

SUDAN

First Notes of Late Prehistoric Discoveries from the First Season of EDAR Project in the Eastern Desert of Lower Atbara River, Sudan

Ahmed Hamid Nassr
 School of Archaeology and Tourism
 University of Neelain
 Khartoum, Sudan
ahmedkabushia84@gmail.com

Abstract

It is widely accepted that the general picture of Late Prehistoric archaeology in Sudan is interpreted from central and northern Sudan, as well as a few lights from western and eastern Sudan. Terminology of Late Prehistory from the Paleolithic Age to the beginning of Bronze Age have been used, such as Epipaleolithic, Pre-ceramic, Mesolithic, Early Neolithic, Early Khartoum and Shaheinab culture (Arkell 1949b, 1953, Wendorf 1986, Krzyżaniak 1992, Sadig 2012, Usai 2016). The current research focuses on the characteristics of these taxonomies, with evidence mainly drawn from central and northern Sudan. The EDAR (Stone Age Archaeological Research Project in Eastern Desert of Lower Atbara River) was established to uncover the transition elements among these horizons with a perspective from eastern part of Sudan and how it relates to the general Sudan prehistory, as well as paying attention to the relationship between the eastern Sudan and the archaeology southern/eastern Africa.

The EDAR Project centers its attention on the Stone Age archaeology in the Eastern desert of Lower Atbara River, Sudan. The project was established in 2016 by the University of Neelain to map Stone Age sites in this area. In early 2017, another joint project between the Uni-

versity of Neelain, the University of Wroclaw (Poland), and NCAM (National Cooperation of Antiquities & Museum was undertaken in the eastern part of the Lower Atbara river desert and focusing only on Paleolithic sites. The aim of both projects was to clarify specific questions on the Stone Age archaeology in Sudan, such as the Early Paleolithic expansion out of Africa, the chronological and cultural transition from Early to Late Stone Age, and the reconstruction of Paleo-environment of the Late Pleistocene and Holocene.

The first field season was undertaken by the University of Neelain in late 2016 and it was funded by the Sudanese Ministry of Higher Education and Scientific Research (MHESR). It was a combination of archaeological survey, GIS mapping of the sites, surface collection of artifacts and test excavations. In the first season we identified 133 archaeological sites, yielding a variety of archaeological material, from Early Paleolithic to the Medieval period. This article attempts to shed light only on the Late Prehistoric archaeology from this first season, including sites' settings and artifact variation, and first impressions about the area which is considered significant for Sudan's Late Prehistoric archaeology.

Introduction to EDAR project and the first season's objectives

In recent decades, we have witnessed the development of Stone Age archaeology of east Africa, with some debates about early human dispersal routes out of Africa, and the transition from hunter-gatherer and pastoral groups to permanent agricultural societies. Stone Age research in Sudan started early, but most of the discoveries show the lack of Early Paleolithic sites and little was known about the Late Stone Age. Furthermore, most researches concentrated on the chronology of sites, their location and nature of their artifacts, almost totally neglecting the sites setting, continuities and discontinuities of cultural characteristics.

The EDAR Project is one of the recent research projects in Sudan focusing on the Stone Age stressing systematic survey. The first season centered on archaeological survey south of the town of Atbara, located on the right bank of Atbara River, east of the desert, and up to 60 - 80 km in the plateau. The project developed from the identification of some Acheulean and MSA sites recorded

