

Neolithic Settlement Patterns in Central Sudan

5000BC-3000BC

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Introduction:

The term "settlement patterns" is applied when a group of people occupies a particular geographical region to exploit its resources. The study of settlement patterns means the study of the relationship between the people particularly the prehistoric ones, their environment, and how they culturally and economically adapted themselves to the environment in which they were living. The studies of the material remains (cultural and biological) are basic in achieving these objectives. Therefore, the study of settlement pattern is very important because it gives us information about the environment, technology and social organization.

Generally, settlement patterns are defined as the result of relationships between people who decided, for practical, political, economic, and social considerations, to place their houses, settlements, and religious structures where they did¹.

Another definition, which is forwarded by Bruce Trigger, suggests that two approaches have dominated the "settlement pattern"². The first is primarily ecological and often appear to be based on the assumption that,

¹ Nir: 1983

² Trigger. 1968: 54

the "settlement pattern" is a product of the simple interaction of two variables: environment and technology. This kind tends to be concerned with the size and the distribution of the whole sites. The second kind of approach uses the data as a basis for making inferences about the social, political and religious organization of prehistoric cultures. This concentrates on the patterning within the individual settlement.

Settlement sites in these definitions are the ones around which a group of people centered their daily activities. That means a "settlement" refers to a domestic activity. Generally, the distribution of sites is the most important information for any archaeological interpretation because it gives us the clues for answering many questions regarding adaptation. Moreover, the type of settlement sites gives us information, which is very closely related to the environment, technology, and also the social organization.

The settlement site can also be called "habitation site" and it is the most commonly excavated type of sites because these are the places where the prehistoric people lived. Most of the information about the past cultures is retrieved from such sites. It is often the case that settlement sites encompass a group of a smaller special kind of sites such as quarry sites, sites for pottery production, tool making ...etc.

Central Sudan examples:

Most of the Neolithic sites in Central Sudan are generally large and the occupation layers tend to be of considerable thickness, suggesting long periods of occupations. Cemeteries associated with some of the sites (Kadero 1, el Kadada and el Ghaba) further support an interpretation of long or at least regular seasonal occupations (Map).

Table (1) shows that most of Neolithic sites in this region, especially in the Khartoum area, are situated on the alluvium and they are all located on natural mounds slightly elevated above the alluvial plain. They are also heavily deflated both by erosion and by human activities such as house building and by tracks passing across the sites. Furthermore, they are disturbed by later burials, mainly Meroitic graves and, less frequently, Christians and Moslems graves.

In Central Sudan there are 16 sites studied with some details: three on the west bank of the Nile (Shaheinab, Nofalab, and Islang), seven in the east bank of the Nile (Geili, Kadero I, Kadero II, Zakiab, Um Direiwa I and Um Direiwa II), and the site of Haj Yusif on the east bank of the Blue Nile. Three are located along the White Nile and Gezira plain (Rabak, Jebel Tomat and Jebel Moya). Other two sites are located in Shendi area (el Kadada and el Ghaba) and one site in the Butana plain (Shaquadud).

Recently, Fernandez and his team reported the existence of some Neolithic settlements along the Blue Nile and Wadi Soba³. These were not included here.

1. Khartoum area

a. Shaheinab

The site is situated on an old riverbank of the Nile on the west bank of the Nile c. 30 miles north of Omdurman. It consists of a low mound, about 200 meters long and more than 30 meters wide, about half a mile west of the modern river bank. The Shaheinab site was the first

³ Fernandez. 2003: 85-90

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³ Fernandez. 2003: 85-90

settlement to be excavated in the Khartoum area that showed evidence of a food-producing economy⁴.

b. Nofalab

Nofalab site is situated on a gravel terrace on the west bank of the Nile 23 Km. north of Omdurman. The settlement is located c. 650 meters west of the present channel of the river on an elevation, which extends 2,3 meters east-west. It covers an area of c. 180 x 170 meters⁵. The site is very badly eroded, so, it was difficult to estimate its exact size. It was disturbed by khors and seasonal gullies and also by the later Meroitic and Christian grave digging, and the present-day house-building activities and movement of people.

c. Islang

The site is situated along the gravel ridge near a permanent source of water, at a distance of about 25.5 km north of Omdurman. The topography of the site is the same as that of Nofalab. It covers an area of c. 70 x 60 meters. Thus, it is obviously that the Nofalab site is larger than Islang site. According to Magid, the depth of the cultural debris in the undisturbed squares varies between 0.40 m and 1 m, and only one trench reached a depth of 1.05 m. The cultural layer is characterized by its continuous fine-grained light gray to brown soil without any noticeable breaks or disturbance⁶.

