

Elena A. A. Garcea

Origin and Early Development of Food Producing Cultures at Sai Island and Amara West, northern Sudan

Introduction

The 2011 symposium on the later prehistory in north-eastern Africa celebrated its 30th anniversary since the beginning of this continuing series started in Dymaczewo. In the epilogue of the first Dymaczewo conference's proceedings, J.D. Clark wrote "it is remarkable that we have been able in these four and a half days to say so much about so little" (Clark 1984: 498). Much more has been said in the years that followed and new data are still continuing to come to light.

This paper presents some results of recent fieldwork on the later prehistory on Sai Island and in the district of Amara West¹, in northern Sudan. The two areas are about 20 km along the Nile Valley, Sai Island being upstream of the Amara West district, which is on the left (northern) side of the present river valley (Fig. 1).

Fieldwork at Sai Island

Investigations on the later prehistory at Sai Island included an extensive excavation at the Khartoum Variant site 8-B-10C, which lasted several years (Garcea 2011-2012; in press). The site is located between Jebel Adu to the west and the

¹ At Sai Island, I became in charge of the research on the later prehistory in 2004, thanks to an international cooperation between the late Francis Geus and Didier Devauchelle, past and present directors of the Sai Island Archaeological Mission of the University of Lille III – Charles de Gaulle. Moreover, since 2011, thanks to an invitation by Neal Spencer of the British Museum, director of the Amara West Research Project, and upon a formal agreement with the authorities of the National Corporation for Antiquities and Museums, I have been conducting surveys with test excavations of the prehistoric sites located in the district of Amara West.

present course of the Nile to the east and occupies an elongated area of about 20x150 m parallel to the Nile near the village of Adu (Fig. 2). The excavated area covered a surface of 105 square metres.

Geoarchaeological investigations indicated that this site is located in a paleosol with a large quantity of deflated carbonate nodules on the surface, which formed when there was an active soil of a vegetated floodplain. Preliminary pollen analysis of the sediment confirmed the geoarchaeological evidence and revealed a rich floristic record, including more than 20 differ-

ent plant types. Among them, tropical taxa predominated and herbs included a prevalence of *Gramineae*. These plants are indicative of a savannah landscape with a moist environment, supporting the presence of a vegetated floodplain as the carbonate nodules suggest. Faunal remains further corroborate the geomorphological and palynological evidence as they mainly consist of various types of mollusc².

After removing the artefacts on the superficial level at 8-B-10C, Level 1 was excavated during the 2004 and 2005 field seasons. This level exhibited a complex settlement organisation with 7 hut floors, 100 post holes, 3 hearths and 3 rubbish pits, and was radiocarbon dated to 5000 cal years BC: 6080±35 BP, or 5070-4900 cal. BC (KIA-24463), and 5980±40 BP, or 4950-4770 cal. BC (KIA-24464) on charcoal from one of the hearths. Pottery is mostly undecorated, but dotted wavy line motifs are present and make up 13.3% of the decorations made with the rocker technique. Retouched tools are typically not microlithic and comprise a prevalence of denticulated and notched flakes, several perforators and a few endscrapers. Lunates and backed bladelets are extremely rare, but a multiple edged side-

