

Late prehistory of the Central Sudan

Summary

The volume constitutes an attempt at presenting a synthesis of the socio-economic development in the riverain reaches between the 6th Cataract in the north and Jebel Aulia in the south, between *ca* 8.000 - 3.000 BC (*ca* 10.000 - 4.000 bp). Presently available data suggest that this area played a particularly important role in the late prehistory of Africa.

The first major chapter of the volume presents a summary of the results of author's excavations of the Neolithic site of Kadero 1, to the north of Khartoum. In the course of the testing carried out since 1972, rich settlement remains and a burial ground dated to 5th millennium BC (6th millennium bp) were found at Kadero. Two settlement middens assessed to be of some 1.800 cubic meters in total volume have yielded rich faunal evidence pointing to the fact that butchering of domestic animals, mainly cattle, was the main source of red meat for the local social group. Hunting clearly was of secondary importance and fishing was marginal. The local social group was also collecting swamp snails, river bivalves and tree fruits. Imprints of the grains of sorghum found on potsherds from the midden and a large amount of grindstones suggest also the collecting or cultivation of this wild tropical cereal and its processing for food.

The Kadero pottery, lithic and bone implements are similar to those known from Shaheinab, a type-site of the Khartoum Neolithic.

The excavation of the local burial ground yielded 72 Neolithic graves till 1987 (more graves have been found since them in further excavation seasons). Some 10% of these are interpreted as the burials of the elite of the local pastoral group as they showed evidence of elaborated grave pits and contained rich furnishings. Data presented in this chapter are a starting point leading to the next parts of the volume which present the synthesis of the development from the Upper Palaeolithic through the Early Khartoum to the Early and Late Palaeolithic periods in this part of the Sudan.

So far, there is no archaeological data available from the Upper Palaeolithic (40.000 - 8.000 BC) in the part of the Sudan under consideration here. It is thought that similarly to other parts of north-eastern Africa, these riverain reaches of the Central Sudan were inhabited in this time period by groups of food gatherers culturally not very much different from those living in East Africa and on the Nubian Nile. In this chapter the author reviews the development seen in East Africa, where a major shift in the manufacturing of lithic tools took place, *ca* 22.000 - 12.000 bp, leading from the use of larger implements to the use of microliths, probably associated with the use of the bow. The use of points and other tools (also in the form of composite tools) as well as bone heads of harpoons or spears, made possible the exploitation of a wider range of smaller

game living in different biota of the then drier savanna ecosystem. A somewhat similar development could have been seen in this period in the riverain reaches of northern Nubia (1st-2nd Cataract) and in the Upper Egyptian Nile Valley where Late Palaeolithic human groups hunted aurochs and antelopes, fished extensively and collected tubers of wild river plants for food; some of these groups also started to use microlithic tools. Available evidence recently points to a settlement system made up of a permanent base settlement with integrated burial ground and, additionally, associated seasonal camps occupied by task groups.

The Central Sudan was certainly a desert in this arid period and human life was possible only in the river valleys. Scarce remains of settlement from these times have been found in the Dongola Reach, on the lower Blue Nile and on the Atbara river. Of particular interest are the remains of aurochs found in one of the Atbara sites dated to 11th millennium bp which constitutes the, so far, southernmost limit of the distribution of wild cattle in Africa.

Human life started to change dramatically in north-eastern Africa from 10th millennium BC (12.000 bp) with the onset of wetter and warmer climate at the very end of the Pleistocene. In consequence, the northern limit of the Sub-Saharan savanna moved gradually northwards reaching the environs of Khartoum, probably in 10th millennium bp. Rich and diversified biomass available in this savanna, particularly in the aquatic niches, offered new horizons for the human groups.

The following chapter of the volume considers the Early Khartoum period, *ca* 8.000 - 4.900 BC (11.000 - 6.000 bp), a time period of particularly successful food-gathering. The main characteristic was an intensive exploitation of a wide spectrum of a biomass (plants and animals) in the aquatic biota, with the use of spears or harpoons with bone points, bows with microlithic points and other microlithic tools as well as grinding tools. An important innovation was the introduction of the pottery making in the later half of 10th millennium bp. Vessels were decorated with a characteristic wavy line patterns used in the expansive belt of the Sub-Saharan savanna reaching at that time up to the Central Sahara. It is widely thought that this area had been colonized by Negroid groups moving from the south, *i.e.* Central and East Africa, to the north; this author believes that a similar colonizing role was also played by the populations inhabiting the valley of the main Nile who started to migrate to the east and west of the river.