⁴ Arkell. 1953

⁵ Magid. 1982:9

⁶ Ibid. 23

d. Geili

The site is situated about 2 km of the eastern bank of the Nile and 47 km north of Khartoum. It occupies an area of c. 150x180m (2700m²) on a sandy clay mound. The mound rises to about four meters above the surrounding plain. The stratigraphy of the site is complex, testifying to the fact that the site was exploited for a long period, both as a settlement and as a cemetery. Intervals must have separated the periods of its use, so the burials in the sites had often been destroyed when new human group came to the site⁷.

e. El Kenger

The excavations at El Kenger, conducted by the Italian Mission headed by Isabella Caneva, reveled that more than one site occupied the area and that each of them belonged to a different culture. They aligned on the northern bank of Wadi El Kenger. They were labeled "East", "Middle" and "West", according to their position in relation to the Nile⁸.

El Kenger West:

A very eroded Mesolithic wavy line pottery was found in this site. The Materials were few, mixed with coarse red gravel and appeared to be water rolled. The deposits were very thin and faunal remains almost absent. It is possible that the material were not in situ, but somewhat reworked by the Wadi. No date was obtained for this site.

El Kenger Middle:

About 600 m east of the first site. It covers an area of about 100x100 m, although potsherds belonging to the site were dispersed over a wider area. The deposits were thin (35 cm) and not stratified.

⁷ Caneva. 1984: 354-355

⁸ Caneva. 1993:79

El Kenger East:

This site is situated further east into the desert on the same alignment as El Kenger Middle and El Kenger West and at the same distance from the wadi. The undisturbed parts of the site showed very thin deposits (20 cm), which may have been slightly thicker in the middle of the settlement.

f. Kadero I

Kadero 1 is located on a low, eroded mound of sand of about 18 km to the north of the confluence of the white and blue Niles and 6.5 km to the east of the channel of the main Nile⁹. The size of the site is c. 30 000 square meters and its occupation deposits rises 1.8m deep in some places. A contemporary cemetery of 100s graves is associated with the settlement.

g. Kadero II

This site is situated some 600 m to south east of Kadero 1 and extends for about 10000 square meters. The site is slightly elevated on natural mound not more than 50 cm above the surrounding plain. Haaland, who surveyed and tested the site, considered it to be too eroded to be worth a large-scale excavation¹⁰. A visit to the site in 1989 by Krzyżaniak revealed that Early Neolithic graves occurred in the part of the site being destroyed by an intensive quarrying for construction material. The graves were furnished with Early Neolithic pots typical also of the settlement and funerary pottery at Kadero 1¹¹.

⁹ Krzyżaniak, 1984: 309

¹⁰ Haaland, 1987: 230: 41f, 188

¹¹ Krzyżaniak, 1992b: 244

h. El Zakiab

The settlement of El Zakiab site is located c. 17 km north of Khartoum North, on the eastern bank of the Nile and c. 3 km from the main course of the river. It is situated on a small mound which seems to be part of an old river bank of the Nile. The mound rises to a maximum 1.4 meter above the surrounding fossil flood plain. The extent of the site is c. 2000 square meters of which 100 square meters were excavated¹².

i. Um Direiwa I

Um Direiwa 1 site is located on the alluvial plain about 7 km east of the present bank of the Nile at a distance of about 13 km north of Khartoum¹³. The extent of the site is c. 90 meters in an east-west direction and c. 100 meters in a north-south direction. Several parts of the site were destroyed by the lorry traffic as well as by the activity of the local people who have taken the soil for building purposes¹⁴.

j. Um Direiwa II

The site is situated about 3 km south east of Um Direiwa 1 and at the same distance from the Nile: i.e. c. 7 km. it is located on the alluvial plain. The site is very deflated, and there is hardly more than surface debris left¹⁵.

k. Haj Yusif

This site is located about 8 km south east of Khartoum North, in the area administratively known as Haj Yusif New Extension and about 4 km east of the Blue River¹⁶. The distribution of Neolithic sherds covers

¹² Tigani el Mahi. 1982:18f, Haaland. 1987: 26f

¹³ Tigani el Mahi. 1982: 20

¹⁴ Ibid: 20

¹⁵ Haaland. 1987: 44

¹⁶ Fernandez *et al.* 1989: 261

- 300 X 150 meters. Due to water and wind erosion, and to later activities in Meroitic and Christian times, the Neolithic sherds and lithic implement had spread beyond their original distribution. The Neolithic strata were only 10-20 cm in thickness.