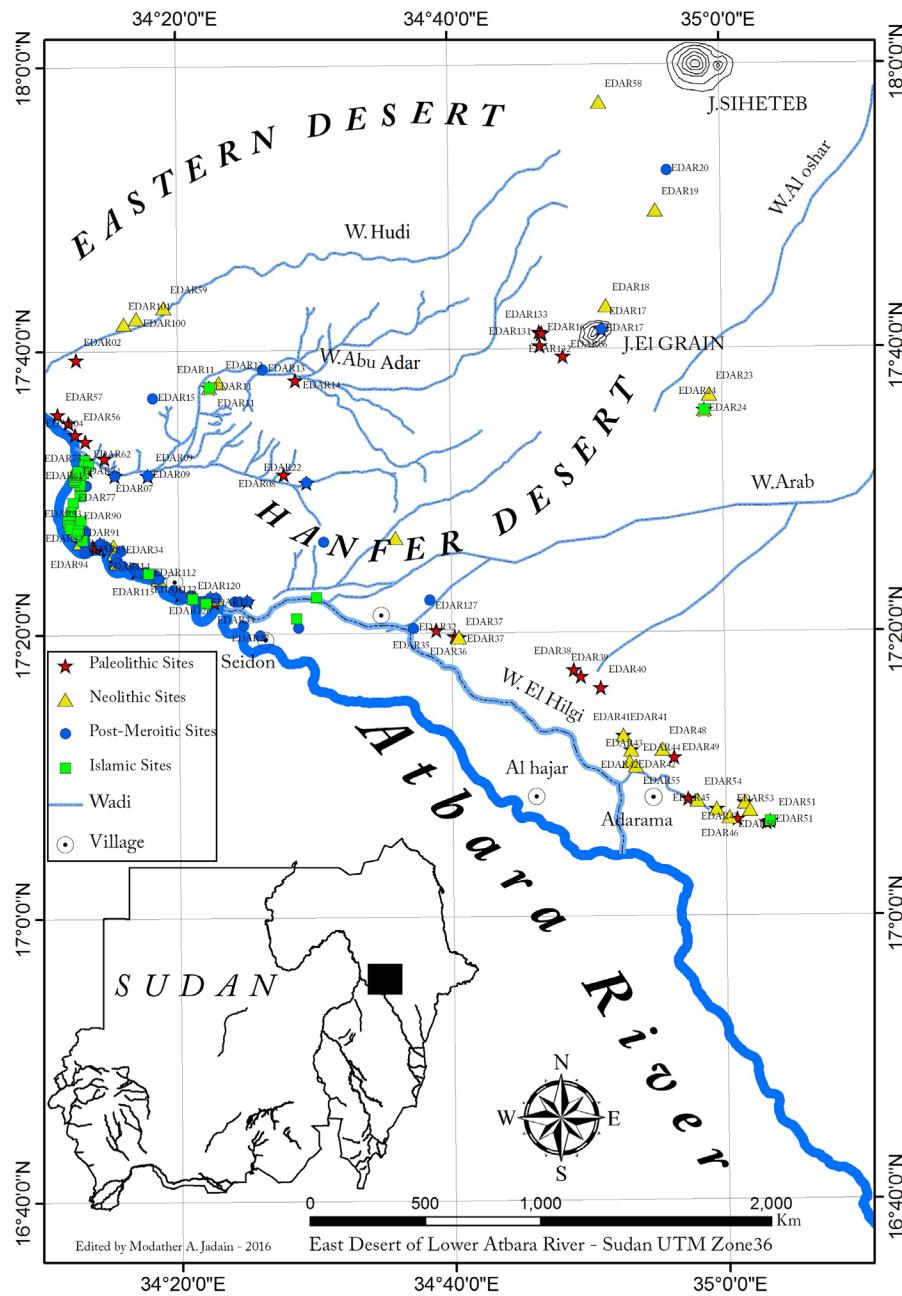


Figure 1: Archaeological sites discovered from the first season 2016 (Drawing Jadain 2017).

in 2014 (Nassr 2014), and from results of an exploration trip conducted at the end of the same year. These results combined with previous research data in the areas beyond the Atbara River (Arkell 1949a, Chmielewski 1987, Fattovich et al 1984, Marks et al 1987, Abbate et al 2010) encouraged our project to target this area. One of the issues we attempted to address in the first season is the

relationship between the desert and the River in the Late Prehistory.

The main objective of the first season is to reevaluate the development of Sudan's Stone Age transition in a region previously not researched, hoping to allow for future research of Sudan Prehistory to make more comprehensive comparisons with east African Prehistory.