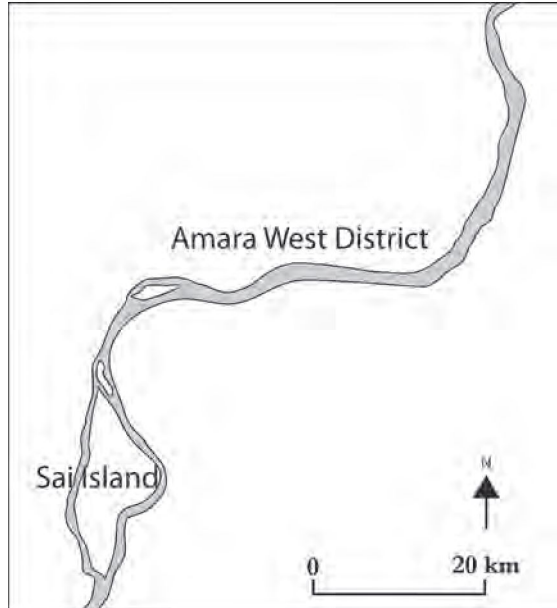


Fig. 1. Map of the Amara West District and Sai Island

² Geoarchaeological investigations were conducted by Jennifer Smith of Washington University in St. Louis, MO, U.S.A. Pollen analysis was carried out by Anna Maria Mercuri of the University of Modena and Reggio Emilia, Italy. Faunal remains were studied by Louis Chaix of the Department of Archaeozoology at the Museum of Natural History, Geneva, Switzerland.

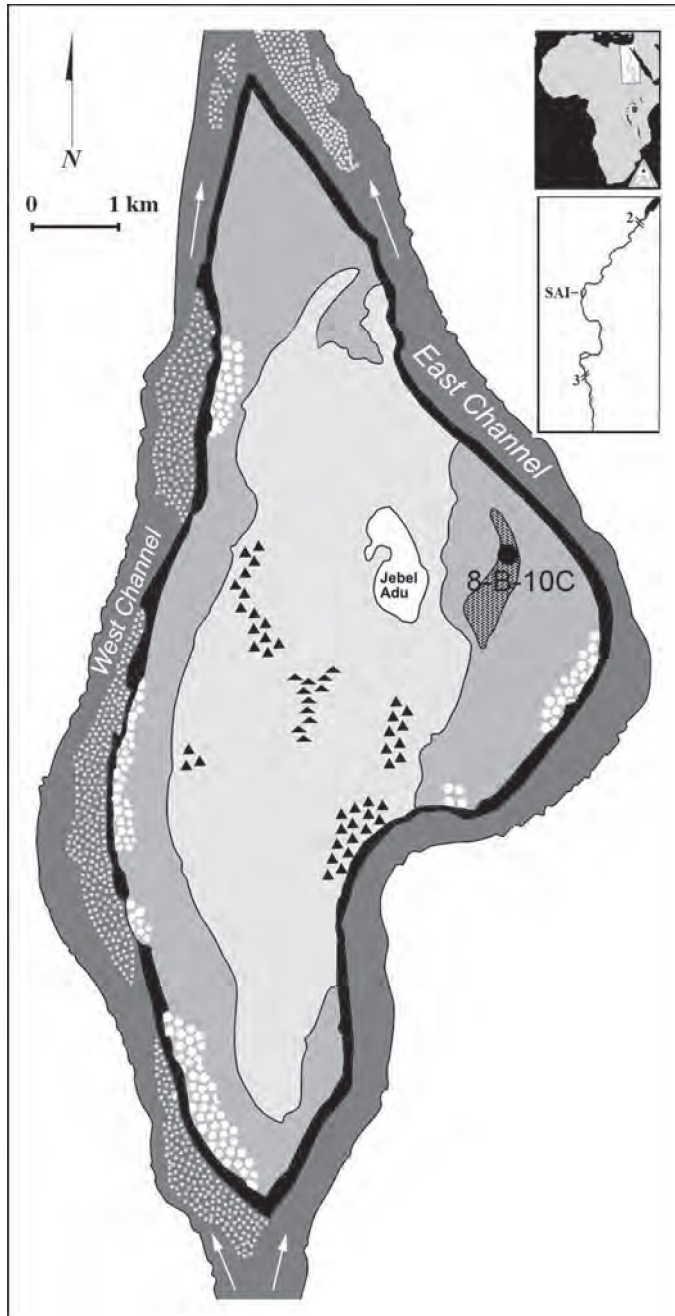


Fig. 2. Map of Sai Island with Site 8-B-10C (modified from Garcea and Hildebrand 2009: Fig. 1)

scraper made of 'Egyptian' translucent flint, which typifies the Khartoum Variant (Shiner 1968), was included in the tool-kit from this level.