2. White Nile and Southern Gezira

a. Rabak

The site of Rabak is located 235 km of Khartoum along the White Nile. The settlement was excavated in Jan/Feb 1983¹⁷. The site is located c. 3 km from the present flow of the river, and is elevated c. 3.5 m. above the surrounding flood plain. The surface material is scattered over large area c. 200X80 meters. The cultural deposits were 60-80 cm. deep.

b. Jebel Moya

The famous Sir Henry Wellcome excavated the Jebel Moya site, located c. 40 km east of Rabak site, in 1910-14¹⁸. Part of this site is contemporaneous with the later phase of Rabak site¹⁹. Lithic artifacts recovered from the site are the same type found on the Khartoum Neolithic sites, except that gouges are lacking.

c. Jebel Tomat

The site of Jebel Tomat is situated some 50 km north east of Rabak town, and c. 10 km east of the White Nile at Esh-Shawal village²⁰. The cultural deposit is rich, in some parts is 1.26 cm deep but in average it is 0.5-0.6 cm deep in the excavated trenches.

¹⁷ Haaland. 1987: 45f

¹⁸ Addison. 1949

¹⁹ Haaland. 1987: 35, 46

²⁰ Magid. 1988:49

d. Sites along the White Nile within the Khartoum region:

13 sites were discovered in the area situated between El Kalakla and Jebel Awlia (Eisa 1997). From the primary surveys it is observed that most of these sites were essentially of the Neolithic period accompanied by material that could be traced back to the Mesolithic and included only one grave used in different times after the Neolithic (properly Meroitic and post-Meroitic) (Sadig, Azhari 1999). 12 sites were surveyed during the preliminary survey of 1997, and the author, as a requirement of the MA and the Ph.D. thesis, revisited all of them. One site, AL Masarra, was excavated during a training course of the students of the Dept. of the Archaeology, University of Khartoum, and directed by the author*.

The study of the material from these sites (Sadig, Azhari, 1999, 2004) proved the existence of a considerable number of archaeological sites in the study area dating from the Mesolithic to the Meroitic and post-Meroitic periods. These sites were affected by different natural and human activities during the last fifty years. Some of the villages near these sites are recently established.

These sites are different in some aspects that are represented in the clear concentration of the archaeological remains in some of them and the evident scarcity of these remains in the others, due to the natural and human activities. All sites represent settlement areas except El Masarra. It is a complicated site because it represents a settlement site and it was used as a cemetery for different periods. In addition, all the other sites contain no graves.

*The excavations of this site is part of the co-operation between Dept. of Archaeology and the Director of the White Nile Survey project under the imprela of the University of Khartoum, it is natural that students of Archaeology to have their training on such National project.

3. Shendi Area

a. Atbara-Shendi Road

Little is known about the Neolithic settlement patterns in this area. Along the road and the Nile, an archaeological survey and test excavations were carried out by the Sudan Archaeological Research Society (SARS). 15 sites were located (SARS 113.3, 138.2, 150.5, 152.6, 153.1, 153.2, 154.3, 155.1, 138.3, 147.1, 152.1, 154.1, 165.1, 222.1 and 231.1). The first eight sites were attributed as (3rd millennium B.C. sites) and dated from the finds at Shaqadud and compared to material dating from the so-called 'Pre-Kerma period' (before c. 2500 B.C.). The rest were attributed as earlier Mesolithic/Neolithic sites²¹. Although the work is in its first steps but the future researches may add more about the Neolithic settlements patterns in this area.

a. el Kadada

Situated in the district of Taragma, some 200 km north of Khartoum. The site lies on the right bank of the Nile, in an area where the river flows from west to east. The site covers an area of about 800 m from east to west. Most of the ancient remains are found on the terraces, which are the highest features of the site, and in the area situated between them to the south, in the bed of a fossil khor²².

