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The Prehistory of the Blue Nile Region (Central Sudan and Western Ethiopia)¹

Abstract

Some general ideas and hypotheses are presented concerning the prehistoric societies investigated by the University Complutense archaeological project in Central Sudan (1989-2000) and Western Ethiopia (2001-2005). The project included a survey of the Wadi Soba-El Hasib region east of Khartoum, excavations of two Mesolithic sites and one Neolithic site in the Wadi Soba area and the survey and excavations at several rock shelters in the Ethiopian regions of Benishangul and Metekkel. Data from different sources are combined in an attempt to construct a coherent historical narrative. Vestiges of some cultural hiatuses were noticed in the Sudanese region, namely at the beginning and the end of the Mesolithic period, the latter involving the emergence of social stratification and the decline in the status of women. The archaeological gap at the end of the Neolithic period is interpreted as a consequence both of the climatic changes and the impediments to social division. Early cultures of resistance and population movements towards the Ethiopian escarpment as an area of refuge are proposed as *longue durée* processes among Nilo-Saharan populations of the Eastern Sahel.

1. Introduction²

The present paper is a short summary of the archaeological survey and excavation work of the Blue Nile area near Khartoum, carried out between 1990 and 2000 by a team composed by different researchers, directed by the author

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² This paper is an enlarged and revised version of Fernández 2003b.

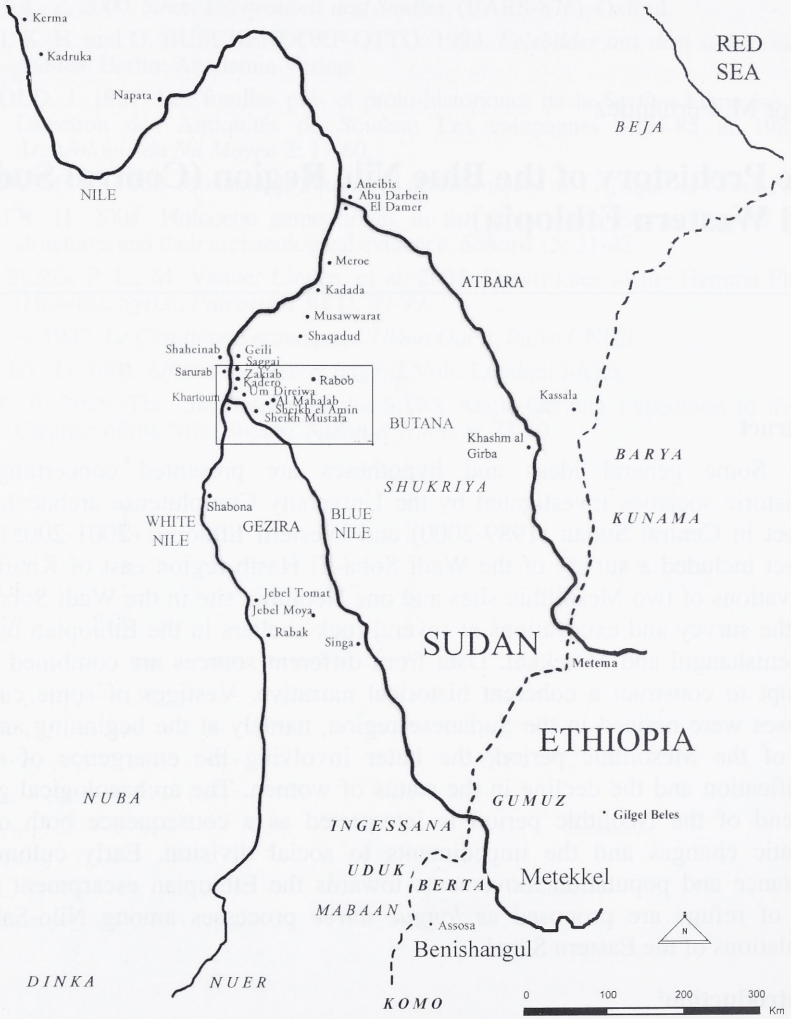


Figure 1. Map of Central Sudan and Western Ethiopia showing the general areas of research. The area within the square is shown in figure 2. The Ethiopian areas investigated, Benishangul and Metekkel, can be seen in the lower right-hand corner of the map. Archaeological sites (dots) and ethnic groups (italics) are indicated.

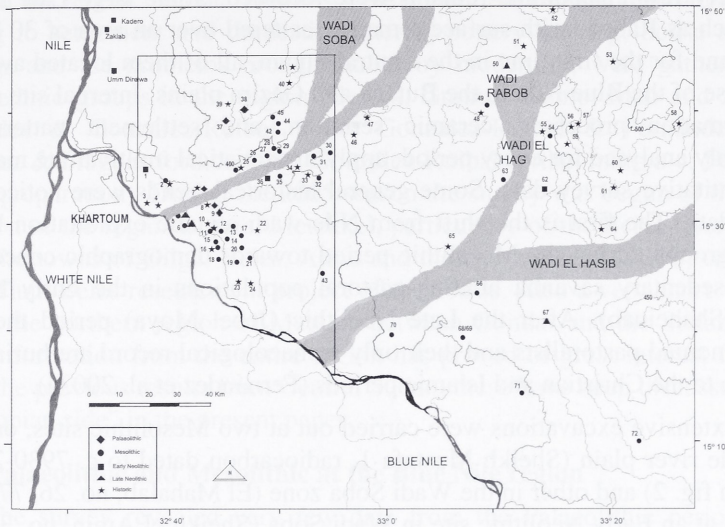


Figure 2. The research area on the eastern bank of the Blue Nile southeast of Khartoum, Central Sudan, showing the sites discovered in the intensive archaeological survey of the Wadi Soba area (1990-1994) and in the archaeological exploration of the Wadi Rabob-el Hasib areas (2000). The excavated sites of Sheikh Mustafa, El Mahalab and Sheikh el Amin correspond to nos. 13, 26 and 36 respectively.

and sponsored by the University Complutense of Madrid and the Spanish ministries of Education, Science and Culture. The final report was published in *Complutum*, the journal of the department of Prehistory, University Complutense (Fernández 2003a). Five seasons of archaeological survey were carried out during the winters of 1990, 1992, 1993, 1994 and 2000. The autumn campaign of 1994 and the winter campaigns of 1996, 1997 and 1998 were dedicated to the excavation of several Mesolithic and Neolithic sites. We concentrated on the Wadi Soba, Wadi Rabob, Wadi el Hag and Wadi el Hasib areas that are immediately upstream from the area investigated in the 1989 season when a rescue excavation was made at the Early Neolithic site of Hag Yusuf (Fernández et al. 1989). A general exploration upstream of the Blue Nile basin as far as the locality of Singa, including the central areas of the northern Gezira, was also undertaken during the 2000 campaign (Figs. 1, 2 and 8).

A total of 95 sites were discovered and recorded. The survey's main objective were the Prehistoric sites (61 sites), the Mesolithic period (Early Khartoum) being best represented with more than 80% of the sites discovered, the Neolithic sites (Shaheinab-Jebel Moya) making up most of the remaining

20%. Very few Palaeolithic remains were recorded. Some large Late Neolithic sites (such as Rabob, with surface remains scattered over an area of 30 ha) have been found for the first time in the Central Sudan, all of them located away from the course of the Blue Nile in the Butana and Gezira plains. Internal site structure and formation processes, ceramic seriation, and settlement patterns were thoroughly analysed for every period, applying statistical multivariate methods to the quantitative survey data. Some general historical trends were noticed in the survey data. The first is the shift from Nile-wadi aquatic exploitation by small mobile groups during the Mesolithic period towards demographic concentration of near-sedentary savanna hunting-pastoral populations in the Early Neolithic period (Shaheinab). After the Late Neolithic (Jebel Moya) period the groups became nomad pastoralists and their only archaeological record are burial tumuli fields up to the Christian and Islamic periods (Fernández et al. 2003a).