Thus, the first season concentrated on the Old River channel and desert depressions. The attempt to locate Stone Age sites east of Atbara River involves assessing the relationship between the Middle Nile region and the Red Sea area across the eastern desert. This expansion in area gives a chance to evaluate the role of Atbara Valley in addressing many prehistoric questions; for instance, the investigation of the Atbara Paleolake in Pleistocene and the Holocene archaeology to allow for comparisons with east Africa. The first season paid special attention to the landscape and to the archaeological sites distribution. To assess the location of sites and artifacts distribution involve an understanding of the geomorphology of the area.

Eastern Desert of the Lower Atbara River and the previous research

Broadly, Stone Age archaeological research in Sudan lacks comparative studies with Kushite research projects, several focusing on northern Sudan, others on the Middle Nile region and on western Sudan. The area from the eastern bank of the Nile to the Red Sea coast remains peripheral for archaeological research despite its relation to east Africa. The upper and middle part of Atbara valley has been investigated in some sections of previous studies, revealing some promising results.

The first data about the area came from early geological research (Abdalla 1966; Matuck 1975 in Salih 2005) and described the area as containing exposed rocks



Figure 2: Microlithic sites landscape from the site of EDAR18 (Photo Nassr 2016).

of the Precambrian basement complex, which contain schist, met sediments, marble, quartzite, chlorite and epidotic (Whiteman 1971: 47). Arkell notes fossil mammal bones and Early Acheulean stone tools from a 33 feet high terrace of the Atbara River on the left bank, upstream from the Butana bridge (Arkell 1949a: 35). In 1966, Berry and Whiteman also studied geological sections of the east bank of the river.

Single artifacts were identified, such as Early Paleolithic handaxes collected from Khor Hudi (Arkell 1949: 34). In addition, the salvage archaeological field-work undertaken in Khashm al-Girba, in the upper part of Atbara River, revealed some Paleolithic sites (Chmielewski 1987) and recorded MSA sites near the town (Shiner & Chmielewski 1971: 58). Late Stone Ages sites in the eastern part of Butana plain shed more light on the upper part of Atbara valley (Marks et al 1987, Elamin 1987). The lower part of the river has some Late Stone Ages sites, located closer to the river, the main site being

Abu Darbein site (Haaland & Magid 1991: 39). Later other Early and Late Neolithic sites were recorded near Kassala, highlighting the potential for Stone Age research (Fattovich 1993, Manzo et al 2010).

Archaeological work in the middle region of the Atbara valley located Early Paleolithic sites, which sheds some light on the Early Stone Age archaeology (Abbate et al 2010, Nassr 2014).

EDAR Archaeological survey of the first season 2016

The first season intended to achieve one of the main aims of the project, specifically mapping the distribution of Stone Age sites with reconnaissance of the project area. The research strategy was to divide the area into small geographical sections from the north to the south according to the landscape's variability.



Figure 3: Bones in the sediments profiles from the site EDAR47 (Photo Nassr 2016).

The Hudi formation was regarded as the main geological division of the sections; outcrops of Hudi silica chert covering the mounds close to the river bank with isolated lime stone and Pleistocene active channel deposits. Holocene deposits covered the eastern and southern part of the area. The topography of the area overlooking the river banks consists of deep water streams with rocky mounds; the desert in the east shows flat mounds on the margin of Paleo-depressions and sandy low areas. There are some volcanic hills about 60 - 80 km east of the river bank, such as Jebel Elgrian and Jebel Alzahataib. The southern part of the area is affected by Elhelgi depression and Atbara Paleo-lake margin, where black Holocene clay is detected beneath recent sand dunes.

The study area was divided into small sections: the Elhudi depression, the Abu Adar depression, the Jebel Elgrian, the Hanfar desert, the Elhelgi depression, the Atbara Paleo-lake, and the Atbara River bank. Archaeological survey was done from north to south and following the depressions to the east with target areas, such as lime stone isolated zone, Hudi chert outcrops, hills and the depressions' margins. Archaeological sites were categorized and numbered by EDAR. The sites were described according to the setting, topography and artifact accumulation on the surface and from test excavation. Artifacts were sampled according to their diagnostic features and chronology. Some archaeological features were documented and compared with other discoveries in the area (Figure1).

