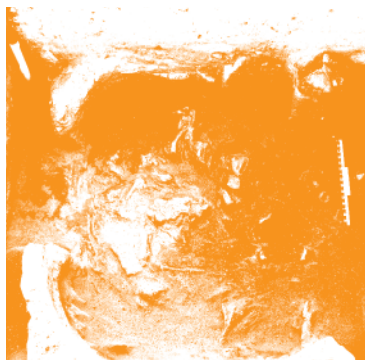


Animal remains from the el-Hamra Christian complex in the el-Ga'ab Depression, West Dongola (Sudan)



Abstract: The animal remains discussed in this paper come from three archaeological sites in the el-Hamra Christian complex, excavated within the frame of the el-Ga'ab Depression archaeological, ethnographical and ecological project. During two seasons in 2013/2014 and 2014/2015, a team directed by Yahia Fadl Tahir collected and examined a total of 89 mammal, five ostrich egg and 16 mollusk remains. The bone assemblage was divided into seven groups representing the most and least attractive parts of the carcass in terms of nutritional value. Identified species include sheep (*Ovis aries*) and goat (*Capra hircus*), while other animal remains include ostrich egg fragments and mollusk species: *Pila ovata*, *Melanoides tuberculata* and *Lanistes carinatus*. Similarities can be observed in livestock husbandry and subsistence patterns in the early Christian period in the Dongola region, where the economy depended on small mammals like sheep and goats to provide milk and meat.

Keywords: archaeozoology in Nubia, el-Ga'ab Depression, sheep/goat, el-Hamra

The el-Ga'ab depression is situated south of the Third Nile Cataract, on the western bank, at the northern end of the Dongola Reach. It extends southwest across the desert for about 123 km and is from 2 km to 8 km wide. At its northern end nearest to the river, it is about 6 km away from the Nile, at the southern end this distance reaches 60 km. The lowest part of el-Ga'ab is consid-

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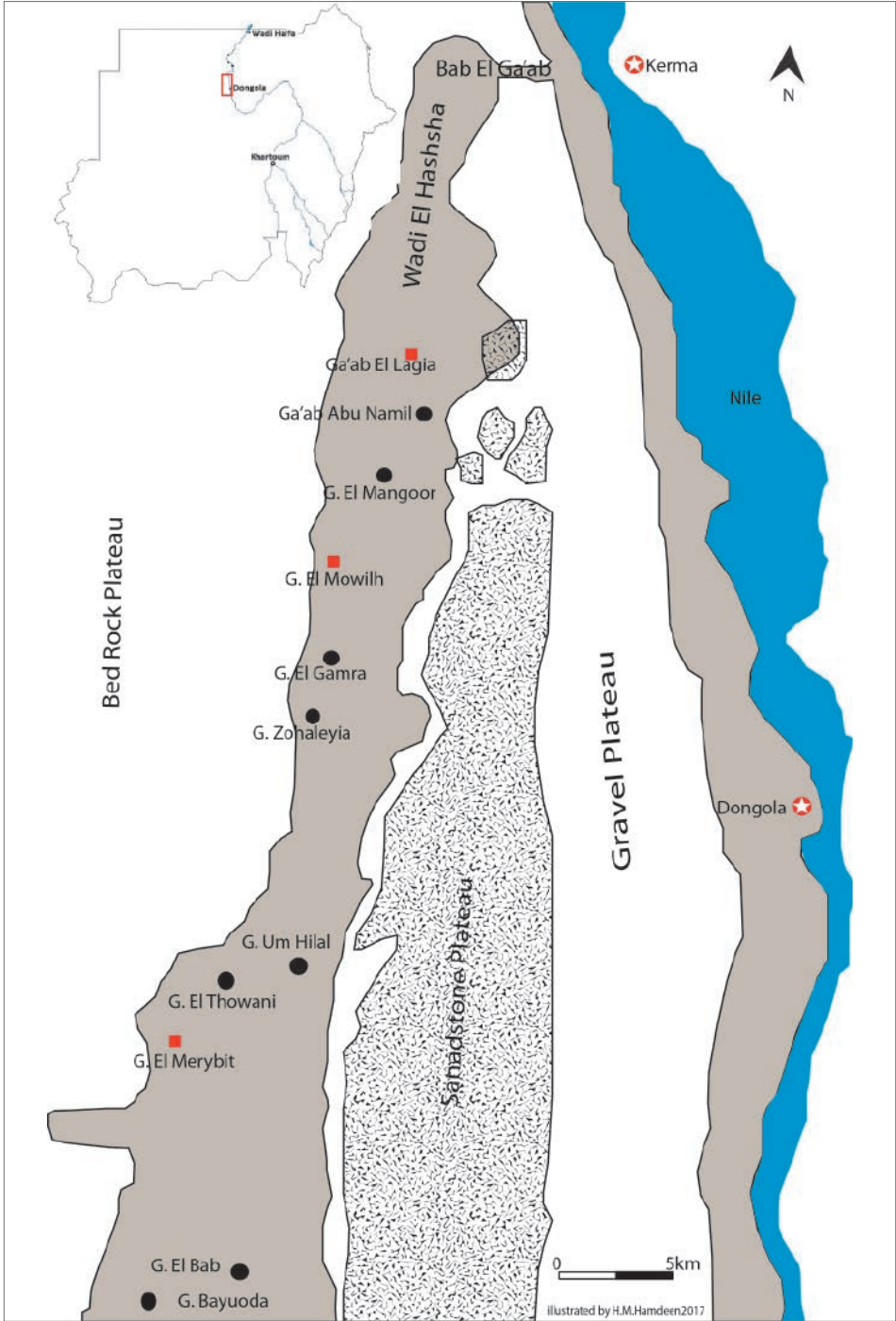