Extensive excavations were carried out at two Mesolithic sites, one in the Blue Nile river plain (Sheikh Mustafa-1, radiocarbon dated to c. 7930-7600 bp, no. 13 in fig. 2) and other in the Wadi Soba zone (El Mahalab, no. 26, 7705-6940 bp), and at an Early Neolithic site in Wadi Soba (Sheikh el Amin, no. 36, 5555-4590 bp). Multivariate methods such as principal component and rotated factor analysis were applied to quantitative data from excavated sectors and squares at the three sites. Even though the Mesolithic sites were partially deflated, significant information was gathered on cultural evolution in the area during the 8th – 5th millennia bp. The inferred scenario presents several trends of cultural-economic change. During the Mesolithic period, a shift was recorded from specifically Nilotic pottery decoration (incised wavy line) to Saharan types (impressed rocker and dotted wavy line), and from lithic backed points and narrow lunates, used for fishing and hunting big game, to wide lunates for the hunting of smaller game. Accordingly, hunted game size decreased throughout the Mesolithic sequence. The contribution of fishing to the local economy also decreased over the whole period of the three sites, while plant gathering, deduced from the frequency of grinders and seed impressions on the pottery sherds, increased to a maximum during the Neolithic. A decrease may be inferred, though, for the latter phases when the transition to a pastoralist way of life began (Fernández et al. 2003b).

From 2001 to 2005 an archaeological and ethnoarchaeological survey of the Blue Nile area in Western Ethiopia was undertaken under the author's direction, concentrating on the Benishangul-Gumuz regional state, both in the region southwest of the Blue Nile, Benishangul, and in the northeastern area, Metekkel (Fig. 1). Around the state capital, Assosa, and the small towns of Bambasi and Menge, all in Benishangul, several granite rock shelters with human occupation remains were excavated. Archaeological deposits from the final Middle Stone

Age until the recent 'Nilotic' cultures were unearthed. Ethnoarchaeological data, referring to settlement and domestic patterns, pottery making, house symbolic meanings and the problems brought about by modernity, were gathered from several ethnic groups in the region (Bertha, Gumuz, Komo, Mao and Amhara) (Fernández & González-Ruibal 2001; González-Ruibal & Fernández 2003; Fernández & Fraguas forthcoming; González-Ruibal forthcoming a-c; Fernández et al. in preparation). During the 2005 season the survey was begun of the northern region of the regional state, Metekkel, particularly of the Beles river terraces around the towns of Gilgel Beles, Almu and the new villages (*amba*) created by the big Tana-Beles resettlement project of the 1980s. Also a very short visit was made to the northern region of Metema between Gondar and the Sudan border. As the information from the entire region has proved of great interest for interpreting the previous results from Central Sudan, these have been discussed "from the Ethiopian side" in the present paper.

2. The Palaeolithic and Mesolithic at the Blue Nile region

The survey revealed very few data from the Palaeolithic period in the Sudanese region. The scant Middle Palaeolithic remains found suggest that the area was not totally uninhabited, as it was already known from a few other localities, such as Singa or Abu Hugar (Arkell 1949b: 45-47, pl. 27: 5-7). Not one single Upper Palaeolithic site was recognised, though lithic tools considered typical of that period (end scrapers, truncations) are more abundant in the Mesolithic sites of the eastern wadis than in those near the river, maybe as a result of cultural influences from Eastern Sudan where Late Palaeolithic industries have been recorded (Elamin 1987; Marks 1987).

At some of the rock shelters excavated in Western Ethiopia south of the Blue Nile near Assosa (Benishangul), namely K'aaba and Bel K'urk'umu, a rough industry in quartz was recorded, dated to the second half of the Holocene period. The retouched tools were mainly side and end-scrapers with a lunate only found in the upper levels of the second site. Technologically, though there were quite a lot of unidirectional and a few blade cores, the industry has very clear archaic features since a significant amount of the cores were centripetally flaked, with some discoid and Levallois examples, as in the previous late Middle Stone Age industry unearthed in the K'aaba lower levels (Fernández et al. in preparation). A different scenario emerges from our recent survey season north of the Ethiopian Blue Nile in the Metekkel region (June, 2005), which has revealed quite a large number of lithic surface scatters on the terraces of the Beles river, a northern tributary of the Blue Nile, and also in the Metema region west of Gondar and near the Sudan border. The industry is quite different from that of Benishangul, it is based mostly on blades and bladelets, knapped from fine-grained stones, chert and agate, and has a typical Upper Palaeolithic look. The

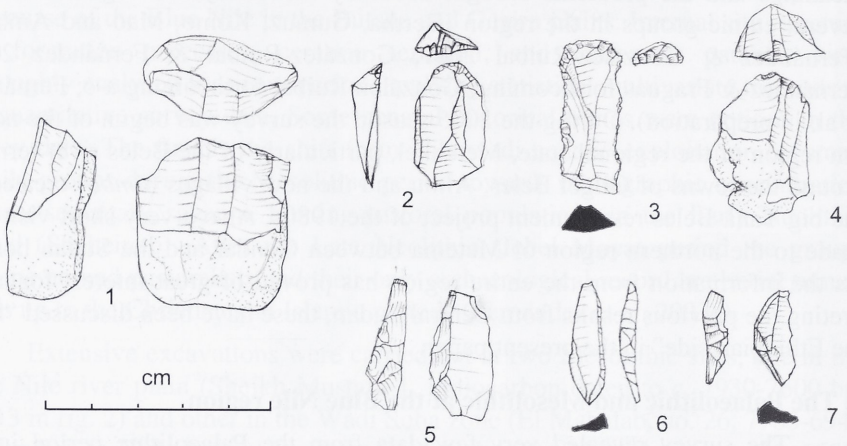


Figure 3. Lithic core and tools from the Beles river basin in Western Ethiopia. Blade core in agate (1), end-scrapers in chert (2) and agate (3-4), and backed blade (5), backed point (6) and lunate (7) in chert.

commonest technique was simple blade production from agate pebbles with a prepared, usually unfaceted platform at only one end (Fig. 3: 1). Retouched tools included mostly end-scrapers (Fig. 3: 2-4), backed blades (Fig. 3: 5) and a few microliths (Fig. 3: 6-7). Except for the smaller geometric component in the Beles sites, the industry is not very different from that recorded at the terminal Pleistocene and early Holocene sites of the Khasm el Girba area by the Atbara river in Eastern Sudan (Marks 1987; Marks, Peters & Van Neer 1989). The backed point no. 6 is exactly the same type that appears by the hundreds in any Mesolithic site in the Central Sudanese region (Fernández et al. 2003b: figs. 33: 18, 57: 29-30, 33-38). This evidence points to the possibility that the Sudanese hunter-gatherer groups took refuge in the Ethiopian elevated areas where there was still grassland and savanna during the period of extreme aridity of the Last Glacial Maximum around 18,000 bp (Clark 1988: fig. 3), and returned to the plains when the climate became wetter at the end of the Pleistocene period.

According to our data, it seems that the whole Central Sudanese research area was almost empty before the eighth millennium, probably because of the frequent Blue Nile floods and the formation of swampy areas (Wickens 1982: fig. 6). Geochemical evidence from the base levels of El Mahalab (EM) site sug-

gests that climate was wetter before 8000 bp than in the following period (Lario et al. 1997). Significantly, the dates from Mesolithic sites in the Khartoum region are mostly more recent than 8000 bp, the few earlier ones (from a single site, Sarurab, cf. Khabir 1987) being not very reliable and probably not associated with cultural remains (Caneva 1999: 33). Six dates from Abu Darbein near Atbara in Eastern Sudan are between 8640 and 8330 bp (Haaland & Magid 1995: 49), this being perhaps another indication of the pre-eminence of eastern cultural influences on the area. Dates from the scarce sites known south of Khartoum hint at an even later date for the Mesolithic adaptation: e.g. 7470-7050 bp at Shabona (Clark 1989: 389). Furthermore, only a few small Mesolithic sites were found during our exploration of the Blue Nile area from Wad Medani to Singa (Fernández et al. 2003a: sites nos. 85, 86, 92). Several Mesolithic-like sherds were found by the author in our recent excavation in Ethiopia near the Sudanese border (Bel K'urk'umu rock shelter near Assosa), from a level dated to ca. 5000-4500 bp (Fig. 4: 1-3). A slightly earlier chronology has been proposed for the few wavy line sherds discovered in the Lake Turkana basin (Phillipson 1977: fig. 19, 3). All this evidence, albeit scanty, hints at a northern rather than a southern origin for the Early Khartoum culture in the Middle Nile region, contradicting previous hypotheses that proposed its source in the Great Lakes region (Stewart 1989).