The first season identified and located 133 archaeological sites distributed from the north to the south



Figure 4: Microlithic stone artifact from the site EDAR18, EDAR20, EDAR46 (Photo Nassr 2016).

and in the desert. The most frequent are Acheulean and MSA sites, with early Paleolithic occupation in the desert and MSA sites concentrating closer to the river bank. The Late Stone Age sites were found close to the Holocene depressions in the eastern and southern parts of the area. Meroitic sites, Post Meroitic graves and Christian and Early Islamic remains were found overlooking the river bank and on the edges of the Atbara Paleo-lake.

Late Prehistoric sites

Archaeological survey of the area revealed high concentration of Stone Age sites in the desert and old depressions. Twenty two Late prehistoric sites were identified, with Microlithic stone artifacts, Neolithic pottery sherds and lithic artifacts being the most common features. Some Late Prehistoric sites recorded also included evidence of Paleolithic occupations, such as MSA and Microlithic stone artifact concentration on the margin of some depressions.

The features documented included artifacts scattered on the surface and sediment profiles. Samples of surface artifacts were collected as well as from the sediment profiles. The main archaeological sites of Late Prehistory were found in the Elhelgi and Atbara Paleo-lake depressions, where the sites found on the margins of the depressions consisted of a concentration of debitage, bones, and pottery sherds. In general the Microlithic with Neolithic artifact have been found in one site, some of the sites



Figure 5: Neolithic pottery sherd on the surface from site of EDAR11 (Photo Nassr 2016).

show Microlithic stone artifacts and wild animal bones. These types of sites found in the Atbara Paleo-lake lay on Holocene sediments, which had been affected by erosion and covered by sand. Some of these sites found in the eastern part around Jebel Elgrian mountain show large concentration of Microlithic artifacts, including large quantities of debitage, blades and denticulate, covering an area of more than 700 x 500 meters. This demonstrates typical characteristics of Epipaleolithic archaeology in the area, such as EDAR site 18. The Neolithic sites are also more concentrated around the Holocene depression, a small Neolithic mounds with large scatter of pottery sherds and stone artifacts, bones and shells was recorded near the river bank at the Abu Adar depression and in the desert to the east, such as sites EDAR08, EDAR11, EDAR25. This type of sites is similar to the Neolithic sites from central Sudan. Other type of Neolithic sites yield a mix of artifacts, including Paleolithic and Meroitic materials. Debitage, polished stone tools, pottery sherds and bones are the main types

of Neolithic artifacts recorded from this type of sites with mixed occupations (e.g., EDAR46, EDAR47, EADR51, and EDAR52).

Sites with Microlithic assemblages yield extensive debitage, small sharp blades, and denticulate as well as fragments of large bones. These sites are more concentrated in the eastern part of the area and on the margin of Atbara Paleo-lake, and are overlooking large mounds of sediment or sand dunes covered by debitage and stone tools (Figure 2).

The sites found on the margin of Atbara Paleo-lake show Microlithic and Neolithic artifacts in compact Holocene sediment profiles, indicating extensive Late Prehistoric sites. They have all been affected by recent erosion and some parts are covered with sand. The material sampled contain Early and Late Neolithic pottery



Figure 6: Late Neolithic stone artifact from site EDAR47 (Photo Nassr 2016).

sherds in Early Khartoum and Shaheiab site, mixed with polished stone tools (Figure3).

The Neolithic mounds documented in the eastern part of the research area and at the marginsof old depressions in its southern part consist of accumulated pottery sherds, debitage, shells, bones and polished axes. These-Neolithic sites are similar to theEarly and Late Neolithic types of Shaheinab.