The Early Khartoum archaeological culture represents the remains of the Early Holocene food-gatherers in the Central Sudan. A re-assessment by this author of the presently available evidence produces the following picture of this period.

The Early Holocene climate in the area of Khartoum was humid and warm with dry intervals; a longer dry period took place *ca* 6.500 - 6.000 bp. The riverain reaches of the Central, Sudan were then covered by a rich savanna landscape moistened by rains of *ca* 500 mm annually and high river floods (*ca* 10 m higher than most recently); these floods were able to support permanent swamps along the river. A similar environment exists today some 400 - 500 km more to the south of Khartoum. It seems that three ecological niches may had been exploited by food-gatherers in the Central Sudan at that time:

1. Banks of the river and swamps. Permanent settlements (base sites) associated with burial grounds were located in this nich on low mounds. This was an environment rich in tree and bush fruits, fishes and aquatic mammals (*e.g.*, hippo, sitatunga, water mongoose). Herds of herbivores were concentrating in the dry season in areas where watering places and fodder were still available.
2. Expansive plains of the valley (northern extension of the Gezira Plain), inundated by summer river floods and rains seem to have been covered in this

period by rich grasses and stands of the sunt acacia tolerating water logging. This was certainly an excellent pasture of a high carrying capacity supporting large herds of herbivores elephant, giraffe, rhino, buffalo, different antelopes, warthog), particularly during and shortly after the wet season. This niche seems to have had the highest concentration of plant and animal biomass.

3. The present low and hilly desert cut by wadis, adjoining the plains of the valley was a dry niche wetted only by summer rains. The wadis probably were rich in plant and animal life but mostly during the wet season and immediately thereafter.

Certainly the ecotone between the water and savanna in the Central Sudan was the richest in biomass and therefore most attractive for the Early Khartoum food-gatherers. In consequence, settlement was most intense here, and the base sites with burial grounds were located in this niche.

Little can be said about the size and structure of the Early Khartoum populations. As the burial ground at Saqqai yielded only 5 individuals and with the Khartoum Hospital cemetery yielding only 17 individuals, the presently available information can only be considered as a starting point leading to speculations on this subject. As there were marginal differences in the furnishing of graves in these two burial grounds, there is no reason to assume that the Early Khartoum social groups were differentiated as regards the degree of accumulation of power and goods by different individuals. Perhaps these social groups had more in common with the model of a tribe than with that of a band as defined by present cultural anthropologists.

Six Early Khartoum settlements have been tested in the area under consideration: Khartoum Hospital, Saqqai, El-Qoz, Sarourab 1, Sarourab 2 and Umm Marrahi. However, many more sites must have existed in this area as numerous collections of potsherds made at different localities by different field workers seem to indicate. Frequent occurrence of shells of the land snails (not tolerating water logging) in the middens, clearly show that these six settlements were not flooded by the river and rains. All these sites were situated in the rich ecotone between the river and the savanna.

Contents of the Early Khartoum settlements document well the importance of hunting, fishing and collecting for food but it seems that these occupations were practised with different intensity in different seasons. The settlement system was reflecting these subsistence occupations. It seems, generally, that the social groups were congregating in the base settlements during the dry season and were becoming more dispersed (task groups) on the plains and in the wadis in the wet season. Although the faunal lists from these sites contain as many as some 35 species, the hunting was clearly focusing on the Nile monitor, water turtles, medium size and smaller antelopes (kob, oribi); warthog, buffalo and larger antelopes (tiang, hartebeest, roan) were also frequently hunted. Fishing was intensively pursued, with some 11 species of fish found in the settlements, predominantly *Clarias*, *Polypterus*, *Synodontis*, *Tilapia* and *Lates*. Fishing was pursued in the deep, well oxygenated waters of the main stream of the river (e.g., *Lates*) in the dry season, and in the shallow seasonal waters (*Clarias*, *Tilapia*, *Protopterus*), during the flood and immediately after it. Collecting for food was also practised and this is documented by the high frequency of shells and operculae of the swamp snail *Pila*, shells of the river oyster and other bivalves as well as the fruits of the African hackberrytree and bushes.

The Early Khartoum lithic tools were manufactured mostly of the locally available quartz and chert and of rhyolite occurring at the 6th Cataract. Different kinds of grinding tools were made of sandstone. It is thought that the microliths were used in composite tools. Bone tools are represented by the barbed heads of

spears or harpoons as well as by awls. Pottery making started to be practised in this area at ca 9,400 - 9,300 bp with wavy line and, shortly afterwards, dotted wavy line motives being used as surface decoration.