What clearly distinguishes the Khartoum region, when compared with neighbouring areas, is the abundance of incised wavy line (WL) over other decoration types, namely the rocker impression which is characteristic of other regions. WL is also found in other Nilotic areas, but is considerably less frequent: 4% at Shabona (Clark 1989: fig. 12), 11% at Abu Darbein (Haaland & Magid 1995: 113) and around 16% in the Dongola reach (Shiner 1971: 141). Some of our surveyed and excavated sites, such as Karnus or Sheikh Mustafa, have percentages of WL amounting to more than 60% of the pottery sherds (see Fernández et al. 2003a: table 5). A high frequency has also been recorded at the Early Khartoum Hospital site (Mohammed-Ali 1982: 76). The results of our sites' seriation further suggest that even earlier sites producing only WL pottery without the rocker variety could exist and be found in the future (Fernández et al. 2003a: fig. 46). The invention of the WL technique in this region can be confidently postulated and perhaps it is no coincidence that undulating lines begun to be applied to pottery in the best-watered region of all the Saharan-Sahelian 'aqualithic' complex extension. Later, the same symbol was used to represent water in the Egyptian hieroglyph script (Wilkinson 1992). The subsequent gradual replacement of WL with rocker as the main decoration technique, which is evidenced by seriation and stratigraphical data both in the Blue and the main Nile, may have been a reflection of progressive cultural influences from the Saharan area. Also the early arrival of dotted wavy line (DWL) pottery to the

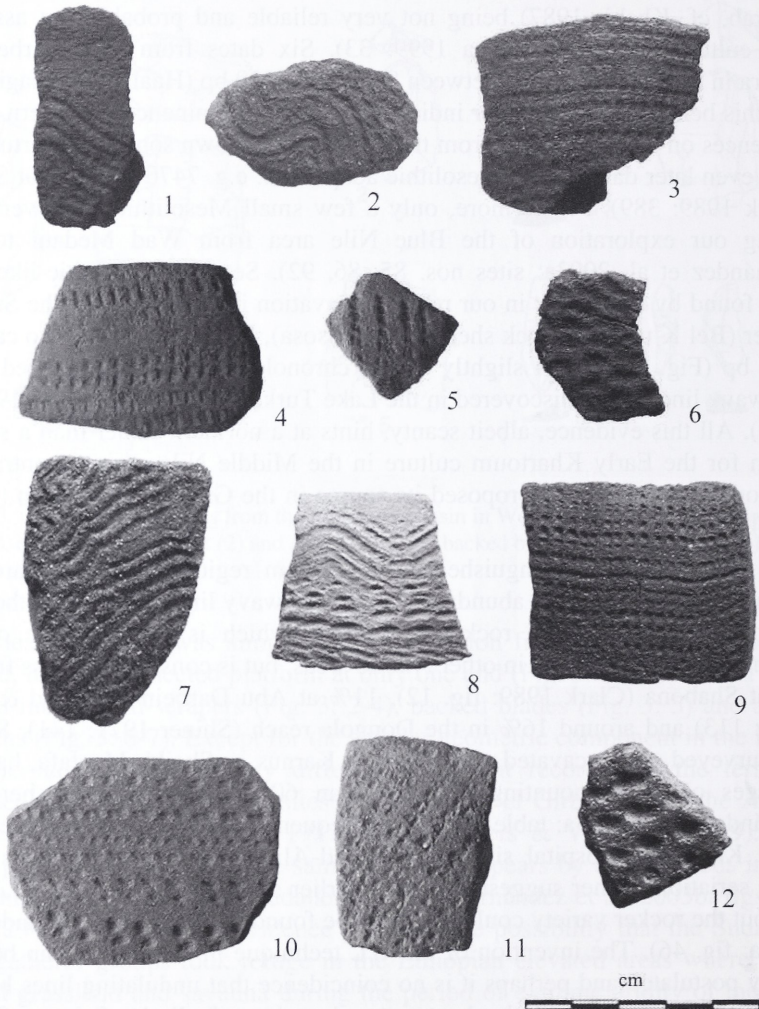


Figure 4. Pottery sherds from Western Ethiopia (1-6) and Central Sudan (7-12). The different decoration techniques may be compared: Wavy Line (1, 7), Dotted Wavy Line (2, 8), rocker impression with packed zigzag (3, 9) and spaced zigzag (4-5, 10-11), and Alternately Pivoting Stamp (6, 12). Sherds from Bel K'urk'umu (1, 3-6), Bul K'aito (2), Sheikh Mustafa (7-9), El Mahalab (10, 11) and a Mesolithic sherd from the Neolithic site of Sheikh el Amin (12).

Nile, attested by its occurrence in the two excavated Mesolithic sites (Sheikh Mustaba and El Mahalab), suggests that Saharan connections could have existed during most of the Mesolithic period.

Eventually, the Central Sudanese area lost its cultural originality and became integrated into the larger Saharan region. A few of the sites discovered in our survey can be ascribed to a later phase of the Mesolithic period in the region, characterised by the disappearance of WL pottery and the abundance of rocker and DWL types (Caneva & Marks 1990: 21-22; Caneva et al. 1993: 247-248).

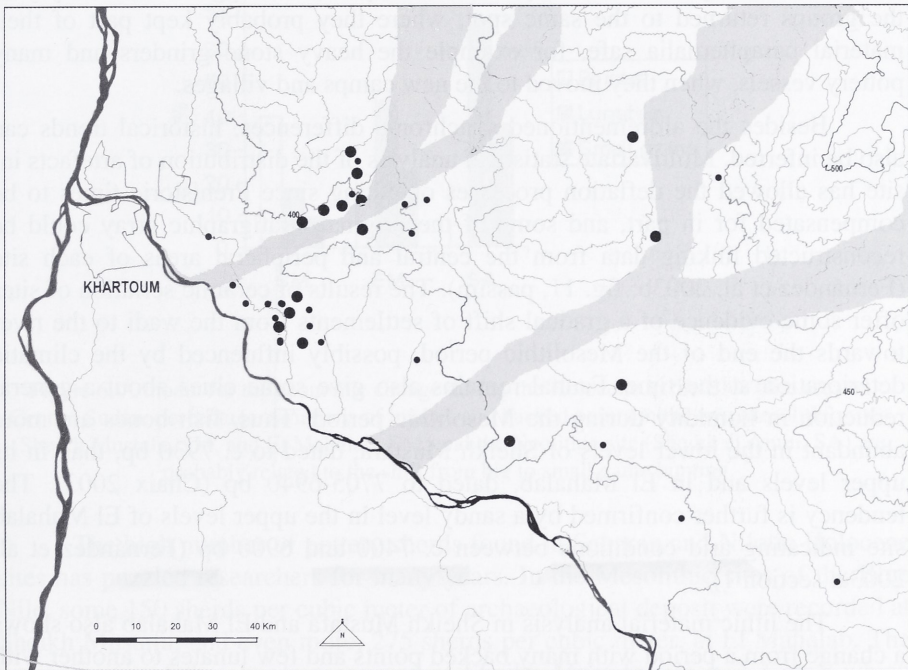


Figure 5. Distribution of Mesolithic sites in the Wadi Soba-Rabob-El Haj-El Hasib area (Central Sudan); bigger and smaller dots indicate larger and smaller sites.

In the light of the distribution of Mesolithic settlements over the Blue Nile landscape (Fig. 5), a model of seasonal movements between the river and wadi areas may be inferred. Probably as the Nuer used to do in recent times (Evans-Pritchard 1940), the groups moved towards the river and split into small parts at the beginning of the dry season, and later gradually concentrated on the last available water sources at the end of the season. Small and large archaeological

sites recorded in the riverine area could correspond to camps at the beginning and end of that period. More permanent villages seem to have been erected during the river flooding in the rainy season, when people would leave the alluvial plain and move to the wadi areas where elevated land made permanent settlements more practicable. Analysis of fish remains (Chaix 2003) and pollen from sediment samples (Ĺpez & Ĺpez 2003) indicate the proximity of deep waters at the wadi excavated site, El Mahalab. Also the ceramic seriation and settlement patterns (Ferńndez et al. 2003a: section 6) agree with the model, which had already been proposed on the basis of ethnographic analogy (Clark 1989: fig. 14). The copious material inventory found at many of the surveyed sites suggests that every year the groups returned to the same spot, where they probably kept part of their material paraphernalia safe, for example the heavy stone grinders and many pottery vessels, when they moved to the new camps and villages.

Besides the aforementioned synchronic differences, historical trends can also be inferred. Multivariate statistical analysis of the distribution of artefacts in-site has allowed the deflation processes operating since Prehistoric times to be compensated for in part, and some of the original stratigraphic array could be reconstructed linking data from the central and peripheral areas of each site (Ferńndez et al. 2003b: fig. 11, *passim*). The results of ceramic seriation of sites offer some evidence of a gradual shift of settlements from the wadi to the river towards the end of the Mesolithic period, possibly influenced by the climatic deterioration at the time. Faunal remains also give some clues about a general reduction in humidity during the Mesolithic period. Thus, fish bones are more abundant in the lower levels of Sheikh Mustafa, dated to c. 7930 bp, than in its upper levels and in El Mahalab, dated to 7705-6940 bp (Chaix 2003). The tendency is further confirmed by a sandy level in the upper levels of El Mahalab site indicating arid conditions between c. 7400 and 6900 bp (Ferńndez et al. 2003a: section 1).