Level 2 was excavated in 2009 and revealed another occupational system including 74 post holes with another complex of huts belonging to an earlier phase of intensive occupation of the site. One sherd showed the typical dotted wavy line motif and another one an alternately pivoting stamped decoration, which is also characteristic of the Khartoum Variant period. The lithic assemblage included a considerable quantity of refitting cores and flakes, suggesting a very good preservation condition of the archaeological deposit.

The excavation of the site finished in 2011 with the removal of Level 3. It appeared that this level lay on a paleosurface with scattered well-rounded pebbles, comparable to the present erosional surface surrounding the site. The paleosurface exhibited desiccation polygons with mud cracks, which formed when the moisture of the sediment dried up, once more confirming the former existence of a floodplain. No architectural features were observed in this level, but the continuing high density of artefacts showed that a third intensive occupational phase of the site existed prior to the establishment of the post holes and hut features. All pottery was non-decorated, but still showed the typical Khartoum Variant, rather coarse, ware. Retouched stone tools included rare lunates. The raw materials used to make lithic artefacts still comprised a large variety of rocks, with a prevalence of quartz, but also chert, quartzite, fossil wood, carnelian, sandstone, schist, as well as the characteristic 'Egyptian' translucent flint.

To sum up, Site 8-B-10C was located in an alluvial plain and was occupied on a semi-permanent basis during the formation of Levels 1 and 2. Conversely, the occupation phase associated with Level 3 was based on a more opportunistic, although recurring, settlement system than in the later periods, as the high frequencies of lithic artefacts indicated. Yet, all levels exhibited various characteristics of the Khartoum Variant complex. Considering the extraordinary density of artefacts, the site must have offered particularly favourable conditions for food and water resources to the numerous generations of people who settled there.

Fieldwork in the Amara West district

New investigations on the prehistoric sites located in the district of Amara West started in 2011. Aims of the survey included relocating the prehistoric sites previously recorded by Arkell (1939; 1941) and Vila (1977), georeferencing them, assessing their preservation condition, locating previously unrecorded sites, describing the palaeoenvironmental, geomorphic, and sedimentological features in

