ENVIRONMENTAL CHANGE AND HUMAN CULTURE
IN THE NILE BASIN AND NORTHERN AFRICA
UNTIL THE SECOND MILLENNIUM B.C.
Poznań 1993
PL ISSN 0866-9244 ISBN 83-900434-1-6

JORIS PETERS

Animal exploitation between the fifth and the sixth Cataract *ca.* 8,500 - 7,000 B.P.: a preliminary report on the faunas from El Damer, Abu Darbein and Aneibis

Introduction

Faunal remains from Early Khartoum sites have contributed significantly to our understanding how hunter-gatherers exploited the Central Sudanese nilotic environment some 9,000 to 7,000 years ago (Bate 1949; see also Peters 1986; Gautier 1983). However, not all aspects of Mesolithic animal exploitation received equal attention. Indeed, emphasis has been laid on preliminary identifications (Cloudsley - Thompson 1966, Saggai; Clark 1989, Shabona) or quantification and archaeozoological interpretation (Bate 1949, Khartoum Hospital; Gautier 1983, Saggai 1) of the remains of terrestrial vertebrates, whereas the numerous fish bones, indicating that fishing must have been a major subsistence activity, were mostly discarded. With the exception of the preliminary report on the fish from Saggai by van Neer (Gautier 1983: 62 - 65), documentation of the species of fish caught, their relative abundancy, their size range *etc.* is almost non-existent. In this respect, the extensive faunal samples with appreciable amounts of fish bones, collected by members of the Atbara Research Project (Director Dr. R. Haaland) at El Damer, Abu Darbein and Aneibis, undoubtedly contributes to our knowledge of animal exploitation by mesolithic communities in Central Nubia.

The fauna

At El Damer, Abu Darbein and Aneibis remains of fish and mammals clearly dominate the samples (Table 1 and 2), aquatic reptiles are frequent, whereas birds form a minor component. Mollusc shells pertain to three major groups:

freshwater bivalves (*Aspatharia, Etheria*), freshwater snails (*Pila*) and land snails (*Limicolaria*). The freshwater bivalves and snails represent consumption refuse (Gautier 1983: 94). The taphonomic status of *Limicolaria* is not very clear but at Saggai 1 and younger Central Nubian sites (Gautier 1983: 95; 1989: 355), this land snail appears to be a penecontemporaneous intrusive. However, at El Damer and Aneibis, mixed accumulations of adult *Pila* and *Limicolaria* have been found, suggesting that both were used as food items.

Table 1

Fish genera present in faunal samples.

Family or genus	Site		
	KH	SA	AD, ED, AN
Polypterus (bichir)	+	F	F
Protopterus (African lung fish)	+	R	F
Mormyridae (elephant-snout fishes)			F
Hyperopisus		R	R
Gymnarchus (freshwater rat-tail)			R
Heterotis (thick-skinned fish)			R
Hydrocyon (tiger-fish)	+	R	R
Distichodus (rough cast fish)			R
Citharinus (moon fish)			R
Cyprinidae (minnows)			F
Labeo (Nile carp)	+		R
Clarias (eel catfish)	+	F	FF
Bagrus (Forskal's catfish)	+	R	F
Clarotes (spiny catfish)	+		R
Auchenoglanis (black spotted catfish)			R
Synodontis (shield head catfish)	+	F	FF
Lates (Nile perch)	+	F	FF
Tilapia (perch)	+	R	R
Tetraodon (striped Nile puffer)			R

KH – Khartoum Hospital; SA – Saggai; AD – Abu Darbein; ED – El Damer; AN – Aneibis.
+ – present; R – rare; F – frequent; FF – very frequent.
The vernacular names are taken from Amirthalingam and El Yasaa Khalifa (1965). The Saggai fish fauna has been studied by van Neer (1983).

The preliminary identification of the fish fauna was carried out by A. von den Driesch (Munich). The results are given in Table 1. Up to now, at least 22 species from 17 genera have been recognized in the samples. *Clarias, Lates* and *Synodontis*, the latter represented by at least three species (*S. schall, S. sorex, S. membranaceus*), dominate the ichthyofauna. The bulk of the fish bones are derived from medium sized to very large individuals, though it may be that some sampling bias against smaller individuals has occurred because sieving was carried out with a mesh of 1 mm.