The lithic material analysis in Sheikh Mustafa and El Mahalab also shows a change from a period with many backed points and few lunates to another with many lunates, especially broad types, and few backed points. The trend continued during the Neolithic period, when broad lunates are predominant. The change has been interpreted as related to climatic change and consequent variations in game availability. Many of the narrow-backed bi-pointed bladelets from the earliest times, particularly frequent in the lower levels of Sheikh Mustafa, could have served as fishhooks (Camps 1974: 232), since bone harpoons were not found. Both the faunal analysis (Chaix 2003) and the palaeodietary analysis of human bones (Trancho & Robledo 2003) from the same level indicate abundant fish consumption. Some points and narrow lunates were probably used as sharpened arrowheads, especially effective for killing big

animals, while broad lunates were more efficient as chisel-ended arrowheads to hunt smaller and faster game (Clark et al. 1974; Nuzhnyi 1989). Faunal data from the three sites show a constant reduction in game size from the earlier to the later Mesolithic sites (Sheikh Mustafa to El Mahalab) and later in the Neolithic site of Sheikh el Amin (Chaix 2003) (see correlation of lithic and faunal variation in the three sites in Fig. 6).

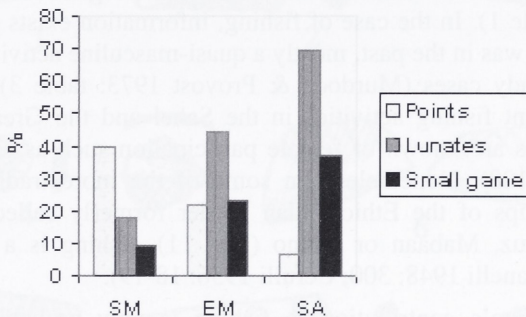


Figure 6. A model for the economic change during the Holocene in the Blue Nile area of Central Sudan: percentage variations of lunates and backed points in the two Mesolithic sites (Sheikh Mustafa, SM, and El Mahalab, EM) and the Neolithic site (Sheikh el Amin, SA) are probably related to the shift from big to small game hunting.

The high number of pottery sherds found in Saharan and Nilotic Holocene sites has puzzled researchers for many years. In the Mesolithic sites of the Blue Nile, some 150 sherds per cubic meter of archaeological deposit were recorded at Sheikh Mustafa, and even more, 275 sherds per cubic meter, at El Mahalab. The average size of the sherds recovered at Sheikh Mustafa site is 7.3 cm², which represents a mere 0.4% of the total area of a hemispherical bowl with a mouth diameter of 35 cm (mean value for 176 measurable rim sherds, see Fernández et al. 2003b: table 4). As an average value, then, each pot broke into 250 fragments. Could this have been the result of a deliberate process? As Nigel Barley puts it, “in Africa death involves the breaking of pots while marriage involves making them” and it is the very friability of pots which makes them “a source of ritual power” (Barley 1994: 92, 112).

There have been quite a number of theories on why pottery was invented and the way it was first used. Most authors have insisted on the new possibility of processing food by boiling and steaming that render meal more digestible and

palatable (e.g. Haaland 1992: 48). Among the Mesolithic groups of the Sahara and Nile Valley the meal could have consisted of gathered plants (Haaland 1992: 48), mostly cereals whose seeds have been found in some archaeological deposits (Barakat & Fahmy 1999) and whose impressions were recorded on sherds from several excavated Mesolithic and Neolithic sites (Magid 1989; 1995; 1999; 2003; Stemler 1990). It is also naturally proposed that fish was processed in the form of stews or soups in the pottery vessels (Sutton 1974; Stewart 1989; Haaland 1992). Plant gathering and domestic pottery making have usually been interpreted as female activities, on the basis of widespread ethnological data (Murdock & Provost 1973: table 1). In the case of fishing, information exists that today it is, and thus probably was in the past, mostly a quasi-masculine activity in up to 82% of the African study cases (Murdoch & Provost 1973: table 3). Men perform most of the current fishing activities in the Sahel and the Great Lakes areas, though some cases are known of female participation such as among the Nuer (Murdock 1967: 188). Nonetheless, in some of the more traditional, isolated Nilo-Saharan groups of the Ethio-Sudan border formerly called "pre-nilotes", such as the Gumuz, Mabaan or Komo (Fig. 11), fishing is a predominantly female task (Grottanelli 1948: 300; Cerulli 1956: 18-19).

While women's contribution to fishing is only probable, their nearly certain association with pottery and food-plants makes a good case for an important female role in Mesolithic expansion. A broad system of women exchange marriage has been advanced as a possible explanation for the striking similarities of Saharan pottery decoration (Caneva 1988b: 369). If decoration and generally stylistic behaviour may be considered a system for displaying information, aimed at a target population group that need the messages and can decode them (Wobst 1977), then the symbols embedded in the pots could probably be "understood" from the Atlantic Ocean to the Red Sea. One is tempted to imagine a single shared ideology for the whole of that vast area. A distant glimpse of this ideological domain may be caught in the strange scenes of the Round Heads style of rock art from the Central Sahara. Here male figures outnumber women but these often appear playing a prominent role (Sansoni 1994: 208; 1998: 149). Sometimes women are represented next to hemispherical containers full of what are probably seeds, or dancing in "worship" scenes, their bodies richly decorated with motives (scars?) that are reminiscent of the ceramic decoration repertoire (Barich 1998: 112-113). Regular association of motifs on pots and on the human body has been reported in Africa (Barley 1994: 128-132), as too has the possibility that scarification was one of the primary arts of the continent (Rubin 1988: 15). Early pottery excavated at Nabta in the Egyptian western desert has been ascribed a social and symbolic function because of its very scarcity (Close 1992: 162-163), and the long tradition of finely decorated Sudanese pottery that continues until the Meroitic and even the Christian period,

has been also interpreted as evidence of its probable continuous association with ritual practices (Edwards 1996: 74-75). The decorated bone fragments, usually with cross-patterned incised lines, frequently found in the Mesolithic sites, could be also connected with the symbolic realm (Fig. 7).

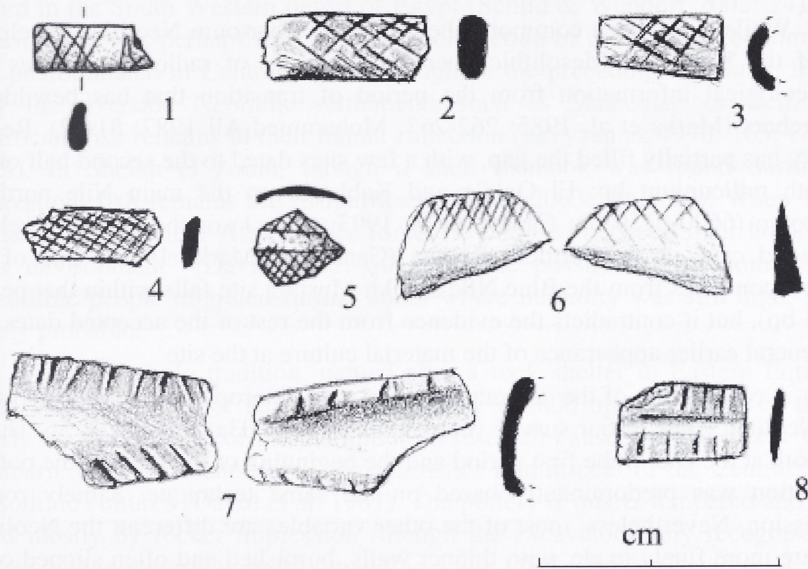


Figure 7. Incised bone (1-4, 6-8) and ostrich eggshell (5) fragments from the Mesolithic site of Sheikh Mustafa (Central Sudan).