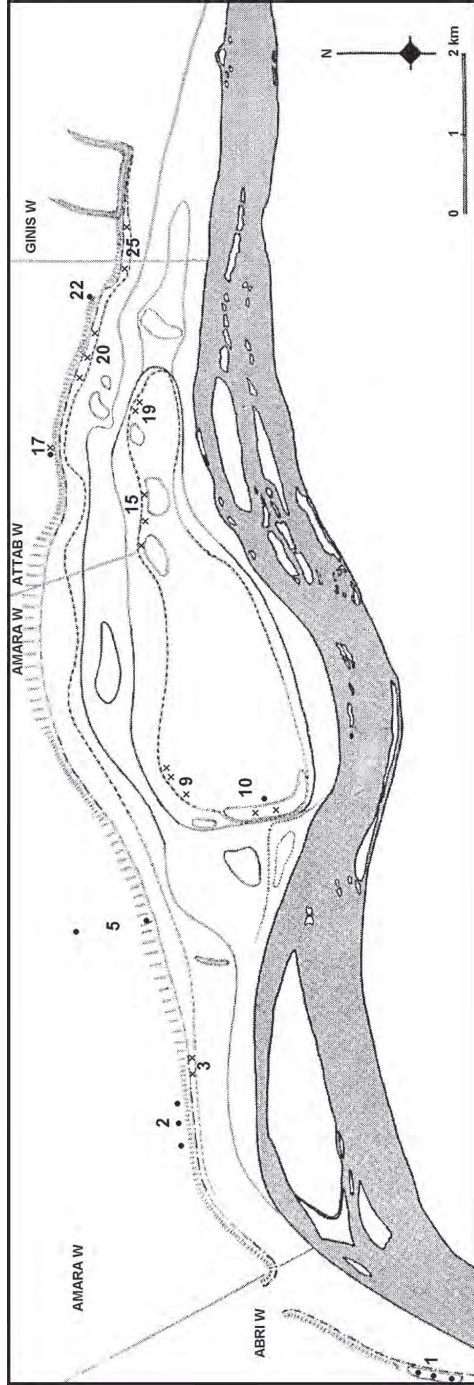


Fig. 3. Map of prehistoric sites in the Amara West district: ⌘: Middle Stone Age sites; ⌘: Khartoum Variant, Abkan and Pre-Kerma sites (modified from Vila 1977: 14).

the area, and collecting sediment, ceramic, lithic and archaeozoological samples for laboratory analysis. Fieldwork was focused on the prehistoric sites defined by Vila (1977) as “Palaeolithic,” “Neolithic/Old Nubian,” and “Old/Middle Nubian.”

The surveyed area covered the entire district of Amara West, which includes the left (northern) side of the present course of the Nile here flowing from west to east for about 8.5 km, and 2 km from north to south (Fig. 3). Three previously unknown sites were discovered and were named according to the Archaeological Map of Sudan designed by Hinkel (1977), which Vila also referred to. As the last site in Vila’s list was number 2-R-74, the new sites were given numbers 2-R-75, 2-R-76, and 2-R-77.

Middle Stone Age sites

Beginning from the earliest period, Vila (1977) listed five “Palaeolithic” sites (2-R-15, 2-R-20, 2-R-21, 2-R-71, 2-R-74) and mapped two other ones (2-S-17 and 2-S-22) in the easternmost part of the district (Vila 1977: 14). All of them could be relocated and a previously unknown one was found.

Site 2-S-17 appeared in good preservation condition. A consistent concentration of Middle Stone Age (MSA) artefacts was scattered on the surface. Levallois cores were often of small dimensions and one core was made with the Nubian technology. Levallois flakes, some showing faceted butts, were common and some of them were retouched. Bifacial tools were also present. Quartz, which was the most weathered type of rock, prevailed among raw materials. Other raw materials included brown chert and fossil wood.

Farther north, on a higher terrace, a previously unknown site was discovered. It was named according to the Archaeological Map of Sudan followed by Vila, and was given number 2-R-77. It appeared as the best preserved Middle Stone Age site, even though several artefacts were altered by wind blasting. The assemblage had a predominant flake component, although some flakes tended to elongated shapes. It included Levallois cores of large sizes and centripetal cores. The tool-kit comprised simple and denticulated Levallois flakes, cortical bipolar flakes, notched flakes and flakes with alternate backed retouches. Among sidescrapers, one was tanged (Fig. 4), suggesting an Aterian affiliation. Quartz and chert were the most frequent raw materials. Quartzite and sandstone were also used.

It could be possible that these MSA sites were in use over a long time period, possibly spanning from an earlier time than the Aterian. Moreover, it should be pointed out that another tanged tool, a simple sidescrapper on a Levallois blade (Fig. 5), was found in an isolated spot (N 20°50′47.9″/ E 30°25′14.7″), corroborating the presence of a late MSA, or probably Aterian complex.