Finds of marine shells originating from the Red Sea shores made at Saqqai, constitute the earliest record of the far-flung contact of the inhabitants of the Central Sudan.

A brief review of the overall cultural development in this period in north-eastern Africa follows at the end of this chapter. In sum, it was a period of a successful food-gathering practised in the aquatic biota, which became much slowed in the drier 8th - 7th millennium bp. This mode of adaptation could well be seen in East Africa (Turkana, Besaka) and in the Sudan on the lower White Nile (Tagra, Shabona), inlands from the Upper (main) Nile (Shaquadud) and on the Atbara river as well as probably in the Dongola Reach (Khartoum Related Group near Debba) and in the northern Nubia (Khartoum Variant, Final Qadan, Final Arkinian, Catfish Cave). However, the Egyptian Western Desert was already witnessing the beginnings of pastoralism of cattle in this period, from 10th millennium bp onwards and we shall see in the next chapter of this volume what important consequences this phenomenon had for the whole of north-eastern Africa.

The time period of 4,900 - 3,800 BC (6,000 - 5,000 bp) in the Central Sudan is defined as the Early Neolithic. The subsistence of the local human groups started to be based on the exploitation of domestic cattle, sheep and goat but it was still considerably supplemented by hunting, fishing and collecting. There was an increase of the importance of vegetable food stuffs but it is still not clear whether sorghum grains were collected from wild stands or if the wild form was already cultivated. It is significant that the earliest food-production appears in the area of Khartoum contemporaneously with its beginnings in the Delta of the Nile and most probably also in other sectors of this river in Egypt and the Sudan. Most researchers tend to explain the introduction of food-production to the river valley as a result of an influx of Neolithic pastoralists from the Eastern Sahara, and more exactly from the Egyptian Western Desert. Here food production was known earlier, and groups migrating with their herds out of the desert in the period of its major desiccation are seen as having introduced innovations. The author proposes to test the possibility that the introduction of domesticated animals and pastoral technology to the Central Sudan may have come from the north as a result of a far-flung trade and accompanying exchange of goods and ideas.

Mixed pastoral — food-gathering subsistence economy was practised in the riverain Central Sudan in 6th millennium bp in an environment more dry than in the preceding period. This was caused by less rainfall and lower river floods which may have been ca 5 m lower than during the Early Khartoum times. In consequence, the valley was flooded for a shorter period of time and the logging was shallower; less humidity must have caused considerable changes in the local flora and wild fauna. There is no evidence for the existence of permanent swamps in this period. The faunal lists from excavated sites are dominated by species typical for the dry savanna with watering places. The introduction of domestic species and pastoral technology (e.g., burning of the savanna in order to enhance the quality of the ranges) certainly added to the transformation of this ecosystem. Among the three ecological niches characterized in the preceding chapter of this volume the second one, situated on the expansive valley plain and covered with rich grasses and sun-tolerant acacia certainly became, now, the most attractive for the earliest pastoralists: it was an excellent range.

Excavations of the burial ground at Kadero where some 96 Neolithic graves have been found so far, shed first light on the structure of the Early Neolithic populations. A sample of 72 graves excavated in two pits is composed of inhumation

tions rather sharply differentiated as regards the furnishing and the construction of the grave pit. Four classes of graves can be seen at Kadero: graves devoid of any furnishing (69.0%), graves furnished with only one pot of a utility ware (7.2%), graves furnished with 1-3 pottery vessels of different ware or with personal decorations (9.2%) and very rich graves furnished with differentiated goods. Here finds including imported items such as diadems made of the Red Sea shells, lumps of the green malachite and other prestige goods were made including stone mace-heads, bone heads of spears/harpoons, armllets and bracelets made of elephant or hippo ivory, necklaces composed of carnelian beads, lithic axes, composite tools with cutting edge made of the quartz lunates, cosmetic palettes and very fine pottery vessels. These rich graves which constitute 14.5% of all inhumations had deep, regular pits. Remains of an intense red ochre colour were found at the bottom of these pits and suggest that the human corpse was originally laid into the grave in a container covered with a red ochre paint. Human remains of both sexes and different age groups including children have been found in the graves of all classes but in the richest graves adult men seem to predominate. The small group of very rich graves is interpreted as the burial place of the Neolithic social elite at Kadero. Burials of children in this class seem to point to the hereditary character of this elite.

It seems then that the concentration of power and goods was considerably advanced in the Early Neolithic social group at Kadero. This group can be characterized by traits most common in the model which define chiefdoms as proposed by present cultural anthropology.