Women and children are clearly over-represented in the meagre funerary evidence known from the Mesolithic period. At the Sudanese site of Saggai, four out of five excavated burials are of women (Coppa & Macchiarelli 1983: 118-122), and the few graves excavated in the Sahara, for instance at Uan Muhuggiag (Lybia) and Amekni (Algeria) are also of women and children (Barich 1998: 111). At the Egyptian Neolithic site of Merimda Beni Salama, the exclusive internment of women and children has been interpreted as a probable indication of matrilineality (Hassan 1988: 169). In Nubia, women also played an important role in Early Neolithic society, as evidenced by the almost exclusively female and child burials in El-Barga cemetery near Kerma (Honegger 2003: 289; forthcoming) and the prominent location of some female graves in the Kadruka

18 cemetery (Reinold 2000: 80-81; 2001: 6). Sometime later, data from the small Kerma cemetery of Abri in Northern Sudan (calibrated radiocarbon dated to ca. 1750 B.C.; Ferńndez 1982: 289-302), where female graves are more richly furnished than male burials, suggest the probable survival of higher female status in the rural areas far from the centres of power such as the Kerma capital itself.

2. The transition to a Neolithic economy

While it has been commonly held that the Khartoum Neolithic developed out of the Khartoum Mesolithic, there is a paucity of radiocarbon dates and archaeological information from the period of transition that has bewildered researchers (Marks et al. 1985: 262-263; Mohammed-Ali 1987: 81-82). Recent inquiry has partially filled the gap, with a few sites dated to the second half of the seventh millennium bp: El Qala'a and Kabbashi on the main Nile north of Khartoum (6620-6150 bp; Caneva et al. 1993: table 1) or the middle levels of Shaqadud cave in the northern Butana (Caneva & Marks 1990). One of the radiocarbon dates from the Blue Nile Sheikh Mustafa site falls within that period (6295 bp), but it contradicts the evidence from the rest of the accepted dates and the general earlier appearance of the material culture at the site.

A comparison of the ceramic seriation models proposed for the Mesolithic and Neolithic sites in our survey (Ferńndez et al. 2003a: figs. 46 & 56) shows that both at the end of the first period and the beginning of the second, the pottery decoration was predominantly based on the same technique, namely rocker impression. Nevertheless, most of the other variables are different: the Neolithic pots are more finely made, with thinner walls, burnished and often slipped outer surfaces, and new smaller vessel types and decoration types, such as plain pots, black topped red vessels and finely incised bowls, only appear from the beginning of the period. The overall impression of the pottery at hand is that it is of a quite different kind. Even the old rocker impression appears to have changed, combining different and finer comb-tools.

A significant shift also occurs in the settlement patterns: not one single important Mesolithic site was inhabited during the following period. Most, if not all, Neolithic settlements were occupied for the first time. Although Mesolithic sherds have been found in some Neolithic sites (Arkell 1953: 68; Krzyzaniak 1978: 171), they come from small settlements that were probably short-term camps such as those found in abundance during our research (Fig. 5). Even if we take into consideration the case of the Sheikh el Amin Neolithic site, where our excavations have revealed a certain amount of Mesolithic DWL sherds all over the site (Ferńndez et al. 2003b: fig. 50: 15-18), definite evidence of local transition between the two periods does not seem to be present. The general

impression is, then, that an important change took place in the region with the arrival of new groups with a different, livestock herding economy.

Climatic changes that occurred around 6000 bp represented the "great mid-Holocene arid phase" in the Sahara (Muzzolini 1995: fig. 30), corresponding with lower sea surface temperatures in the Mediterranean recorded after 5900 bp (Hassan 2002: 322) and the "Post-Late Neolithic arid phase" of the Nabta Playa record in the South Western desert of Egypt (Schild & Wendorf 2002: 24). This deterioration was perhaps the cause of a contraction of the aquatic economy that had predominated in Central Sudan throughout the preceding millennia. In fact, only the riverside Neolithic settlements such as Shaheinab or Geili have significant fish remains in their faunal collection (Krzyzaniak 1978: 165; Gautier 1988). In Sheikh el Amin, though a shell fishhook was found during the excavation, fish remains are insignificant (Chaix 2003: table 12). When facing climatic deterioration, Africans are forced to choose "between their homes and their environment" (David 1982: 50), and the possibility that some of the Mesolithic people migrated further south where humidity was still high, seems highly probable.

The Lokabulo tradition, named after a rock shelter in Eastern Equatoria some 1000 km south of Khartoum and dated to 3800 bp (Fig. 1), even though poorly known because of the disruption to research caused by the recent war in Southern Sudan, presents some characteristics reminiscent of the Central Sudan Mesolithic cultures (David et al. 1981). The pottery is quartz tempered and decorated mostly by rocker impression (though the excavators only recognised the spaced zigzag pattern as such), including some DWL sherds (David et al. 1981: fig. 6, pl. 1). Peter Robertshaw warned against drawing parallels between the same decoration technique (generally, comb-impression) from distant areas, arguing that Lokabulo sherds differ from those of Jebel Moya and thus rejecting the relationship between the prehistoric cultures of southern and central Sudan (Robertshaw 1982: 92). Nonetheless, central Sudanese Mesolithic rocker pottery is also clearly distinct from and earlier than the Jebel Moya pots decorated with simple impression, and Robertshaw's comparison of Lokabulo and Kenyan Kansyore pottery, some of which also appears to be decorated with simple impression, does not seem to be substantiated either (Robertshaw 1982: fig. 2). The faunal remains of Lokabulo consisted only of hunted wild fauna and the excavated deposits yielded a considerable number of mollusc shells, though they were devoid of fish remains (David et al. 1981: 11-19; David 1982: 52-53). Linguistic data, however, suggest the presence of a food-producing economy in Southern Sudan since the third millennium bc (Ehret 1982: 28) and thus contradict the scenario resulting from Lokabulo and other sites in the Eastern Equatoria region, which suggests a Later Stone Age hunter-gatherer economy well into the first

millennium AD (David 1982: 53). The more western site of Jebel Tukyi, with a more recent date (2130 bp), produced large domestic cattle (David 1982: 51) and rocker impressed pottery which Randi Haaland has identified as belonging to the Khartoum Neolithic tradition (Haaland 1992: fig. 11, 61-2).

Recent data from the Spanish survey research in Benishangul, West Ethiopia, halfway between the Khartoum and Eastern Equatoria regions (Fig. 1), are relevant here. The excavations of the Assosa area rock shelters yielded abundant quartz-tempered, Mesolithic-like sherds with WL, DWL and especially rocker decoration (Fig. 4). As in the Lokabulo site (David 1982: 52), at the Bel K'urk'umu rock shelter the pottery appears in the upper part (radiocarbon dated to 4965-4470 bp) of a Late Stone Age level with an archaic flake quartz industry that was described earlier in this paper. The same pottery types continue in the upper level, together with a similar industry but with fewer formal tools, dated to 2020-875 bp. In another excavated shelter nearby (Bul K'aito), rocker and DWL sherds (Fig. 4: 14) appear together with different pottery types, incised and grooved, dated to the first and early second millennium AD. The economy of these groups is not yet known since bones were not preserved in the shelters' acid soils, nor plant remains were found in the deposits or the pottery sherds. A possible fragmented "net-sinker" in pottery (Haaland 1992: fig. 3) found in the K'urk'umu shelter could indicate some fishing practices. Anyway, the persistence of old pottery types up to the first millennium AD recalls the Eastern Equatorial evidence, as do the archaic features of the current "pre-Nilotic" peoples in the border region between Sudan and Ethiopia (Grottanelli 1948). Some of these traits, such as the relevance of plant gathering and fishing, absence of big livestock, some matrilineal kinship remnants, incisor teeth extraction (Murdock 1959: 170-180; Bender 1975: 9-19) and even the racial morphological characteristics (Arkell 1949a: 114) are to some extent reminiscent of Khartoum Mesolithic features.

