organic material is limited. Type 3 in most cases may be represented by food residue on pot sherds and the like which can only be investigated using sophisticated laboratory methods (e. g. Gyulai, 1998).

In the case of the Thoth Hill find, the selection of body part, closely related to the process of curing, is of special interest. Owing to its minimal content of edible tissue, this part of the animal is called "dry limb" in archaeozoological jargon: its bones are delegated to the poorest quality category by the conventions of our discipline (Kretzoi, 1968: 69; Uerpmann, 1973: 317). Unless attached to the leg, metacarpals and phalanges seldom appear in Egyptian funerary offerings (Ikram, 1995: 284). The meager musculature of (llama) head and feet would make poor salted/sun-dried *charqui*, and has not been used this way by modern day herders in the high Andes (Miller, 1981). Ethnographic parallels in Argentina show that feet tend to be stored at residential sites for consumption in soups and stews (Madero and Yacobaccio, 1994: 78). In modern day Egypt a soup is made of cattle forelegs/feet, and owing to the amount of work involved in preparing the elaborate variety, it is considered a delicacy (Salima Ikram, personal communication). The feet of calves, are also considered a delicacy in European gastronomic history, including Hungarian culinary tradition. It is also remarkable within this context that, while the skin and the horny fetlock sheaths of the Thoth Hill cattle foot have been well preserved, the horn sheath was missing from both of the attached claws (*phalanx dis-*

talis; Fig. 3, esp. medial and palmar aspects). Calf feet on sale in present-day Hungary are usually de-haired and de-clawed.

In addition to calf feet, similarly bony pig knuckles fetch far higher prices in supermarkets than would be expected on the basis of their protein content, since rational nutritional criteria are but stochastically reflected in culturally idiosyncratic gastronomic appreciation (Bartosiewicz, 1997: 170-182). It may therefore be hypothesized that the cattle remains recovered from the foundation deposits under discussion here represented great cultural value at the time of deposition.

A ritual consideration

Cattle feet, the most characteristic finds in this archaeozoological assemblage, are well known from innumerable depictions showing the dismemberment of various Bovids (including ibex, oryx etc.) which had their throats ritually slit and right foot severed (Fig. 6; see also Seshat-hotep's tomb 5th Dynasty: Boessneck, 1953: Tab. 4, Abb. 8; Mentuhotep's Temple 11th Dynasty: Arnold, 1981: p. 31, Taf. 36a; tombs of Menna and Cunsou, both 18th Dynasty: Gautier *et al.*, 1988: 69 and Le Louvre respectively).

One is thus faced with the formidable dilemma of whether cattle feet represented the entire animal (following the principle of *pars pro toto* in sacrificial deposits, while the better cuts were retained for human consumption), or the part regarded a true delicacy was dedicated to divine purposes. Given the hilltop position of the temple of Montuhotep, it would have been a real challenge to herd several sacrificial animals all the way to the top to be ritually slaughtered there while taking along a few preserved heifer's feet would have made more "sense".

The animal's side, from which the bones originate, is also worth considering here. In addition to the aforementioned ample iconographic evidence, both legs in the surviving foundation deposits represented the right side of young cattle, and the foundation deposit of the temple of Mentuhotep at Deir el-Bahari also contained consistently selected right *femora* (Arnold, 1979: Plate 30). An analogous find, possibly relevant to our NW and SE deposits is the right metacarpus with an articulated proximal phalanx of a young ibex from the Satet temple in Elephantine (Boessneck and von den Driesch, 1982). In addition to the aforementioned examples, one of the most relevant depictions of the slaughter of two large bovids (a longhorn cattle and an oryx antelope), is known from the 5th Dynasty tomb of Seshathotep. The left front leg of these beasts is even tied to the two hind legs, while the right leg serves as a lever during this gruesome procedure (Fig. 7). As the next step, a 6th Dynasty painted relief from the thomb-chapel of the mastaba of Princess Adut in Saqqara shows a man, busy slicing off the right foreleg of another slaughtered longhorn cattle, proximally from the elbow joint (Houlihan, 1996: 18, Fig. 14).

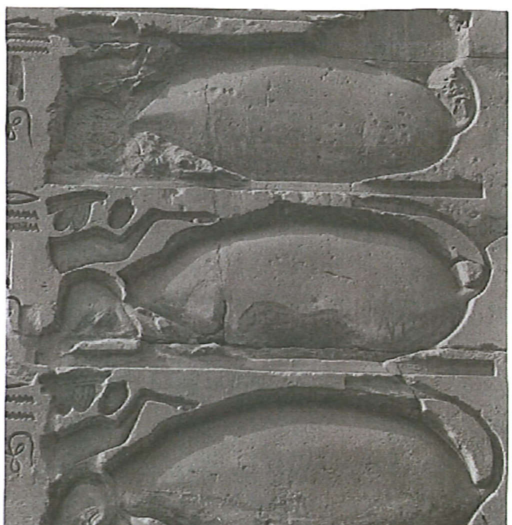

Fig. 6. Sunk relief of slaughtered cattle with the hieroglyph "*foreleg of ox*" near Gatehouse 4 in the Karnak Temple (Photo L. Bartosiewicz).