Among the reptiles the following aquatic species could be recognized: Nile crocodile (*Crocodylus niloticus*), Nile monitor (*Varanus niloticus*) and Nile soft turtle (*Trionyx triunguis*). To these, we should add one snake species (*Python*) and a tortoise (*Testudo*).

Bird bones are rare in the samples. According to the late J. Boessneck (Munich), most of the remains belong to quinea-fowl (*Numida meleagris*). Bones of Clapperton's francolin (*Francolinus clappertoni*), Sudan bustard (*Ardeotis arabs*) and of riverine species such as grey heron (*Ardea cinerea*), great white egret (*Egretta alba*), night heron (*Nycticorax nycticorax*), pochard (*Aythya ferina*) and maybe purple heron (*Ardea purpurea*) are also present.

Table 2

Mammals from faunal samples.

Species	Site		
	AD	ED	AN
Porcupine (*Hystrix cristata*)		R	
Mongoose (*Herpestes/Mungo*)	R	R	R
Golden jackal (*Canis aureus*)		R	
Wild cat (*Felis silvestris*)		R	
Caracal/serval (*F. caracal / F. serval*)		R	R
African elephant (*Loxodonta africana*)	R	R	F
Black rhinoceros (*Diceros bicornis*)			R
Hippopotamus (*Hippopotamus amphibius*)	R	F	F
Warthog (*Phacochoerus aethiopicus*)	R	R	R
Giraffe (*Giraffa camelopardalis*)		R	
Wild bovids:	FF	FF	FF
Very small, incl. dikdik (*Madoqua saltiana*)	R	R	R
Small, incl. oribi (*Ourebia ourebi*)	FF	FF	F
Medium, incl. bohor reedbuck (*Redunca redunca*) kob (*Kobus kob*)	R	F	F
Large, incl. topi (*Damaliscus lunatus*) kudu (*Tragelaphus strepsiceros*) roan (*Hippotragus equinus*)	F	FF	F
Very large, incl. African buffalo (*Syncerus caffer*)	R	R	R

AD – Abu Darbein; ED – El Damer; AN – Aneibis.
R – rare; F – frequent; FF – very frequent.

Mammalian remains are abundant in the samples and are derived from many species (Table 2). The minor differences in species composition at the three sites are mainly related to sample size, which is rather small for Abu Darbein. Compared to El Damer and Abu Darbein, the faunal sample from Aneibis yielded quite a number of elephant molar fragments, derived from at least two individuals, as well as numerous bulky bone fragments which we cannot identify anatomically but must belong to that species because of their robustness. Butchering marks on the bones have not been observed and it is an open question whether we are dealing with kitchen refuse. At El Damer, Abu Darbein and Aneibis wild bovids of different sizes were frequently hunted. Generally speaking, the species composition is very similar to the one known from other Sudanese Mesolithic occurrences (Peters 1989b: Table 2), but for the first time we note the presence of a very small wild bovid, namely Salt's dikdik (*Madoqua saltiana*).

Palaeoeconomy and palaeoecology

The analysis of the archaeofaunas from El Damer, Abu Darbein and Aneibis indicate that the subsistence activities of the Mesolithic inhabitants focused on the Nile and its immediate surroundings. According to the ecological requirements of the species present, the archaeofauna can largely be divided into an aquatic and a riverine component. The aquatic component includes the freshwater bivalves, the numerous fish species and the soft shelled turtle *Trionyx*. The second component is made up by animals that dwell in or near rivers such as crocodile, monitor, water birds and mammals frequenting alluvial grasslands, *e.g.* hippopotamus, warthog, oribi, bohor reedbuck, kob, topi *etc.*, as well as those that must drink at regular intervals. As far as we can judge, the archaeofaunas do yield poor evidence for hunting outside the Nile and the Atbara river valleys. We therefore assume that neither the Butana and the Atbai, nor the area west of the Nile were included in the site catchments.