Eight Early Neolithic settlements have been tested so far in the Central Sudan: Nofalab, Shaheinab, Islang 1, Umm Direiwa 1 and 2, Kadero 1 and 2, Zakiyab 1 and Geili. However, only those at Shaheinab and Kadero 1 have been excavated more intensively. The distribution of these settlements shows that they were located in the riverbank niche and on the expansive, seasonally flooded rangelands on the river valley plain. This seems to reflect two different adaptation strategies of the respective human groups: while pastoralism of cattle, sheep and goat was practised in both of these niches, it apparently had different importance in each of them and was supplemented to different degrees by the collecting or cultivation of the genetically wild sorghum, other plants and molluscs, fishing and hunting. Pastoralism of domestic animals and seasonal exploitation of the wild biomass was heavily influencing the settlement system of these social groups. The Early Neolithic pastoralists were certainly moving around with their herds looking for pastures, watering places or escaping the seasonal inundation.

The considerable volume of the middens of the permanent habitation at Shaheinab and Kadero 1 base-settlements, which are assessed to be of ca 1,200 and 1,800 cubic metres respectively, suggests among other data, an intensive occupation of these sites.

Contents of the Early Neolithic settlements, chiefly those of Shaheinab and Kadero 1, constitute a good record of the subsistence economy and other technologies of their inhabitants. As regards the pastoralism and the exploitation of the domestic herd, the evidence from Kadero 1 seems to be exceptionally rich and illustrative. Only at this site the majority of the animal skeletal remains is heavily dominated by the domestic species, among which cattle heavily predominates. The Early Neolithic domestic animals of the Central Sudan appearing there from ca 4,900 BC are of a similar date as the oldest Neolithic cultures on the Egyptian Nile (Merimde, Fayum A, Badari?). The Khartoum Early Neolithic seems to be a part of a rapid expansion of the earliest production of food on the Nile.

The exploitation of sorghum in the Early Neolithic times is suggested by the impressions of the grains of this tropical cereal found on potsherds originating

from several sites. These grains are described by the botanist as genetically still wild and it is not clear if they were only collected from the wild stand or already harvested from the cultivated field. Grinding of grain is indicated by numerous fragments of upper and lower grindstones occurring mostly in the settlements located in the second ecological niche covered with grassland.

Seasonal hunting was continued in the Early Neolithic and it was now concentrated on the Nile monitor, elephant, rhino, warthog, hippo, giraffe, greater antelopes (kudu, tiang, hartebeest), medium size antelopes (kob) and smaller antelopes (oribi). A new phenomenon was the hunting practised in order to obtain socially prestigious trophies of the hunt such as elephant and hippo ivory and patched skins of gepard. The Early Khartoum tradition of fishing, mostly in the riverbank niche, continued to be pursued, as well as the collecting of the swamp and river molluscs and the fruits of the African hackberry for food.

The Early Neolithic tool-kit developed out of that used by the Early Khartoum people. In the technology of the lithic tools one innovation was the introduction of grinding and polishing. These new techniques were used in the manufacturing of the gouges and axe-heads (celts) as well as the mace-heads and cosmetic palettes. Also the pottery making was considerably developed. Fine ware painted with ochre and polished started to be produced, most probably for funerary use by the social elite. These pots probably constitute the highest esthetic achievement in prehistoric pottery making in Africa.

Numerous finds of perforated marine shells originating from the shores of the Red Sea used for making the diadems and decoration of garments were found as well as lumps of green malachite originating from the Red Sea Hills and lumps of the blue amazonite from the Red Sea Hills in Egypt or from the Central Sahara. They document an extensive far-flung exchange system developing in the north-eastern Africa in this time period. This contact with different distant cultures was an excellent way of spreading not only material goods but also technologies and esthetic patterns.

The chapter ends with a brief review of the cultural development in north-eastern Africa in the 5th millennium BC. The most important phenomenon of the period was the spread of the production of food and the Neolithic culture from the Eastern Sahara (Early and Middle Neolithic of the Egyptian Western Desert) to the Central Sahara and to the main Nile, from the Delta in the north to the lower reaches of the White Nile in the south. It is interesting that in the Sudan the pastoral economy in this time period was practised exclusively in the riverain reaches and not further inland where traditional food-gathering was still pursued.