The Sudanese site of Sheikh el Amin shows major differences compared with other known Neolithic sites in the region. First of all it is located in the Butana plain far from the Nile, and this means a savanna economy with very little fish or the exploitation of other river resources. Livestock also appear to have been of minor importance to its inhabitants (cattle, 11,1%, sheep, 1,9%), since faunal remains are mostly of hunted wild fauna (87%; Chaix 2003: tables 12-14). After the crisis at the beginning of the Neolithic period referred to above, the climate in the site region became humid again, as implied by the faunal (e.g. Phacochoerus, Chaix 2003) and the vegetal remains (e.g. Carex, Celtis and Sorghum, see Magid 2003: table 1). The exploitation of food-plants seems to have been intensive in this site, where about 30 plant impressions on pottery have been recorded (Table 1). The proportion of sherds with plant impressions

compared with the total number of sherds recovered and examined, however, is lower than in the Mesolithic sites (0.071 % in Sheikh Mustafa, 0.085 % in El Mahalab, and 0.053 % in Sheikh el Amin). If the greater variation in plant species at the latter site is not an outcome of the larger pottery sample analysed (56,761 sherds, compared with 7,001 in SM and 4,680 in EM), or any other factor relating to pottery making and the processes of plant impression, it would indicate a greater emphasis on gathering activities in Neolithic times in the Butana plain. The large quantity of stone grinders excavated at the site suggests the same thing. A mean value of ten grinder fragments per excavated square meter, the frequency amounting to nearly 20 pieces in the central part of the site, were recovered in Sheikh el Amin. These figures are not as high as in the deeper levels of Kadero, where as many as a few hundred were found per excavated meter (Krzyzaniak 1978: 166), but they are much more abundant than in Shaheinab where only a few pieces were found (Arkeell 1953: 54). The lower number of grinders at the more recent areas of Sheikh el Amin possibly indicates the decreasing importance of plant exploitation when the climate changed towards the current arid conditions in the Late Neolithic period. As regards the much debated issue of early plant cultivation during the Mesolithic and Neolithic (see recent arguments in Haaland 1996; 1999; Magid & Caneva 1998), the wide variety of species in our data, with 10 different plants identified in 39 pottery impressions (Table 1), suggests a broad-spectrum exploitation of the environment, with the emphasis on seeds and fruits, rather than a concentrated strategy on a particular cereal plant, even if sorghum is the most prevalent species as it is in other Central Sudanese sites (Magid 1989; Magid & Caneva 1998; Magid 2003).

4. The Late Neolithic gap in the archaeological record

As in other regions during the Holocene, the Saharan Neolithic societies underwent major changes towards economic intensification and social ranking. The new condition has often been labelled "complexity", yet it would be better described as "inequality" (Paynter 1989; McGuire & Paynter 1991; Price & Feinman 1995). According to the anthropological data, tending animals, particularly cattle, involves such an assiduous commitment that there is a ubiquitous tendency for herds to be the private property of extended families inside the clans. This involves a major transformation in the social relations of production and the ideology of prestige (Ingold 1980). Archaeologically, the appearance of independent animal enclosures in the first farming societies has been interpreted as evidence of some kind of private property. In the Egyptian sites of Merimda and El Omari this feature is accompanied by separate grain silos in the huts, as opposed to the communal silos recorded at the earlier site of Fayum (Hassan 1988: 154-155; Midant-Reynes 1992: 116). In the Saharan area, Bovidian rock

art scenes change compared with the previous Round Head style, with an under-representation of the female figure in the drawings that conforms to the emergence of a pastoral ideology that attributes a greater significance to the masculine figure (Barich 1998; Gifford-Gonzalez 1998).

Even though no evidence of that kind – individual silos or enclosures – has been detected in the Khartoum Neolithic sites, there are several indications that social inequality was beginning to develop in this area too. At the Neolithic cemetery of Kadero, both the location and amount of grave furniture were used to differentiate the dead (Krzyzaniak 1991: table 1, figs. 2-3), most probably according to their social status (Binford 1971: table 4). The importance of men over women at the site is manifest, with 20 out of 28 adult graves whose sex could be ascertained, and six out of the eight richest tombs belonging to male individuals (Krzyzaniak 1991: table 2). Important socio-technical artefacts, such as porphyry mace-heads, were in all cases found associated with adult men graves (Krzyzaniak 1991: 523). The social élite was also ascribed grave furnishings of marine shells and malachite/amazonite objects traded from abroad (Krzyzaniak 1991: 531). The very fact that the two richest grave categories include children could even indicate that prestige was not merely acquired during life but inherited, just as it has been postulated an idiosyncratic feature of hierarchical chiefdom societies (Peebles & Kus 1977). Proof that this process was constantly proceeding in the Central Sudan comes from the cemeteries of Kadada, where only a few centuries later (Kadero is dated to 5900-5000 bp; Kadada to 4800-4600 bp) the graves showed an extraordinary array of differences in richness of furniture, including human sacrificial secondary burials (Reinold 2000: 70-71).

The site of Sheikh el Amin may be of relevance to this question. It was excavated in 1997 and 1998 over 140 square meters, yet no sign of Neolithic human burials was detected. Sherds from pottery vessels considered prestige emblems and exclusively associated with graves, such as the flare-mouthed finely decorated beakers (Reinold 2002: fig. 4) were not found either. Even rhyolite gouges, whose socio-technical character has occasionally been suggested (Haaland 1987: 221), are uncommon at the site, where only 26 pieces were found. In the riverine Neolithic settlement of Shaheinab, 467 pieces were recovered excluding those broken to less than half the original size (Arkell 1953: 31). This lack of evidence suggests a more egalitarian organisation of the Sheikh el Amin group than those living at the riverine sites, maybe connected to its economic adaptation based on hunting-gathering with a small herding component (13.1% of identified bones, cf. Chaix 2003: table 12). Several authors have discussed the difficulties that hunters faced in making the transition to food production, particularly to integrate herding (Smith 1990; Marshall 2000: 215), on

the grounds of current evidence of hunting people living on the edge of pastoral societies (Smith 1998: 26), and the persistence of hunting as a component of generalised pastoralism (Marshall & Hildebrand 2002: 121).

Sheikh el Amin probably represents a short-lived adaptation to the savanna ecosystem, based on multi-resource food procurement in small semi-sedentary villages. Shaqadud cave, a permanent post of hunter-gatherers without livestock until a very late date, could have corresponded to the same adaptation for groups further from the Nile at about the same period (Marks & Mohammed-Ali 1991).

Further cultural and economic changes are visible in the archaeological record several centuries later. Late Neolithic sites investigated during our survey, such as Rabob and Wad el Amin dated to after 4500 bp, present somewhat different features (Fig. 8). Surface distribution of artefacts follows a model of "sheet midden" that has been interpreted as the result of seasonally reoccupation of the settlement, with people erecting tents or temporary huts and choosing the waste zones in different places every year (Sadr 1991: 21-23, fig. 2.5). The site layout at Sheikh el Amin is quite different, with cluster midden mounds surrounded by empty spaces –cleared habitation zones– that could correspond to a permanent or at least a "medium" term occupation where people lived for a long time in the same structures (Sadr 1991: 21-23). Hence, a probable change to a mobile economy is noticeable at the end of the Neolithic period, which could relate to the inception of a more intensive pastoral economy in the region, as has been argued by several authors (Krzyzaniak 1978; Haaland 1987; Caneva 1988b).

Ceramic analysis and seriation of the surveyed Neolithic sites in the Blue Nile area make it obvious that there is a fairly substantial continuity both in the pottery manufacturing techniques and decoration types throughout the period (Fernández et al. 2003a: fig. 56). Similar models of evolution of archaeological types have been proposed elsewhere as evidence of uninterrupted cultural and demographic stability (for the Epipalaeolithic in the Maghreb, see Lubell et al. 1984: fig. 3.4). Therefore it seems that, contrary to the aforementioned evidence presented for the beginning of the period, there is no proof of a cultural and/or demographic gap during the Sudanese Neolithic as postulated by Haaland (1987; 1992). It does appear more probable that the same Butana Early Neolithic groups living at Sheikh el Amin and other sites as El Lahamda (Fernández et al. 2003a: section 7), gradually abandoned their sedentary economy and adopted a more nomadic herding economy. The resulting enlargement of their annual territories led to more frequent contacts with Eastern Sudanese groups, as reflected in the constant increase of simple impression decoration and internal surface scraping on their pots all through the period (Figs. 9-10).

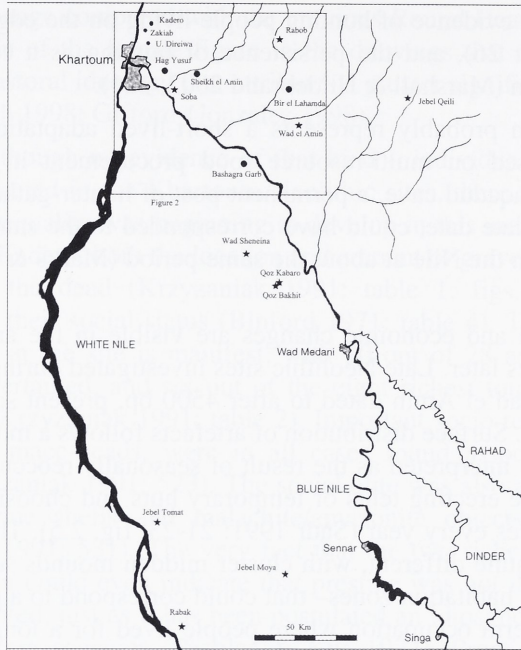


Figure 8. Distribution of known Early (dots) and Late (stars) Neolithic sites in the Blue Nile and Gezira areas of Central Sudan.