b. el Ghaba

El Ghaba site is situated east of the village of el Ghaba and south of el Kadada. A large area covered with fragments of pottery, chipped tools and animal bones indicates the presence of a Neolithic settlement. Many graves have been recorded. A few graves of historic times have

²¹ Mallinson *et al.* 1996: 1-6

²² Geus. 1984:8

also been found in the mound, where they destroyed parts of earlier Neolithic ones²³.

c. es-Sour

The site of es-Sour ($16^{\circ} 57.045' N / 33^{\circ} 43.133' E$) is located about 35km from Shendi, 1.5km from the right bank of the Nile and west of the Khartoum-Atbara railway. It was discovered during a field training season of the Department of Archaeology, University of Khartoum, in February-March 2004.

During two seasons of work (2004, 2005), headed by the current author, no adult burials have been found and the area of the site so far investigated would seem to represent a settlement area. As at al-Kadada, child burials, which the pot- graves seem likely to represent, may have been buried within the settlement area, apart from the main cemetery. Further area excavations will be required to determine whether any structural features survive on the site although it seems likely that it has been severely deflated. Further testing and survey work is also required to see if there is an associated cemetery in the vicinity. As yet the exact date of the site remains uncertain in the absence of radiocarbon dates although there are enough similarities with material from sites such as al-Kadada to suggest a date in the later Neolithic period (late 5th - 4th millennia BC).

The most distinctive features of the es-Sour material which suggest a later Neolithic date are the high index of flakes, pottery decorative styles, special types of lithic artefacts, pot-burials, the presence of carnelian beads and human figurines. Gouges, a typical tool

²³ Geus, 1984

at earlier sites such as Shaheinab, are absent. However, the character of the pottery assemblage needs to be further explored, not least because so much of our published data relates to assemblages derived from cemeteries (e.g. el-Kadada or el-Ghaba) which cannot be seen as 'typical', and may differ significantly from those from settlement sites. Such differences may also explain the absence of items such as polished stone axes, mace-heads and palettes (all likely to be prestige objects) from this settlement site.

4. Butana

The site of Shaqadud lies about 50km east of the Nile from the village of Wad Banaga and about 13 km from the Meroitic monuments at Naq'a in the western end of the Butana. Shaqadud is a complex of sites rather than a single locality. The main site, S1, comprises two localities: S1-A, which is a large cave at the back of a canyon, and S1-B, a midden located in front of the cave. There are also numbers of small surface sites on top of the surrounding plateau and along its slopes. The deposits in the cave have a depth of 3.35m²⁴.

The following generalizations may be made:

1. Most known sites are quite large and the occupation layers are of considerable depth, although stratified deposits seem to be lacking. The cemeteries are sometimes associated, especially with largest sites.
2. The sites on the west bank in Khartoum area and between the White and Blue Niles besides the sites in Shendi area are today

²⁴ Mohammed Ali. 1987:129-130

generally close to the water and they were even closer at the time of occupation.

3. The sites on the east bank in Khartoum area lie a considerable distance from the present Nile. The location suggests either the Nile was covering part of the surrounding plain, at least seasonally, perhaps with small lakes and swamps.

The Site	Distance from the water-system	Horizontal extent (in meters)	Elevation (in meters)	Average of depth	Topographical location
Shaheinab	600m from the Nile river	40000m ²	0.7	70-20cm	Situated on a sandy ridge forming a terrace of an old riverbank of the Nile.
Geili	2km from the Nile	2700m ²	4m	c.1.2m	On a sandy clay mound
Kadero I	6.5km from the Nile	28800m ²	1.8m		Located on a low, eroded mound of sand
Kadero II	7km from the Nile	10000 m ²	.5m	40cm	On a flat sandy plain
Haj Yusif	5 km east of the Nile	45000 m ²		10-20	