Khartoum Variant sites

Following in chronological order, all other sites are Holocene in age. Among them, Vila (1977) defined the earliest ones as “Neolithic/Old Nubian,” which, in his 2-R grid, he found in three places: 2-R-12, 2-R-66 and 2-R-68 (Fig. 6). They can now be assigned to the Khartoum Variant period. The latter site represents two different cultural phases: the Old and the Middle Nubian, and therefore has been renamed as 2-R-68A and 2-R-68B, the Khartoum Variant site being 2-R-68A. Four other sites were located and mapped in the easternmost part of the district (Vila 1977: 14): sites 2-S-15, 2-S-19, 2-S-20 and 2-S-25. Sites 2-R-66, 2-R-68A, 2-S-15 and 2-S-19 are the best preserved ones. Among them, 2-R-66 is located between the present left bank of the Nile and an ancient course of the river, on a terrace on the right side of the ancient channel. It covers an elongated area parallel to the Nile (Fig. 7). Both the ceramic and lithic assemblages could be assigned to the Khartoum Variant period. Decorations consist of packed dotted zigzags made with the rocker stamp technique, including dotted wavy line motifs, and some alternately pivoting stamped motifs. The lithic complex is microlithic and shows a production of small flakes and bladelets, which were also used as blanks for manufacturing geometric tools, in particular lunates, which are the most characteristic tools at this site.



Fig. 4. Aterian tanged sidescraper from 2-R-77



Fig. 5. Aterian tanged sidescraper on a Levallois blade from Amara West

Faunal remains of large mammals, fish, and gastropods were visible on the surface of this site. Given their fair preservation condition, they suggested that they were in situ and could have recently eroded out from the archaeological deposit. Seven test pits were dug for both geological and archaeological investigations of the sub-surface and showed that the Khartoum Variant deposit lay in a sediment between upper alluvial sediments of Pleistocene age and a lower deposit with later artefacts.

Among the eastern sites, 2-S-15 (Fig. 8) is comparable to 2-R-66, as it is in similar preservation condition and is located on a terrace on the right side of the ancient Nile channel at a distance of about 1.5 km. Pottery is decorated with impressions made with the rocker technique: it comprises both dotted and dashed zigzags. Lithics include typical Khartoum Variant tools, such as concave side-scrapers.

Another previously unknown site was discovered on a terrace on the left (northern) side of the ancient course of the Nile. While Vila (1977) predominantly identified Holocene sites on the southern bank of the paleochannel, it appeared that some archaeological sites were present on the northern bank, indicating that early Holocene inhabitants also occupied this area, even though not as intensively as the southern bank. The new site was named 2-R-76 and could also be assigned to the Khartoum Variant period.

Abkan/Pre-Kerma sites

The last category of inspected sites regards those that Vila (1977) defined as "Old/Middle Nubian". It comprises two sites, 2-R-58 and 2-R-68 (Fig. 6). Site 2-R-58 shows some possibly Abkan pottery on the surface, but was disturbed by later tumuli built in the same site.

Vila distinguished two occupations at Site 2-R-68, an earlier one, which can be now assigned to the Khartoum Variant period, and a later one, which can be assigned to the Pre-Kerma period. In order to keep the two occupations separated, the site has been renamed as 2-R-68A and 2-R-68B. The former is not very well preserved, whereas the latter is in much better preservation condition and consists of a concentration of circular or oval shallow depressions surrounded with gravel and cobbles of different sizes. Four test pits were dug and one of the depressions was cleared in order to assess the presence of anthropic features, which were confirmed during excavation, even though sand fill combined with the rapid degradation of the pit walls and prominent desiccation cracks did not allow determining the original dimensions and shapes of these features. The tested feature