The final chapter of the volume discusses the Late Neolithic development (ca 3,800 - 3,000 BC). This period is much less known than the preceding one because of the scarcity of the archaeological data. Only four Late Neolithic burial grounds have been tested so far: Omdurman Bridge, Shaheinab, Geili and Saqqai, and no settlement of this period was excavated. It is thought that the natural environment in the Central Sudan in this period was continuing increasingly to be more of the dry savanna type.

The examination of the Late Neolithic burial grounds shows a considerable differentiation of graves as regards the furnishing and construction of the grave pit. This can be seen particularly at Shaheinab. In the excavated part of the cemetery at Shaheinab where 21 graves were found, a group of 6 richly furnished graves were explored and are here being interpreted as a burial place of the social elite. These rich graves contained the remains of adults and children and were furnished with fine pottery vessels and different personal decorations consisting of marine shells, beads and pendants of carnelian and bracelets of hippo

ivory. 10 other graves were devoid of any furnishing and five others had only poor grave goods. Similarly to the situation seen at Kadero 1, the presence of richly furnished graves of children is striking and suggests the existence of a hereditary social elite. The process of the growth of the elite within the local chiefdoms most probably kept its momentum in this time period.

As regards the other economic occupations in the Late Neolithic, more can be said only about the pottery making tradition. Undoubtedly this experienced a technological and esthetic development. Among the new forms the impressive, richly decorated beakers are especially worth mentioning. A new way of decorating the surface of the pots was the rippling technique. It seems that the best Late Neolithic pottery (technologically and esthetically) was made for funerary use by the social elite. Present available radiocarbon measurements seem to suggest that the Central Sudan was the centre of origin of such products as beakers, the rippling technique and the discoidal mace-heads which shortly later appeared also in northern Nubia (A-Group) and on the Egyptian Nile (Tasa, Badari).

Finds made in the Late Neolithic graves of marine shells of Red Sea origin as well as of amazonite suggest that the traditional far-flung exchange network was still functioning in this period.

The Late Neolithic times in the Central Sudan were contemporary to the following important cultural phenomena in north-eastern Africa. In the riverain reaches of Egypt the development led from chiefdoms (Naqada I and II) through the proto-states at the end of the predynastic period (Naqada III) to the first unified state *ca* 3,100 BC. Here, as well as in northern Nubia (A-Group), the leading role of the social elites in gradually accumulating power and goods can be followed particularly well.

In contrast to the main Nile, the Sahara was becoming increasingly dry during this period, most probably forcing its pastoral inhabitants and authors of the impressive rock art to migrate to the oases, rivers, lakes and montane areas. It seems possible that their rather small groups were gradually reaching the Sudanese main Nile valley bringing with them new technologies and esthetic values as well as technical abilities.

An important phenomenon in this period was also the expansion of the pastoral economy to the eastern Sudan, to the Atbara river, undoubtedly from the Nile valley. Perhaps this economy had also reached Ethiopia by this time. Pastoralism was introduced to East Africa (Lake Turkana) *ca* 4,500 bp from Ethiopia or from the White Nile; it was known in the lower reaches of this river already in the Early Neolithic times.

The volume ends with conclusions. Looking from a historical perspective, two major cultural phenomena had taken place in the later prehistory of north-eastern Africa. They were associated with different subsistence strategies and had important social consequences. The earliest phenomenon was the spread of food-gathering based on the intensive exploitation of the biomass available in the aquatic environment through fishing, hunting and collecting, from the Central and East Africa as well as from the main Nile *ca* 8,000 BC. The tool-kit of these food-gatherers was characterized by the composite tools, microlithic technology, bone points and grinding stones. Pottery making was introduced at the start of this period. It seems that the social organization of the groups of these food-gatherers was most similar to the model, as defined by the present cultural anthropology, of the tribe.

The cultural system of food gathering started to be replaced by the production of food, generally from 4,900 BC, although pastoralism of cattle was known in the Egyptian Western Desert from *ca* 8,000 BC. The new system was initially introduced to the Nile, apparently rapidly, from the Delta to the lower White Nile.

It was associated in Egypt and northern Nubia with the cultigens of Eastern Mediterranean origin (wheat, sheep, goat, pig?) and those of autochthonic character (cattle, barley). In the Central Sudan the new economy was associated with domestic animals of northern origin and with the exploitation of local sorghum. In the tool-kit of these north-eastern African food-producers, the grinding of lithic tools and pottery making continued or was introduced. The growth of small but sharply differentiated social elite which accumulated power and goods and developed distinct funerary habits had a most important consequences for this part of Africa. The pastoral cultural system was gradually expanding from the Central Sudan to the Eastern Sudan, Ethiopia and East Africa.