Zakiab	c. 4,5km from the Nile	2400 m ²	3m	50cm	On a small mound forming a part of an old river bank of the Nile
Islang	2,2km from the Nile	6000 m ²	Unspecified	0.40 m-1 m, (one trench ≈1.05 m).	Situated on an eroded gravel ridge which seems to be part of an old river bank of the Nile
Nofalab	c. 650m from the Nile	30600 m ²	2,3m	40 cm. to 110 cm	On an eroded sandstone ridge
Um Direiwa I	7km from the Nile	9000 m ²	1.84m	5-70cm	Located on an alluvial plain mound
Um Direiwa II	7km from the Nile	10000 m ²	20 cm	?	Located on an alluvial plain mound
Jebel Tomat	10km east of the White Nile	10000 m ²	0.5-0.6m	?	Part of an old river bank of the White Nile
Rabak	3km east	16000 m ²	c. 3.5 m	60-80cm	Part of an old

	of the White Nile			(one Sq=150c m	river bank of the White Nile
Shaquadud: S1-A	50 km from the Nile	150m ²	?	3.35m	Inside a sandstone cave
Shaquadud: S1-B	50 km from the Nile	c. 15000m ²	?	3m	On a large, unbroken but heavily deflated and eroded midden
Es-Sour	1.5 km from the Nile	c. 15800m ²	?	60-70cm	On a flat plain

Table (1) Neolithic Sites of Central Sudan

Interpretation of these patterns has generally been in terms of seasonal movement in settlement. Four of these sites (Kadero I and II, Um Direwa I and II) shared certain features. They are large, occupying areas of between 10.000 m² and 45.000 m², and they are situated, on average, about 7km from the present river. The sites were rich in pottery, grinding implements and lithic materials and had burials associated with them.

On the basis of the distribution of these sites and their cultural manifestations, it was postulated that they reflected a settlement pattern

related to seasonally specific activities²⁵. The four large sites were seen as permanent base camps where emphasis was placed upon the exploitation of plants, sorghum cultivation, and the manufacturing of pottery.

A small site (Zakiab) was interpreted as a dry season camp where herding and fishing were practiced. It was temporarily occupied and was also seen as a place where lithic artifacts were manufactured.

The model proposed that a large community occupied a base camp when conditions were favorable for cultivation. During the dry season the inhabitants of each base camp would split into smaller bands and occupy fishing and herding camps along the Nile where conditions would be optimal for these activities. After the rains, equivalent herding camps would be set up in the grasslands of the Butana farther to the east.

Mohammed Ali and Magid attempted to test this model within the same general area but with sites found on the west bank of the Nile. They showed that the sites on the west bank (Nofalab and Islang) are close to the river and "*the Settlement pattern on the west bank does not suggest occupation back from the river as the case of the east bank*"²⁶.

They also suggested that the topographical differences between the two banks must have effected local adaptation. In other words the flat alluvial clays of the east bank with their Nile-fed swamps and ponds would allow cultivation to be practiced and would support a rich pasture with a thick cover of vegetation and shrubs.

On the other hand, the eroded sandstone and pebble conglomerates of the west bank would not permit agriculture, and their

²⁵ Haaland. 1987

²⁶ Mohammed Ali and Magid. 1988: 66

stony surfaces support relatively little grass even after the rainy season²⁷. They suggested also a reversed pattern to that proposed by Haaland. This model assumes that, since the large sites are located close to the river, these sites might have served as base camps, densely populated during the dry season. When conditions improved in the hinterlands, during the rainy season, part of the population might have split into small groups and occupied smaller sites in those areas.

The distribution of raw materials does not seem likely to be a major factor in settlement location. Sources of high quality ton for tool making are very limited in most of the Middle Nile. The majority of lithic tools were made on Nile pebbles, quartz pebbles, and sandstone, which are commonly available. Most sites have shown no traces of exotic or imported material. Exceptionally in the Khartoum region, small quantities of rhyolite from the Sixth Cataract are found, and more rarely exotic amazonite, from an unknown source (thought by Arkell to come from Tibesti)²⁸.

The two models of seasonal patterns, though based on limited data, are plausible, but the evidence from the region has failed to provide conclusive proof and some problems remain, notably in relation to the possible role and significance of agriculture in subsistence strategies. Another significant problem is the lack of smaller (and more ephemeral) inland sites which could relate to shorter-term seasonal activities. If these are existed, then "*it might be indicated that two quite different settlement*

²⁷ Ibid: 66

²⁸ Arkell.1953: 4

*systems existed on the opposite banks of the Nile River during the Khartoum Neolithic*²⁹.

A more general problem remains concerning the identification of the most impressive large and artifact-rich sites as permanent settlements, with a considerable static population. Some of these sites may have been occupied over a long period of time, which could explain the high density of lithic materials, pottery and other debris and, in some cases, with the grave scattered in and surrounding the sites.