The preliminary quantifications of the faunal material stress the role of fish and mammals as a source of animal proteins. To what extent these contributed in the diet cannot be estimated because we do not know the importance of other food items such as vegetables, seeds, fruits, honey, eggs *etc.* Whether the site inhabitants practiced some form of fish or meat processing cannot be deduced from our preliminary data.

As already mentioned, Mesolithic sites in the Central Sudanese Nile Valley produced numerous fish bones, which, except for the preliminary analysis of the Saggai fish fauna by van Neer (Gautier 1983: 62 - 65), were left unstudied. Bate (1949) relates that "... fish were said to form the most frequent vertebrates at Khartoum Hospital". Dr. Trewavas examined these remains and described them to eight genera, still commonly found in the Nile (Table 1). Besides, Arkell distinguished spines of *Bagrus* during the excavation. To this list, we should add the African lungfish (*Protopterus aethiopicus*), recognized by van Neer in the Khartoum Hospital mammalian sample we restudied (Peters 1986: 13). As to the bone samples collected in 1973 at Shabona, Clark (1989: 405) notes that "The largest components of the fauna are the remains of numerous fish and tortoises, not yet specifically identified". Nevertheless, a model is proposed whereby fishing is considered to be an important dry season activity, that took place as follows: "Creeks would have been dammed and fish caught with spears and, possibly, basket traps or simply by reducing oxygen in the water by trampling the mud and so stupifying the fish" (Clark 1989: 409). However, when, where, and how fish can be captured are preliminary determined by the biology of the fish involved and only secondarily by the available equipment (von Brandt 1984: 32). This is illustrated by Gautier and van Neer (1989) for Late Palaeolithic ichthyofaunas from Nilotic sites in southern Egypt and Sudanese Nubia. Here, remains of *Barbus, Tilapia* and especially *Clarias* contribute to over 95% of the samples. On the basis of their biology in relation to the behavior of the Nile, *Barbus, Tilapia* and *Clarias* can be considered floodplain dwellers (van Neer 1989: 49). Therefore, fishing may have been especially rewarding at the beginning of the inundation when the fish (particularly *Clarias*) enter the alluvial plain to spawn,

when the waters start to recede, or when the alluvial plain dries out, leaving a network of residual pools. In this case, simple fishing techniques such as hand grasping, the use of striking or wounding gear, cover pots, stupefaction of fish by stirring up the mud or with ichthyotoxic plant products may have been very adequate to catch the fish (van Neer 1989: 53).

Mesolithic fish bone samples from the Central Sudanese Nile Valley exhibit a very high species diversity (Table 1). According to the habitat preferences and the migrations in function of the water level (von den Driesch 1986; Gautier and van Neer 1989; van Neer 1989; and others), floodplain dwellers (*Clarias, Barbus, Tilapia*) as well as open water forms (*Bagrus, Synodontis, Lates*) are now present, whereby the second group clearly dominates in the samples from El Damer, Abu Darbein and Aneibis. This indicates that fishing focused on the main Nile channel and on the more extensive water bodies that existed after flooding. To catch fish in open waters, different techniques may have been used but direct evidence is limited. Harpoon fishing can be considered one possibility, since bone harpoons have been found in all Khartoum Mesolithic sites. At Aneibis, a number of potsherds showed traces of secondary use, and some of them were perforated. As suggested by the excavators, these may represent fishline sinkers. Hooks, made of shell and comparable to those known from the younger Khartoum Neolithic sites, are not recorded for the Mesolithic, but other raw materials may have been used for their manufacturing. Apart from harpoon and line fishing, the fish spectrum suggests that nets were also utilized (van Neer 1989: 54). In the latter case, it is not inconceivable that fish species that have well developed spines may have been more vulnerable to predation by man because they become more quickly entangled. To a certain extent, this may explain the abundance of *Synodontis* remains in our samples, although it may have simply been the most common species at the junction of the Nile and the Atbara. Finally, the species diversity as well as the large size of some individuals of *Bagrus* and especially *Lates* indicates that fishing with harpoons, lines and nets was not only practiced from the shore, but also from boats or rafts (van Neer 1989: 55). Unfortunately, direct evidence for the manufacturing of such crafts along the Central Sudanese Nile during Mesolithic times is lacking.