Fig. 1. General map of the el-Ga'ab depression with the location of the three Christian complexes marked in red (Drawing A.M. Sadig, Hamad Mohamed Hamdeen)

erably below river flood levels at 214 m ASL (Tahir 2012) [Fig. 1]. An archaeological survey in the el-Ga'ab Depression recorded three Christian complexes: two

large ones in Ga'ab el-Lagia and Ga'ab el-Mowlih, and a small one in Ga'ab el-Merybit. The el-Hamra complex is situated in Ga'ab el-Mowlih.

MATERIAL AND METHODS

The assemblage collected and studied during the excavation of three sites: EH-04-008, EH-04-010 and EH-03-002, counted a total of 89 fragmentary animal bones, five ostrich egg and 16 mollusk remains.

The method of anatomical analysis of osteological remains was applied using for reference a collection of animal bones kept at the University of Khartoum. The remains were divided into seven groups representing the most and least attractive parts of the carcass in terms of nutritional value (Gauza 2005). These are:

- H Head: cranial bones, horn cores, teeth
- T Trunk: vertebrae, ribs
- PPAL Proximal part of anterior limb: scapula, humerus, radius, ulna
- DPAL Distal part of anterior limb: carpals, metacarpals
- PPPL Proximal part of posterior limb: pelvis, femur, tibia
- DPPL Distal part of posterior limb: calcaneus, talus, metatarsus
- Ph Phalanges: 1st, 2nd and 3rd

The NISP method was used for counting the bone remains. Mollusk identification was performed using for reference the collection of the Department of Zoology, University of Khartoum, and some Mollusk book guides.

SITE EH-03-002 (EL-HAMRA CHURCH)