Since the concept of right/left did not exist in its present, "western" sense in ancient Egypt, it is thought provoking how consistent was the use of right feet for sacrificial purposes, and on what basis the side of the body may have been chosen. A possibly elucidating example is a wooden statuette (of uncertain provenance) from the First Intermediate Period to which the finds under discussion here also belong. It shows a butchering scene in which a black piebald cow lay on her left side thus exposing the right front leg during the process (Gautier *et al.*, 1988: 165,

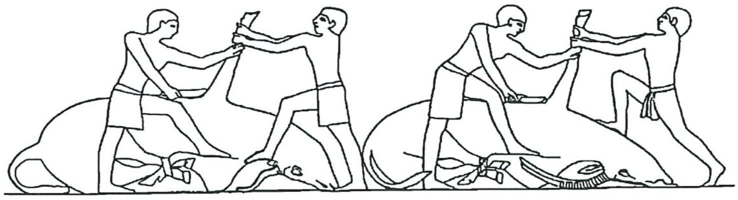

Fig. 7. Typical slaughtering positions of cattle and Oryx antilope from the early 5th Dynasty tomb of Seshat-hotep (redrawn after Boessneck 1988: Fig. 5.3)

Fig. 129). In search of a functional explanation, one may quote an ethnographic example from Kazakhstan, where "according to tradition, the animal's legs are tied and it is tumbled onto its side. Its legs are oriented toward the west and its head to the south." (Shnirelman *et al.*, 1995: 144-145). With little spatial imagination one can see that such an arrangement exposes the right side of the beast without actual consideration to anatomical dexterity. Without erroneously suggesting any direct analogy, it is clear that spatial patterning in animal slaughtering may have led to similar results in Egypt. More data, however, will have to be accumulated to test the validity of this hypothesis.

Recognizing bones from the right side in these deposits had at least one unquestionable technical advantage: it clearly proved that the feet of different individuals were put into each deposit, *i. e.* not the four feet of a single sacrificial animal were distributed on the occasion. The fact that at least one of the Thoth Hill finds seems to have been preserved in salt also means that the animal was not necessarily slaughtered at the time or on the occasion of the construction.

It seems also important to mention that the British vernacular name "ox" (for *Bos taurus*), widely adopted in the literature of Egyptology, does not specify the animal's sex, or even erroneously suggest that one is dealing with castrates. On the basis of identifiable bones, both the foundation deposits under discussion here and those at Deir-el Bahari (Arnold, 1979: Plate 30), however, are most likely to contain the remains of females representing various age cohorts, heifers and cows respectively.

Aside from carcass part, the animal's age and sex as well as the treatment of meat, many other traits (such as color, health, ownership) may have qualified an animal for sacrificial purposes. The detailed review of these possibilities, however, is impossible in a short research report.

Conclusions

Naturally, food offerings hardly ever reflect the habits of meat consumption, let alone animal keeping, of the cultures that deposited them (Bartosiewicz, 1986: 77-95). It is of special interest, however, that many of the cattle remains identified from the temple of Montuhotep Sankhkara correspond to standard hieroglyphics (Gardiner, 1988: 459-466), although this somewhat naive observation completely ignores the intricacies of the abstract nature of these symbols. However, when only the primary meaning of signs is considered, different levels of abstraction seem to correspond to the consistency by which sacrificial animals may have been defined.

Our most characteristic find, "*leg and hoof of ox*" is most easily discovered among the characters. So was the "*lower jaw bone* [and tongue] *of ox*" (Fig. 8) and "*foreleg of ox*" (Fig. 9). This latter find, however (possibly represented by the large proximal *phalanx* and *right humerus* fragments), came to light from the mixed top layer of the SE deposit. This shows that the "ritual dictionary" of cattle paralleled the strictly patterned sacral behavior related to this animal. While this phenomenon may be purely coincidental, it is noteworthy that animals used less typically for sacral purposes (notably pig and gazelle), are only represented by generic, full-body portraits among the hieroglyphics.

Convergent anatomical, chemical and iconographic evidence support the hypothesis that specially cured remains from young cattle from the Thoth Hill foundation deposit may be considered a high status offering, in spite of the small nutritive value of the carcass part involved.