However, it is important to recognize that there is no evidence for dwellings or other permanent structures found in association with any of the Neolithic sites. It is certainly likely that such dwellings were made of perishable materials which will have left relatively few traces, like those made by the present inhabitants of the region³⁰.

It is also clear that the sites have suffered considerable erosion and deflation, which will have removed many more ephemeral features. However, the basis for assuming that permanent settlements ('proto-villages') existed during this period remains far from clear.

If we accept that pastoralism was becoming an increasingly important feature of Neolithic subsistence, the role of such permanent centers remains unclear. The large quantities of pottery, lithic and food debris recovered from the sites are certainly not what we might expect from relatively mobile pastoral communities.

Arioti and Oxby have drawn attention to special activities happened on such large sites³¹. They accept Haaland's suggestion that

²⁹ Ibid. 67

³⁰ Ibid.

³¹ Arioti and Oxby. 1997

rather than a permanent settlement, Kadero might be interpreted as a special meeting place or a herders gathering place used for collective ceremonies and feasts with ritual killing of animals; these people would have lived scattered in the Nile hinterland for the rest of the year³². This suggestion is depends mainly on the presence of so many cattle bones in the site.

A similar suggestion may be offered for the remarkable site at Shaqadud. This site has a long prehistoric sequence marked by exceptionally rich and deep deposits protected in one of the rare caves present in the Sudan as well as in a massive midden deposit outside the cave³³.

The combination of sites showed a superimposition of settlement debris dating from the earliest Mesolithic cultures to the full development of the Neolithic, therefore lasting in total about 4000 years³⁴.

Arioti and Oxby suggested that the Butana is close enough to the Nile "to hypothesize that the groups living there practiced some sort of transhumance towards the narrow riverine zone" and "thus the Butana region could have been the main home of herder-hunters who only camped near the river during the dry season"³⁵. As yet there is insufficient evidence to prove this hypothesis.

Settlement Patterns and Social Organization:

The introduction of domesticated animals into the Central Sudan during the Neolithic period must have had effects upon the settlement patterns. The productivity of animals depends on their access to pasture

³² Haaland. 1987

³³ Marks and Mohammed Ali. 1991

³⁴ Marks. 1991

³⁵ Arioti and Oxby. 1997: 110

and water throughout the year and on the risk of disease to which they are exposed³⁶. The problem is, however, to trace this effect upon the social organization. The social organization is obviously not observable for archaeologists from the Neolithic sites in the Central Sudan. On the contrary, the social status, which is reflected in the variability of grave goods, is not clear in the settlements.

However, whatever this organization might have been, it should have left some material manifestations of its structure. The increasing importance of domesticated animals, for example, would be associated with the emergence of more individualized rights and responsibilities in economic management and this would have led to increased differentiation within such communities³⁷.

The important question here is the organization of such chiefdoms. Comparative ethnographic material indicates that the chiefdom is based typically on nuclear families or small extended families of limited span and that it is thus associated with private property³⁸.

On the contrary, the chiefdoms are based on the concept of hereditary inequality: differential status is ascribed at birth³⁹. Chiefs frequently have a divine status; their families have privileged access to material resources, food, foreign goods and so on.

Indeed, burial practices might reflect some relation to other aspects of human life such as economic practice or political power (Haaland suggested that among the people inhabiting sites between Sabaloka and Jebel Awlia "a greater complexity in cultural traditions

³⁶ Haaland. 1987: 207

³⁷ Ibid: 207

³⁸ Ibid: 206-207

³⁹ Wenke. 1980: 342-343

*evolved, probably involving stronger political organization*⁴⁰. It is difficult to understand the stability of the southern and northern limits of the distribution of this cultural tradition. One possibility is that the political organization of the people carrying all the manifestations at the Khartoum Neolithic tradition, required a certain surplus production which could not be realized outside the distribution area⁴¹.

It seems that, in spite of many excavated sites, the social organization of the people of the Neolithic in Central Sudan will be limited to burial information. The hypothetical social classes reflected in the graves were not observed in the settlements.

However, presently available evidence seems to indicate that the burial grounds at el Kadada and Kadero I seem to illustrate well the process of the increasing concentration of goods and power by social "elite?" in the toward the end of the Neolithic.

It is clear that the social structure in the Central Sudan during the Neolithic period exhibited more or less inseparable economic and settlement patterns which are in turn witnessed certain developmental stages from Early Neolithic until we reach the complex picture of the Late Neolithic.