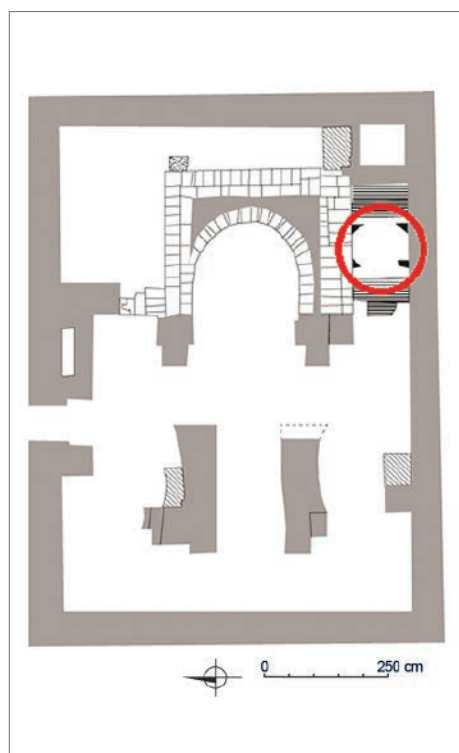
The site was excavated during the fourth season (2013/2014) and a few animal remains were collected from different squares and layers. Many of the bone fragments, found at a depth of some 0.70 m in the southeastern part near the church apse [Fig. 2], were very fragile. No cut or chopping marks were noted.

SITE EH-04-010

This site, situated about 250 m southwest of the el-Hamra church, was excavated during the fifth season in 2014/2015. The function of the building has not been determined, but it could have been used for some kind of domestic activities. Animal bone remains were collected from different layers at a depth between 0.20 m and 0.40 m. They were preserved in poor condition and demonstrated evident chopping marks.

SITE EH-04-008 (EL-HAMRA KITCHEN)

The site, situated about 300 m southeast of the el-Hamra church, was excavated during the fifth season as well. Bone fragments were collected from different layers (0.20–0.40 m deep), mixed with some charcoal, grinder stones and pottery sherds. Cut marks were noted on the bones.



RESULTS

The bones and other osteological remains were identified as belonging mainly to two species: sheep (*Ovis aries*) and goat (*Capra hircus*) [Fig. 2]. Other remains included ostrich egg fragments and mollusk species: *Pila ovata*, *Melanoides tuberculata* and *Lanistes carinatus*. A few of the recovered fragments could not be identified [Table 1; Fig. 4].

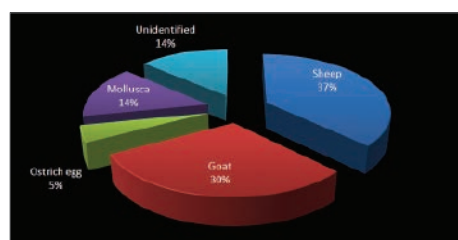


Fig. 2. Percentage share of animal species recovered from the El-Hamra Christian complex



Fig. 3. The el-Hamra church in Ga'ab El-Mowlih: top plan with a circle in red marking the location of the faunal assemblage; bottom, animal remains and some Christian sherds (Drawing A.M. Sadig, photo H.M. Hamdeen)

Table 1. Animal species identified in the assemblage from the El-Hamra Christian complex

Site	Species	H	T	PPAL	DPAL	PPPL	DPPL	Ph	Total
EH-04-008	<i>Capra hircus</i>	2	1	3	0	1	2	1	10
	<i>Ovis aries</i>	1	6	4	1	0	3	2	17
	Unidentified								4
EH-04-010	<i>Capra hircus</i>	2	4	1	2	0	0	3	12
	<i>Ovis aries</i>	1	3	2	2	0	0	0	8
	Unidentified								4
EH-03-002	<i>Capra hircus</i>	4	2	0	0	1	3	1	11
	<i>Ovis aries</i>	6	3	3	0	3	0	1	16
	Unidentified								7
Total		16	19	13	5	5	8	8	89
Ostrich egg									5
Mollusca									16



Fig. 4. Selection of animal bone fragments from sites EH-04-010 and EH-04-008 (Photos H.M. Hamdeen)

Some cut-marks were noted on a sheep femur from site EH-04-008, while

chopping marks were noted on a sheep humerus from site EH-04-010 [Fig. 5].