The sites content shows three horizons of Sudanese Neolithic archaeology:

a) sites with Microlithic assemblages Early Neolithic sites, which contain Microlithic stone tools, but no pottery (e.g., EDAR18, EADR37, EDAR46, EDAR52;Figure4). These Late Prehistoric sites show transitional elements from the Epipaleolithic to the Neolithic period. The artifacts are of large size, with high density of the stone artifacts at the surface mixed with bones and shells. Similar sites are rare in central Sudan, but similar to Early Neolithic sites in the western desert and the upper Atbara River (Wendorf 1968, Marks et al 1987, Fattovich et al 1984, Tahir & Nassr 2015).

b) Neolithic settlement sites, which contain Early Neolithic ceramics along with stone denticulate and debitage (Figure5). Artifacts collected at the surface and from test excavations contain Early Khartoum and Shaheinab pottery sherds, wild animal bones, fish bones and

small stone crescent-shaped artifacts and debitage(e.g., EDAR11, EDAR25, EDAR35, EDAR42, EDAR47).

If we compare these sites yielding contain pottery sherds with the sites with Microlithic artifacts, it is clear that the Late Stone Age in the area developed during the Holocene times. This will provide a good chronology for Late Stone Age in the area.C) The Late Neolithic sites are characterized by fine pottery sherds decorated with geometric patterns, polished axes and grinder stone tools, as well as by domesticated animals bones (Figure 6). This material is found on the River bank, the Elhelgi depression and concentrated on the western margin of the Atbara Paleo-lake. These Late Neolithic sites can be seen from small mounds and are usually mixed with earlier Neolithic materials. The characteristics of this sites is similar to the Late Neolithic in central Sudan (Reinold 2008, Sadig 2012, Salvatori 2012, Nassr 2015). On one the hand, the polished axes and grinder stone tools show developed Late Neolithic groups away from the river on the Holocene depressions. However,some Late Neolithic artifacts that show reuse, such as polished axes and stone ornaments in later periods (e.g., Bronze Age or Meroitic period). This might be a motivation for future research on the end of Stone Age and beginning of urbanization in the area.

The archaeological sites survey and surface artifact analysis show that this area was occupied for a long time, as demonstrated by the presence of artifacts, bones, and shells recorded at the surface of sites and from sediment profiles. The sites documented here are very promising and contain both artifacts and organic materials. This will help in the reconstruction of Late Stone Age Paleo-environment in the Lower part of the Atbara valley.

Conclusion

The first season of archaeological survey on the Eastern Desert of the Lower Atbara River adds new information to Sudan's archaeology. The topographical features of the area, from Pleistocene and Holocene, are indicators of a rich archaeological zone. The Paleo-environment of the Atbara Paleo-lake and the Atbara Paleo-channel present data on economic subsistence of Stone Age groups, which developed from primary gatherer-hunter societies to pastoral and agricultural societies with permanent settlement.

Late prehistoric sites are promising for the research of Microlithic and Neolithic archaeology. The diversity of stone artifacts, ceramics, and the organic material revealed different Late Prehistoric horizons during the Holocene period in this area. The sites' location and artifact distribution on the surface and sediment profiles show high topographical changes, which indicate various Paleo-climate conditions. Geomorphologic analysis of occupation layers and dating of the contexts are necessary to understand the Late Prehistoric transition in the area and its relationship to the broad prehistory of Sudan.

Acknowledgements

I am very grateful to the Ministry of Higher Education and Scientific Research, Sudan for providing research funding, the NCAM for research authorization, the University of Neelain for support and my research team for helping in the field.

References Cited

- Abbate E., Albianelli A., Awad A., Billi P., Deleino M., Ferretti M., Fillippi O., Gallai G., Ghinassi M., Lauritzen S., Vetro D., Navarro B., Martini F., Napolleone G., Bedri O., Papini M., Rook L & Sagri M.
- 2010 Pleistocene environments and human presence in the middle Atbara valley (Khashm El Girba, Eastern Sudan), *Palaeogeography, Palaeoclimatology, Palaeoecology*, 292: 12-34.
- Arkell, A.J.
- 1949a *The Old Stone Age in the Anglo-Egyptian Sudan*. Sudan Antiquities Service Occasional Papers No. 1. Khartoum.
- Arkell, A.J.
- 1949b *Early Khartoum*, London, Oxford University Press.
- Arkell, A.J.
- 1953 The late Acheulean of EshShaheinab. *Kush*, 1: 30–34.
- Chmielewski, W.
- 1987 The Pleistocene and Early Holocene Archaeological Sites on the Atbara and Blue Nile in Eastern Sudan. *Przeglad Archeologiczny* 34: 5–48.
- El-Amin, Y.
- 1987 Terminal Paleolithic Blade Assemblage from ElGirba, Eastern Sudan, *Reprinted from Azania. Volume xxII*. Nairobi, Kenya: 343–361.
- Fattovich R., Marks A & Mohammed-Ali, A.
- 1984 The Archaeology of the Eastern Sahel, Sudan: Preliminary Results. *The African Archaeological Review*, 2:173–188.
- Fattovich, R.
- 1993 Excavation at Mahal Teglions (Kassala) (1984 – 1988). Preliminary Report. *Kush*, 16:178–192.
- Haaland, R., & Magid, A. A.
- 1991 Atbara research project: The field seasons of 1985, 1987, 1989, and 1990. *NyameAkuma*, 35:36–43.