Most likely, harpoons and nets were also used to catch semi-aquatic vertebrates such as monitor and crocodile, whereas snares, traps, bow and arrow (with or without poison) and spears may have been utilized to hunt terrestrial mammals. So far, no trace of hunting implements has been found at El Damer, Abu Darbein and Aneibis.

As noted by the excavators, El Damer and Aneibis are situated on gravel ridges on the edge of the old Nile floodplain. Abu Darbein is situated on the east bank of the Atbara *ca.* 10 m above the present river course. From this, it becomes clear that the localities were chosen to avoid the sites being inundated. Potentially, the sites could have been occupied all year round, be it that an occasional very high water level may have rendered life somewhat more difficult and unhealthy (Gautier 1983: 107). However, if varied resources are available, hunter-gatherer subsistence is characterized by a careful scheduling of their exploitation in space and time. Therefore, the ecological requirements, habits and life

cycles of the various biological resources may help to establish at what time of the year their exploitation by humans may have been most effective. In this respect, the preliminary results of the faunal analysis can be interpreted as follows. First, the fish fauna is dominated by open water forms, which may imply that fishing activities concentrated in periods when the deeper parts of the river were accessible. Second, the mammalian assemblage shows a high proportion of grazing species that are partial to alluvial grasslands (oribi, bohor reedbuck, kob, topi). Third, the freshwater snail *Pila* may have been most easily harvested in drying out swampy areas (Gautier 1983: 94). Therefore, it is likely that the Mesolithic people were present in the area after the floodwaters had started to recede, when fresh sprouting grasses may have attracted antelopes and other animal species. With the drying out of the floodplain, fishing in deeper water could become a major subsistence activity. If the present behavior of the Nile and Atbara rivers compares well with the one during the Early Holocene, El Damer, Abu Darbein and Aneibis may have been occupied from October till June.

The habitat and food requirements of terrestrial animals recognized in faunal samples provide us with information about the local landscape. For the Mesolithic sites above the 6th Cataract, it has been postulated that they were situated in some kind of low rainfall savanna (*sensu* Wickens 1982: Fig. 3, 4), more precisely in the transitional zone between thorn savanna and scrub and deciduous woodland, probably with a precipitation of some 450 to 500 mm of rain (Wickens 1982; Gautier 1983; Peters 1986; 1989a). An important observation in this respect was the presence of cane rat (*Thryonomys swinderianus*), today confined to the deciduous woodland areas within the low rainfall savanna, at Jebel Shaqadud, some 50 km east of the Nile (Peters 1989a; 1989b).

Below the 6th Cataract at El Damer, Abu Darbein and Aneibis, we did not find evidence for *Thryonomys*. Most likely, its absence is related to somewhat drier living conditions and we therefore assume that the area was situated in the thorn savanna and scrub. Between 8,500 and 7,000 years ago, the annual precipitation at the junction of the Nile and the Atbara may have been about 300 to 400 mm.

Our preliminary analysis indicates that there are also some quantitative differences between the Central Sudanese Early Holocene faunas north and south of the 6th Cataract. Whereas the faunas from south of the 6th Cataract are dominated by remains of kob (*Kobus kob;* at Saggai *ca.* 60%, *cf.* Gautier 1983: Table 8; at Khartoum Hospital *ca.* 45%, *cf.* Peters 1986), we noted that north of the 6th Cataract small antelopes (including oribi, *Ourebia ourebi*) and large antelopes (including topi, *Damaliscus lunatus*) were hunted more frequently by the site inhabitants. Differences in floodplain and river bank topography and vegetation may account for the discrepancy observed.

Acknowledgements

The author is indebted to Dr. R. Haaland for giving the opportunity to study the faunal remains, and to Dr. A. von den Driesch for help with the preliminary identification of the fish remains.

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