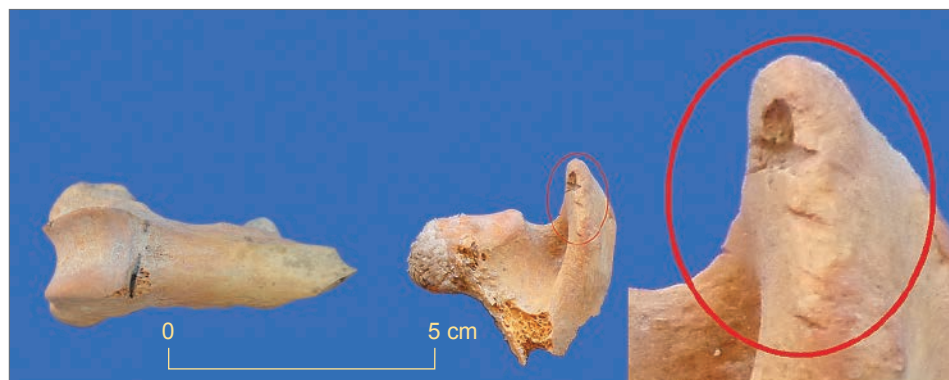


Fig. 5. Cut marks on sheep bones: left, humerus from EH-04-010; right, femur from site EH-04-008 (with blow-up of the cut mark) (Photos H.M. Hamdeen)

DISCUSSION

Sheep and goats remains are common at Christian sites in Sudan. The percentage of sheep and goat remains from the el-Hamra church constitutes 67% of all animals fragments recovered. This number corresponds to the results from other Christian sites. For example, remains of sheep and goat constitute 42.4% of the bone material collected from the Christian site of Soba (Chaix 1998: 234). Finds from a late Christian site S 04/57 in the Fourth Cataract region also included goat among other faunal remains (Polath 2012).

According to Marta Osypińska (2010b; 2014), the results of a comparative analysis of animal bones recovered from three sites dated to the period of the Makurian Christian kingdoms revealed changes in diet preferences over time within the region currently identified as Old Dongola. The

earliest bone assemblage dates from the 7th century AD and differs significantly from the later material in terms of the proportion of species distribution. The share of ruminants and cattle in this assemblage was similar, amounting to approximately 40%, while pig remains accounted for 18.24%. No camel bones were noted in this assemblage nor in other assemblages dating to the late period of the Makurian kingdom (13th–14th century). The material recovered from the palace (Kom A), monastery (Kom H) and the kitchen at Dongola featured the highest percentage of cattle bones, amounting to over 50% of the total. The most frequently noted species were sheep and goat, accounting for 29–39% of the assemblage (Osypińska 2010b: 134). Another study by Osypińska, based on the material recorded from the Dongola citadel and monastery from var-

ious periods of the Makurian Kingdom, shows that the percentage of sheep and goats accounted for 43.68% to 51.71% of the total animal fragments (Osypińska 2014: 910).

Results of studies on animal remains from early and late Christian sites in northern and central Sudan show a high percentage share of goat and sheep bones, as this was the most commonly bred livestock providing milk and meat (Gauza 2005: 86). The patterns of livestock husbandry and subsistence in early Christian periods across the Dongola region appear to be present in the el-Hamra complex as well. The economy of the el-Ga'ab oases depended on small mammals like sheep and goats to provide milk and meat. A very high preference for ovicaprids was also associated with the peripheral-rural character of the Christian villages. There is no evidence of big mammals like cattle. The percentage of sheep, 37%, compared to 30% for goats, would indicate that as a species it was somewhat more attractive to local herd keepers. This is interesting to note considering that goat would be expected to play a more important role in the semi-desert environment of the el-Ga'ab Depression, these animals being capable of standing the harsher environmental conditions of the region. Sheep would require better quality forage. The situation may be due to sheep having a priority as a source of meat whereas goats would have been kept for milk.

The assemblage from the southeastern chamber in the el-Hamra church (site EH-03-002) is not common in Christian churches in Sudan and may be considered as part of the offerings to the church and priests. They could have been brought as

food to be cooked and later consumed as a meal at the church or might have been a way to bless and sanctify the church. Still, the animals may have been slaughtered in the whereabouts of the church.