The progressive intensification of arid conditions in the Sahelian area (Wickens 1982: 44-47; Hassan 2002: 323) was one of the most likely causes of the higher mobility of the savanna groups. The riverine areas were still very suitable for human sedentary living and yet they appear almost completely devoid of archaeological remains from this period. Most of the known Late Neolithic sites are situated far from the river, and only two Early Neolithic sites (Bashagra Garb and Bir el Lahamda) have so far been found outside the core area around Khartoum and the main Nile (Fig. 8). Later on, a time comes from when there are no known archaeological sites either in the savanna or the river, with the possible exception of some burial mounds (Caneva 2002). The period roughly corresponds to the interval between 4000 and 2500 bp (c. 2500-700 BC calibrated), the latest date marking the beginning of the Napatan-Meroitic periods in the first millennium BC. This “vanishing” of the Late Neolithic cultures in Central Sudan has been related to the demise of the Nubian A-Group, and both of them to the changes in the balance of power in Egypt and Northern Sudan, namely the emergence of the Egyptian state and the Kingdom of Kush at Kerma (Caneva 1988b: 371). An external origin has been also alleged by Haaland (1987: 224-231; 1992:

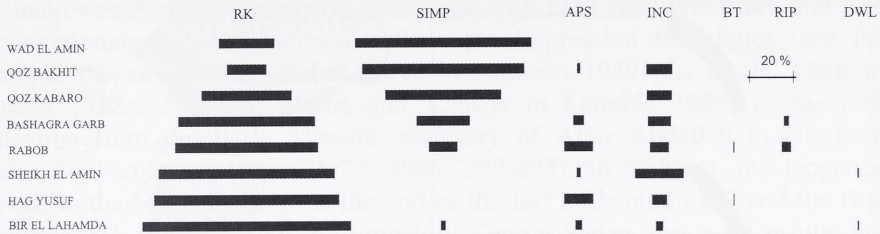


Figure 9. Seriation of pottery decoration types percentages in the eight most important Neolithic sites surveyed in the Blue Nile area. The order is presumably chronological, the earlier sites being at the bottom and the most recent at the top of the chart. Legend: RK: Rocker impression (including packed and spaced zigzag, even and unevenly serrated edge, and plain types; variation of these subtypes appears erratic in the seriation); SIMP: Simple impression (see fig. 10); APS: Alternatively Pivoting Stamp; INC: Incision; BT: Black Topped; RIP: Ripple ware; DWL: Dotted Wavy Line.

58-61), who presents an appealing scenario of competition between Nilo-Saharan-speaking groups with multi-resource adaptation (the Khartoum Neolithic) and Cushitic-speaking specialised pastoralists (the Butana-Khashm el Girba traditions). The first would have migrated towards the south, preserving their way of life in more humid ecosystems while the Khartoum region was occupied by the pastoral groups coming from Eastern Sudan. The recent finding in the Khartoum region of tumuli, dated to 3220 bp, with some cross-hatched pottery similar to that of the Nubian Pan-Grave culture in Northern Sudan and the Mokram group in Eastern Sudan (Caneva 2002), ancestors of the present-day Beja Cushitic-speakers (Sadr 1990), appears to further support the hypothesis of intense cultural contact and displacement in Central Sudan.

The results of our survey in the Blue Nile do not, however, endorse such conclusions. The pottery from the Late Neolithic sites surveyed bears only some similarities to the eastern wares (namely the sherds with scraped surface). Furthermore, even if the replacement of rocker with simple impression was certainly important (Fig. 10), as the rocker technique had been used in the Nile and throughout the Saharan area for many millennia, the substantially gradual variation of pottery decoration types from Early to Late Neolithic times, which has been already mentioned (Fig. 9), seems to have continued without major breaks even until the following archaeologically “visible” cultural period, when the Meroitic culture was being formed in the first millennium bc. The hand-

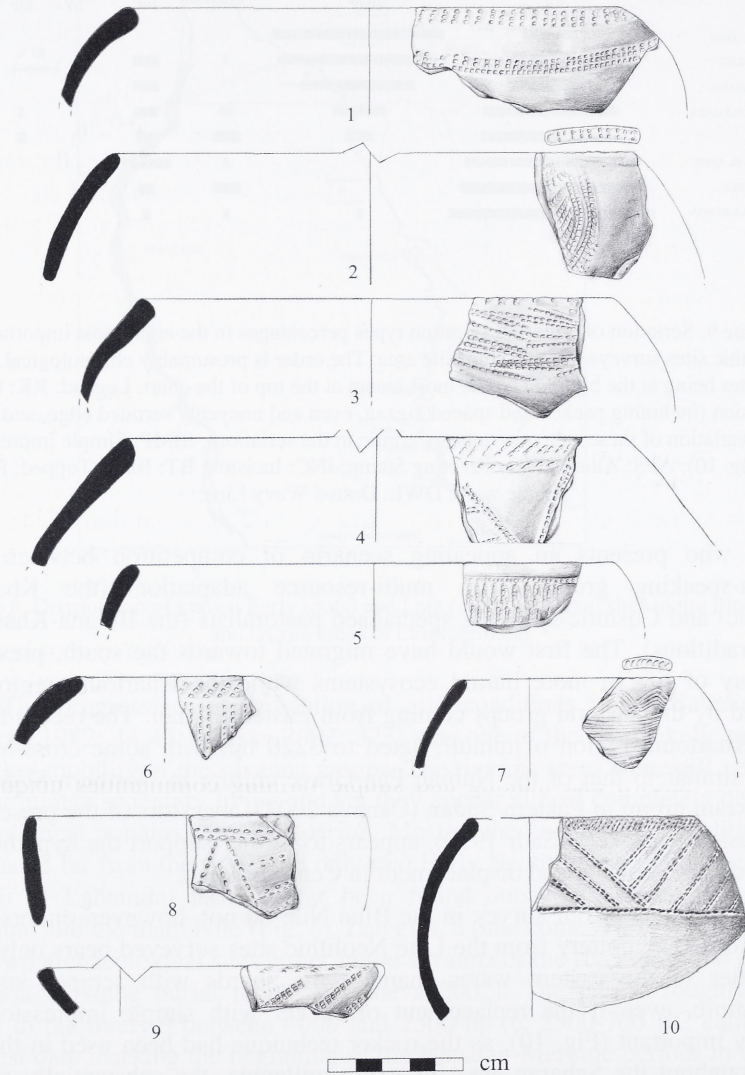


Figure 10. Simple impressed and incised (no. 7) sherds from Neolithic sites (mostly late) surveyed in the Blue Nile and Gezira areas: Wad el Amin (1), Qoz Bakhit (2, 8), Bir el Lahamda (3), Rabob (4, 6, 9), Bashagra Garb (5, 7) and Wad Sheneina (10).

-made black pottery tradition that is known in some Napatan sites and especially in the Early Meroitic sites, except for the change from bowls to closed bottles as the main vessel shapes, is clearly associated with Late Neolithic times and was decorated using mostly incision and simple impression techniques (see for example the vessels from Jebel Moya in Addison 1949 pls. 89-93, Geili in Caneva 1988a: 202-206, Meroe and Kadada in Lenoble 1995, or the rich collection from the Early Meroitic cemetery of Amir Abdallah in Northern Sudan, in Fernández 1984: 75-77; 1985: 372-425). In addition, the language written in the Meroitic script at the end of the last millennium BC and the first centuries AD, probably spoken in much of Central Sudan, was not Cushitic but had closer links with the Nilo-Saharan phylum (Bender 1981; 2000: 56).

Archaeological investigations of Sudanese Neolithic graveyards, such as Kadruka and Kadada, reveal that an almost "pre-dynastic" stage was achieved both in Nubia and the central Sudan at roughly the same time, the second half of the 6th and the first half of the 5th millennium bp, i.e. at the end of the 5th and during the 4th millennium BC in calibrated dates (Reinold 2000: 58-85). Yet the transition to state organisation was completed only in the northern region, with the onset of the Kerma kingdom. Significantly, the Nubian Nile Valley, like the Egyptian further north, meets one important specific pre-condition which Robert Carneiro (1970) claimed in his well-known theory on the origins of state societies, namely the "environmental circumscription". This criterion is met when a growing population lives in a confined area, delimited by mountains, jungles, deserts or seas (Claessen & Skalník 1978: 13). Extreme deserts did not confine the Central Sudanese groups and it is argued here that the availability of nearby suitable and nearly uninhabited land enabled them to avoid the transition to an unequal social organisation.