Although the degree of permanency varies from one site to another until its zenith at Kadero 1, el Kadada and far north at Kadruka, but all the way through we still have mobile pattern which started to have regular schedule of the microenvironments in the later times.

⁴⁰ Haaland. 1987: 223

⁴¹ Ibid. 223

Conclusion

The study of "settlement patterns" is more difficult issue as we have so few sites. It is not clear that the settlement patterns we see reflect the real situation, or just the small areas where archaeologists have worked? To really discuss settlement patterns we need to be able to differentiate between types of sites but at the moment all we really know about this are a few very large, and probably very unusual sites (Kedero, el Kadada, etc).

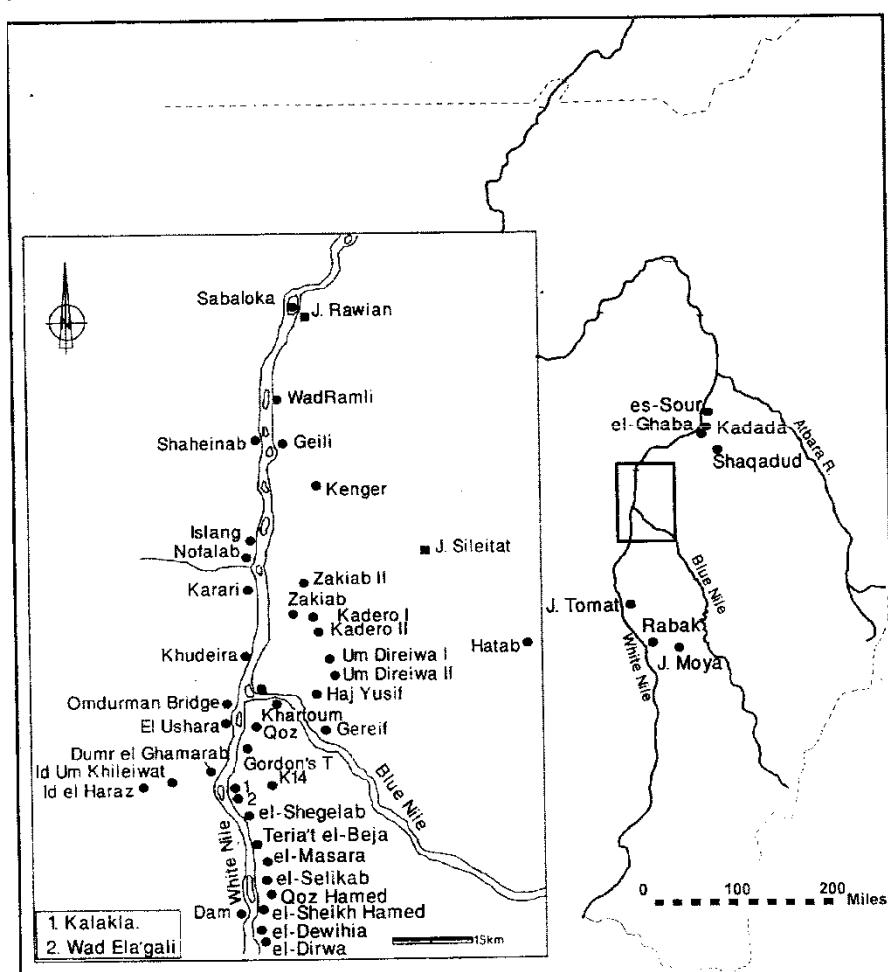
We only have very little data to discuss the possibility of "seasonal sites" and different other types of sites. Normally, and in many cases, most sites are just lithic scatters, some possibly for making tools and some as living sites etc.

The question is; can we show that sites are different from each other by the materials found on them. And why do we have no "real-permanent" settlement sites during the Neolithic period? We assume they were all eroded, but did they exist, bearing in mind that Arkell found a Mesolithic settlement at Khartoum?.

Another problem is the relation between settlement patterns and social and ethnic aspects during the Neolithic. Certainly things can be learned about the different subsistence patterns of different "archaeological groups" but "*it is not possible for the Neolithic period to go beyond that and attach linguistic or ethnic labels to archaeological cultures and there are great doubts that much can be learned about ethnic identity in the absence of written information*"⁴².

⁴² Bruce Trigger. Personal e-mail message. 2003

Map..



Neolithic Sites in Central Sudan

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