Krzyżaniak, L.

- 1992 The Later Prehistory of the Upper (Main) Nile: Comments on the Current State of the Research. In F. Klees and R. Kuper (eds.), *New Light on the Northeast African Past*. Köln, Heinrich-Barth Institut: 241-248.

Manzo, A., Cppa, A., Aleho, A & Zoppi. V.

- 2010 *Italian Archaeological Expedition to the Sudan of the University of Naples "L'Orientale"*. Field Season report.

Marks, A.E.

- 1987 "Terminal Pleistocene and Holocene Hunters and Gatherers in the Eastern Sudan". *African Archaeological Review*, 5:79-92.

Marks, A.E., Peters, J., Van Neer, W.

- 1987 Late Pleistocene and Early Holocene occupations in the Upper Atbara River valley, Sudan. *Prehistory of Arid North Africa (Essays in Honor of FredWendorf)* In A.E. Close (ed.), Southern Methodist Press, Dallas: 137-61.

Nassr, A.H.

- 2014 Large cutting tools Variations of Early Sudan Paleolithic from site of Jebel Elgrian east of Lower Atbara, *Der antike Sudan. MittSAG* 25. Berlin: 105 - 123.

Nassr, A.H.

- 2015 The late Neolithic at QalaatShanan site within Shendi Reach. *Hunter-Gathers and Early food production Societies in Northeast Africa, study in African Archaeology I*. Poznań Archaeological Museum: 159-176.

Reinold, J.

- 2008 *La nécropole néolithique d'el-Kadada au Soudan Central. Les cimetières A et B (NE_36-O/3-V-2 et NE-36-O/3-V-3) du kôm principal. Vol. I*. Paris, A.D.P.F., Études et Recherche sur les Civilisations.

Sadig, A.M.

- 2012 Chronology and Cultural development of the Sudanese Neolithic. *Beiträge zur Sudanforschung*, 11: 137-184.

Salih, A.S.

- 2005 Geology, Characteristics and Possible Industrial Applications of Some Sudanese Kaolins. PHD thesis School of Applied Earth Sciences, University of Neelain, Sudan.

Salvatori, S.

- 2012 Disclosing Archaeological Complexity of the Khartoum Mesolithic: New Data at the Site and Regional Level. *African Archaeological Review*, 29: 399-472.

Shiner, L. & Chmielewski, W.

- 1971 The Khashm el Girba area. In L. Shiner (ed.) *The prehistory and geology of Northern Sudan. Parts I und II*. Report to the National Science Foundation Grant GS 1192. 1971: 293–305.

Tahir, Y & Nassr, A.

- 2015 Paleolithic stone tools of El-Ga'ab depression, a techno- typological study from the surface collection. *Der antike Sudan. MittSAG* 26. Berlin: 95–107.

Usai, D.

- 2016 A picture of Prehistoric Sudan: The Mesolithic and Neolithic Periods. Oxford Handbooks Online.

Wendorf, F. (ed.)

- 1968 *Prehistory of Nubia*. Volume I. Dallas.

Whitemann, A.J.

- 1971 *The Geology of the Sudan Republic*, ClarendonPress, 290 S., Oxford.