The bones from a kitchen context at site EH-04-008 may be viewed as a model assemblage of the food consumed in the el-Ga'ab Depression during the Christian period. On the side, one should add that the diet included plants. Six plant species were identified (Madani, Tahir, and Hamdeen 2015): wheat *Triticum aestivum* (L.), barley *Hordeum vulgare* (L.), chickpea *Cicer arietinum* (L.), common bean *Phaseolus vulgaris* (L.), date *Phoenix dactylifera* (L.), and doum palm *Hyphaene thebaica* (L.).

Desert-like conditions must have been responsible for this situation. Small ruminants, especially goats, endure oasis conditions very well. There are many wells and *qawadis* (pots used in the water-wheels) scattered across the Christian sites in the el-Hamra complex, indicating farming with the aid of a *saqiya* (water wheel), which could also have been used in small-animal husbandry.

No remains of camel, which nowadays makes for a considerable share of all animals in the el-Ga'ab Depression, have been recorded at Christian sites. This may be connected with the fact that camel husbandry was not popular with the Christian population of el-Ga'ab, gaining importance only with the advent of Arab migration to Sudan in the Islamic period. The three mollusk species are proof that sufficient water was present near the surface during the Christian period; there is no evidence of mollusks being used as food.

Ostrich eggs may have been used as food, hence the eggshell fragments found at the site. Ostrich eggshell was also used to make beads, many of which have been reported from the el-Hamra complex. Empty eggshells were decorated with painted or incised designs, and placed in tombs, a practice known from earlier periods. Most certainly, such emptied ostrich eggs functioned as cups or containers for water, liquids, powders and body paints. This usage was commonly attested in the places where ceramic vessels were not available (Laufer 1926: 30–32).

The egg in general is a Christian symbol of resurrection (Steffler 2002: 35) and as such is connected with concepts of prosperity, life, and resurrection of Christ in Coptic culture. Ostrich eggs were suspended from church vaults or were used in manufacturing elaborate church chandeliers (Galavarris 1978: 69). They were hung before the iconostasis between the icons or between the sanctuary lamps placed before the altar screen or *haikal* (Malaty 1994: 159). Ostrich eggs were also used sometimes to decorate metal chains from which the chandeliers were suspended (Laufer 1926: 4). They are found in Egyptian monasteries and churches (e.g., the monasteries of Saint Antony and Saint Paul, Kitat 2014: 28). The presence of ostrich eggshells in the church at el-Hamra could reflect these customs. Ostrich eggs could have been brought to the el-Ga'ab Depression from southern regions like Kordufan.

Some human activities leave easily observed marks on the excavated animal bones. Animals were killed,

skinned, disjointed and then consumed with the aid of various tools, including hand axes, lithic blades, iron or copper-alloy knives and steel cleavers. Each of these tools can leave distinctive traces on the bones, constituting evidence for past butchery practices. Butchery marks can be divided into two categories: cut marks resulting from cutting off overlying tissues with a knife-like implement, and chop-marks resulting from the chopping of muscles and bones with a tool resembling an axe or a cleaver (O'Connor 2000: 45). Cuts and chopping marks on animal bones have been recorded from other archaeological sites in Sudan (Chaix et al. 2012: 201). Makowiecki (2007) presented a cut-mark on the right femur and ribs of a sheep from the post-Meroitic cemetery HP45 and HP47 in Kassinger Bahri. Also, Osypińska (2010a) recorded cuts and chopping-marks on animal bones from some tumuli in the el-Zuma cemetery from the early Makurian period, that is, the 5th century, as well as from the Church in Banganarti (Osypińska 2004), as well as the assemblage of faunal remains from the post-Meroitic cemetery of el-Sadda (Osypińska 2007). Cuts and chopping marks on animal remains from the el-Hamra complex indicate the use of knives and choppers made from metals like iron and bronze. Generally, small metal objects were reported from the excavation of the el-Hamra church. A small kiln with some lumps of iron slag was discovered north of the el-Hamra church, which may be an indication of it being used for metal tool production.

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