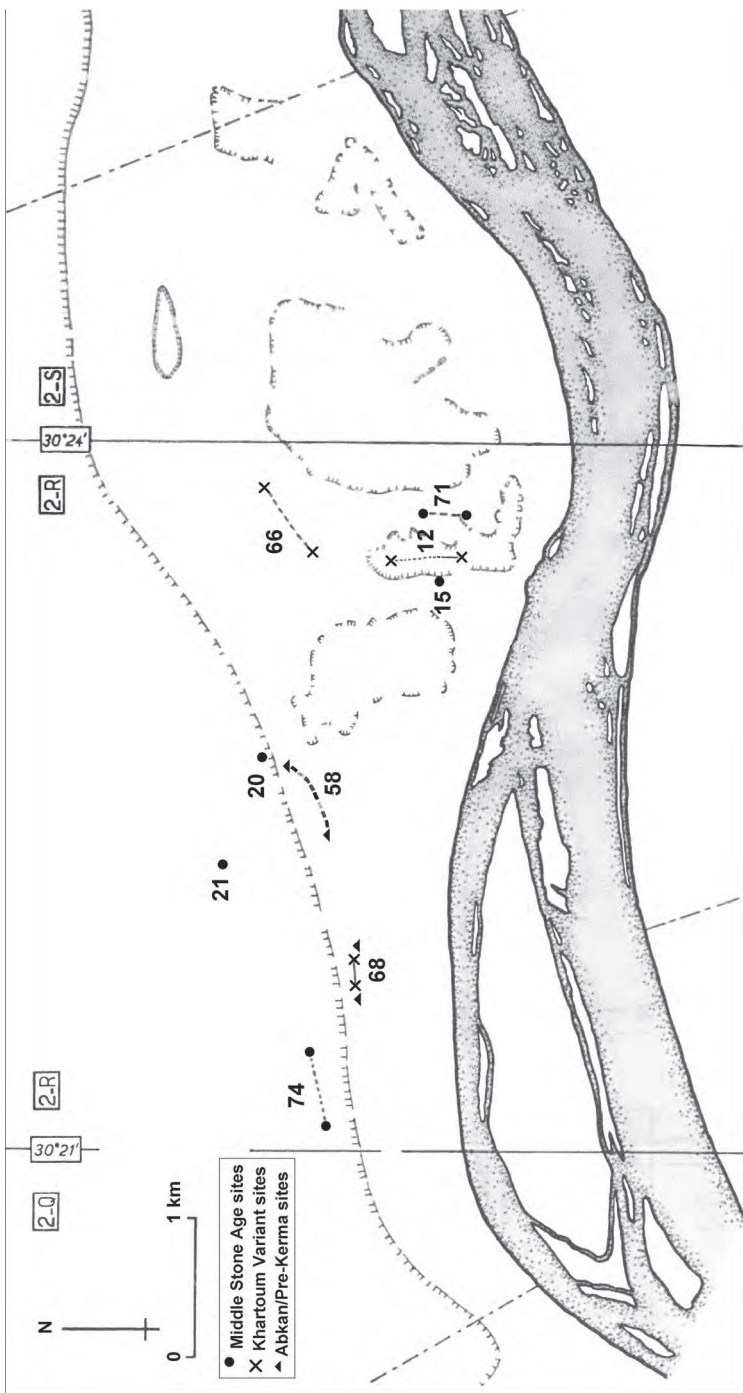


Fig. 6. Map of the prehistoric sites in Vilas 2-R grid within the Amara West District (modified from Vila 1977: 15)

measured about 4x2 m and was cut into the sterile silt. The lithic assemblage is made of different raw materials, including quartz, chert, carnelian, fossil wood, quartzite and schist. Prevailing cores have opposed, ninety-degrees and discoidal platforms. End-products are often microlithic. Retouched tools comprise notches, denticulates and lunates. Percussors are very frequent at this site, indicating that knapping was practised on the spot. The pottery assemblage appeared coherent with the Pre-Kerma period as regards both decorative motifs and technological features. The texture of the pastes is fine or medium with organic, possibly dung, and mineral inclusions. Most of the internal surfaces are black or brown burnished, whereas the external surfaces are red or brown burnished. Polishing is only occasionally visible and occurs on the sherds with a finer texture. Decorations comprise different types of incision: herringbone, criss-cross and geometric motifs. Some rocker and alternately pivoting stamped decorations also occur with both spaced and packed, dotted or dashed zigzags. Six clay lumps were also collected from the surface of a test pit (# 9).