It is known that hunting and simple farming communities ubiquitously follow customary strategies to maintain social equality (Clastres 1978). In this case one of them could have been the shift to a more nomadic economy, approaching specialised pastoralism. Instead of adopting agro-pastoral strategies in the alluvial plains as the Egyptian and Nubian communities did, the human groups of the Sahelian Nile chose to flee from the river and wander the increasingly arid savannah. (Could this circumstance be also the main reason for the time lag in agricultural practices developing in the region?) African nomadic communities have often been considered intrinsically egalitarian polities, frequently being devoid of centralised authority and endowed with a "democratic" ideology (Bonte & Galaty 1991: 23-24). The material basis of this condition lies on the fact that livestock wealth, self-reproductive and mobile, cannot be easily monopolised (Bonte & Galaty 1991: 23-24) and that it is difficult for herders who travelled by foot to exploit the labour of others on a mass scale (Gold-

schmidt 1979: 23). In the different context of the European Megalithic cultures, the construction of big tombs has also been interpreted as another means of resisting social division (Criado 1989: 91-92). As a collective endeavour strongly related to the symbolic domain, the Late Neolithic burial mounds in Central Sudan could have functioned as a peculiar version of the *potlatch* ritual, i.e. the large-scale consumption of co-operative labour for the benefit of the whole group.

One of the best-known historical examples of “pastoral democracy” in North-eastern Africa is the Oromo people of southern Ethiopia and northern Kenya (Legesse 2001). Although originally egalitarian, though, Oromo became progressively autocratic in modern times (Hultin 1979), expanding through the conquest of a large expanse of southern Ethiopia and incorporating quite a number of simpler societies into their kingdoms (Hassen 1994). Some of those small egalitarian societies belonged to the larger group of Nilo-Saharan societies in the Ethio-Sudanese borderlands that have been mentioned above (Grottanelli 1948; Murdock 1959: 170-180) (Fig. 11). Historically, peoples in that area have resorted to their cultural traditions to avoid subordination and cultural assimilation, as an example of “cultures of resistance” or “deep rurals” (Jedrej 1995: 3). Emphasis on traditional material culture and rejection of innovations has been documented in other known cases of conflation of identity and resistance (e.g. Levi 1998).

A state organisation eventually became established in Central Sudan at the time of the Napatan and Merotic kingdoms. The same kind of social system prevailed throughout the periods of the Christian Kingdom of Alwa in the Middle Ages and the Funj Muslim Sultanate of Sennar up to the Egyptian conquest in 1821 AD. But these polities were mainly riverine systems, and the results of previous archaeological surveys in the Butana plain far from the Nile (Hintze 1959) and our own survey data reveal very few settlements, the main archaeological sites from those periods again being burial mound grounds (Fernández et al. 2003a: section 8).

Some linguistic and historical data from the region attest the existence of population movements and contacts across the Butana plain and along the Blue Nile river, connecting the Central Sudan and the Ethiopian escarpment (Fig. 11). The first is the ancient separation of the Kunama languages, a dialect cluster today spoken in south-west Eritrea, and the Koman languages (Gumuz, T'wampa, Komo, Kwama), spoken in the central Ethio-Sudan border, from the old proto-Northern Sudanic and proto-Nilo-Saharan language groups respectively (Ehret 2000: 273-277). These could be interpreted as the first historical splits of Nilo-Saharan peoples from the main stock situated in the Saharan and Sudanese plains. Second, we have the similarities observed between Meroitic and Barya

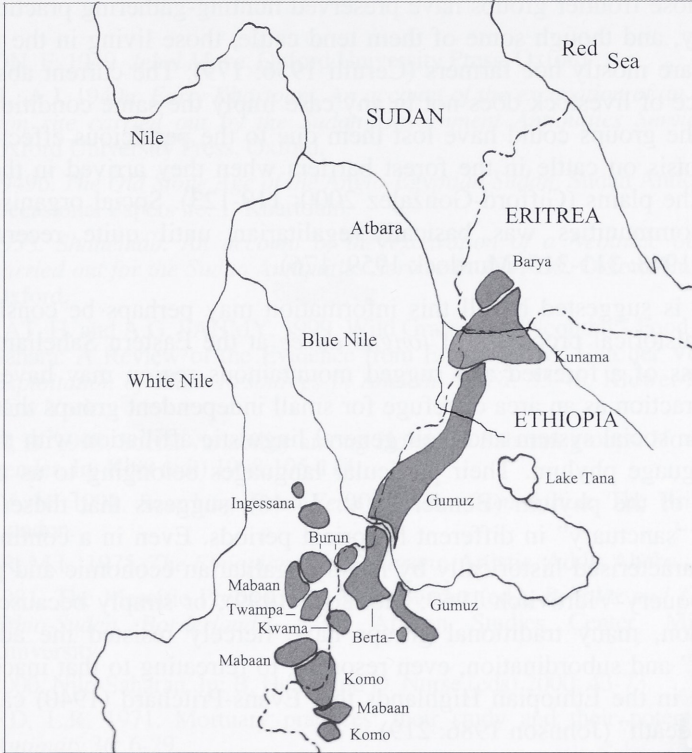


Figure 11. Distribution of Nilo-Saharan groups in the Ethiopian-Eritrean-Sudanese borderlands (after Moseley 1993: map 76).

(Nera), another Nilo-Saharan Eritrean language, possibly because of the influence of the state-level language over the people living in its frontiers (Trigger 1964; yet see Bender 1981: 5). The Meroitic has been also related to the border Koman languages (Shinnie 1967: 132, n. 7; Bender 1981: 29). Information from Arab travellers in the Middle Ages suggests that Kunama and Barya peoples were at that time settled nearer the core of the Christian kingdom of Alwa, from which a later displacement to their current position in the Highlands is deduced (Murdock 1959: 170; Pankhurst 1977: 3). Lastly, oral history from the Bertha people, now living on both sides of the central border, indicates that they also

moved to the Highlands from the southern part of Sennar kingdom in recent times (Triulzi 1981: 21-25).

All those frontier groups have preserved hunting-gathering practices until very recently, and though some of them tend cattle, those living in the forested escarpment are mostly hoe farmers (Cerulli 1956: 179). The current absence or insignificance of livestock does not in any case imply the same condition in the past, since the groups could have lost them due to the pernicious effects of the trypanosomiasis on cattle in the forest barriers when they arrived in the Highlands from the plains (Gifford-Gonzalez 2000: 119-123). Social organisation of all these communities was basically egalitarian until quite recent times (Grottanelli 1948: 311-315; Murdock 1959: 176).

What is suggested by all this information may perhaps be considered a part of the historical processes of *longue durée* at the Eastern Sahelian region. The closeness of a forested and rugged mountainous region may have been a powerful attraction as an area of refuge for small independent groups that shared an egalitarian social system and their general linguistic affiliation with the Nilo-Saharan language phylum. Their particular languages belonging to as many as six families of the phylum (Bender 2000: 44-46), suggests that these peoples reached the “sanctuary” in different historical periods. Even in a continent that has been characterised historically by mostly egalitarian economic and political systems (Coquery-Vidrovitch 1969; McIntosh 1999), or simply because of this very condition, many traditional groups have fiercely resisted the advent of “complexity” and subordination, even resorting to retreating to that inaccessible hiding place in the Ethiopian Highlands that Evans-Pritchard (1940) called the “corridor of death” (Johnson 1986: 219).

Later on, except for occasional slave raids (Pankhurst 1977), these *Shankilla* (black, slave) populations lived for centuries in an acceptably independent situation on the edge of the Sudanese and Ethiopian kingdoms, as historical reports from foreign travellers to the Highlands suggest (Ṕez, Lobo, Prutky, Bruce, etc.). Their subaltern position in modern times (e.g. Donham 1986: 12) could be more a consequence of the Abyssinian expansion in the 19th century than the result of the earlier enslaving practices. The Southern Sudanese refugees newly settled on the Ethiopian side of the border as a result of the civil war attest the persistence of a related process, which started in prehistoric times and has continued up to the present day. In some cases, such as the T’wampa (Uduk), the entire ethnic group, some 20.000 people, has been resettled in the old areas of refuge (James 1994), in what are now called the Tsore, Bonga or Sherkole refugee camps.

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