Fig. 8. Hieroglyph "*lower jaw bone of ox*" with tongue, inscribed on a limestone pillar of the 12th Dynasty sed-festival shrine of Sesostris I at Karnak (Photo L. Bartosiewicz)

Fig. 9. Hieroglyph denoting "*foreleg of ox*", inscribed on a limestone pillar of the 12th Dynasty sed-festival shrine of Sesostris I at Karnak (Photo L. Bartosiewicz)

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Appendix: Find description by provenance

1/ North-western, intact deposit
Cattle, lumbar vertebra, left *processus transversus* fragment, age not identifiable.
Cattle, *os carpi intermedium* (dex.), adult (?).
Cattle, *metacarpus* (diaphysis, sin.), age not identifiable. Splinter.
Cattle, *metacarpus* (distal, dex.), subadult. The distal epiphysis is barely fused.
Cattle, *phalanx proximalis* (complete, dex.), subadult. Lateral.
Cattle, *phalanx proximalis* (complete, dex.), subadult. Medial.
Cattle, *phalanx media* (complete, dex.), subadult. Lateral.
Cattle, *phalanx media* (complete, dex.), subadult. Medial.
Cattle, *phalanx distalis* (complete, dex.), subadult. Lateral.
Cattle, *phalanx distalis* (complete, dex.), subadult. Medial.
Sheep or goat, lumbar vertebra (fragment, sin.), age not identifiable.
Goat, *os centrotarsale* (distal, sin.), mature. Proximo-plantar surface damaged by hacking.
Pig, *radius* (distal, sin.), subadult. Unfused, separated articular surface.
Pig, *phalanx proximalis* (complete, sin.), subadult.
2/ SE deposit, 35-40 cm
Cattle, lower M_1 tooth (complete, sin.), adult.
Cattle, lower P_4 tooth (complete, dex.), mature. Oral fragment with tartar buildup.
Cattle, jawbone (*corpus mandibulae* fragment, dex.), age not identifiable.
Cattle, *metacarpus* (distal, dex.), subadult. Unfused, with articulated phalanges (detailed below).
Cattle, *phalanx proximalis* (complete, dex.), subadult. Lateral, proximal epiphysis barely fused.

Cattle, *phalanx media* (complete, dex.), subadult. Lateral, fused.
Cattle, *phalanx proximalis* (complete, dex.), mature. From anterior extremity.
Sheep or goat, *processus jugularis* (fragment, dex.), age not identifiable.
Sheep or goat, rib (*corpus costae*, sin.), age not identifiable.
Gazelle, rib (*corpus costae*), age not identifiable. Taxonomic identification based only on gracile *corpus*.
Small ungulate, rib (*corpus costae*), age not identifiable.

3/ SE deposit, disturbed top layer
Cattle, thoracic vertebra (complete *corpus*), young adult. The cranial articular surface is unfused. Weathered.
Cattle, *humerus* (distal, dex.), mature, with two adjacent diaphysis splinters. Poorly preserved, scaly, weathered surface.
Cattle, *femur* (proximal, dex.), mature.
Cattle, *metatarsus* (proximal, dex.), mature. Massive point with broken tip and battered end.
Sheep or goat, *os frontale* (fragment, sin.), age not identifiable. Poorly preserved, chalk-like.
Gazelle, *radius* (distal, dex.), mature.
Large ungulate, rib (proximal, dex.), adult. The caput and tuber are unfused, missing.
Large ungulate, flat bone (fragment), age not identifiable.
Large ungulate, long bone fragment (diaphysis), age not identifiable. Splinter from a thin-walled bone.
Small ungulate, thoracic vertebra (fragment), age not identifiable.
Small ungulate, rib (*corpus costae*, sin.), age not identifiable.
Small ungulate, rib (*corpus costae*, dex.), age not identifiable. Sharp and slender, possibly gazelle.

4/ Northern wing of the courtyard, ramp
Large ungulate, *femur* (diaphysis splinter), age not identifiable. Well preserved, massive: splinter wall thickness= 9 mm.

5/ Courtyard top layer, among rubble
Small ungulate rib (*corpus costae* fragment, dex.), age not identifiable. Weathered.
Turtle dove, *humerus* (distal, sin.), mature. Well preserved, proximal epiphysis damaged.
Goose (?), *ulna* (proximal, dex.), mature.
Non identifiable, goose size bird, *ulna* (diaphysis, dex.), age not identifiable.
Non identifiable bird, *radius* (distal, sin.), age not identifiable. Long and slender.

6/ Courtyard near northern pylon, Middle Kingdom rubble
Nile perch, precaudal vertebra (complete *corpus vertebrae*), mature. Well preserved, slightly burnt.

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