Concluding remarks

To conclude, the first remark regards the beginning of human occupation at Amara West. It is possible that humans reached the area during the early MSA period, or even earlier. Furthermore, the presence of Aterian artefacts at Amara West is noteworthy. As is known, this techno-complex does not usually occur along the Nile Valley (Kleindienst 1998) and is rather a desert-oriented cultural unit (Garcea 2010; 2011). As a matter of fact, the district of Amara West exhibits environmental features that appear more comparable to the Western Desert of Bir Tarfawi (Wendorf *et al.* 1993) or Dakhleh Oasis (Kleindienst 1998) than the Nilotic, riverine landscape. Therefore, it seems plausible that some Aterian groups explored this area, which was much drier and in direct connection with the Sahara rather than with the eastern side of the Nile Valley.

As regards the 'origin and early development of food producing cultures', topic of this symposium, both Sai Island (Site 8-B-10C) and Amara West (Sites 2-R-66 and 2-S-15, in particular) indicated that the latest foragers chose specific spots that must have been favourable for water and food resources to develop long-lasting settlement systems based on permanent or recurrent occupations of extended areas. In fact, these sites are associated with floodplain deposits near the edges of active channels. Furthermore, carbonate nodules at 8-B-10C in Sai and carbonate root casts and Fe-Mn nodules at 2-R-66 in Amara West suggest that the occupants of these sites lived in vegetated floodplain environments.



Fig. 7. View of Site 2-R-66



Fig. 8. View of Site 2-S-15

Finally, the Abkan and Pre-Kerma sites in Sai Island are located in different areas than the Khartoum Variant ones, indicating a differently organized space within a relatively small and circumscribed area, as is the case of an island. On the other hand, in the Amara West area, the Abkan and Pre-Kerma sites are not as well-preserved as the Khartoum Variant ones. It is clear, however, that they were usually located in the same localities of the earlier sites, possibly suggesting a harsher environment, with lesser opportunities to find equally adequate resources for human settlement. These two areas, Sai Island and the Amara West district, although at a close proximity from each other, have provided interesting comparable material that contributed to add a little more to ‘the little we knew,’ as J. D. Clark had pointed out.

Acknowledgments

I was not in Poland in 1980 for the first “Dymaczewo Conference”, but soon after I learnt that Dymaczewo was the place to go in order to thoroughly learn about the latest research and to meet the people who were fresh from the field. As I participated in my first fieldwork in Sudan in 1986 with Isabella Caneva, it came as a natural consequence for her to bring me to my first “Dymaczewo Conference,” then still in Dymaczewo, in 1988. I never missed a conference since then. Today I would not be surprised if half of the participants of this symposium do not know what Dymaczewo means to us. To the other half, like myself, the memories of Dymaczewo are still fresh in our mind so much as our desires to get together for a longer time than the hasty encounters we make in the antiquities offices of Cairo, Khartoum, or elsewhere. It is a pity that neither Desmond Clark nor Lech Krzyzaniak is any longer with us to continue to talk about ‘so little.’ Nevertheless, if these conferences are continuing, it is because they initiated a process that nobody wants to end and their co-organizers can carry on as successfully. I take this opportunity to thank Marek Chłodnicki, Jacek Kabaciński, Michał Kobusiewicz, Romuald Schild, Marzena Szymt, and Małgorzata Winiarska-Kabacińska, among others, for continuing this enjoyable tradition. I also express my gratitude to Isabella Caneva and to the past and present organizers with the wish to share this unique opportunity with the younger generations of our students, who were in Poznan with us in 2011 after 30 years.

Funds for my fieldwork were granted to me by the National Geographic Society – Committee for Research and Exploration (Grant #8715-09) and the Department of Letters and Philosophy of the University of Cassino and Southern

Latium, Italy. Support for research on the later prehistory at Sai Island came from the Archaeological Mission at Sai Island (Sudan) of the University of Lille III, France, formerly directed by F. Geus and presently by D. Devauchelle. I am greatly indebted to Geus and Devauchelle for having invited me to be part of the Sai permanent research team, and to the field directors, Florence Doyen and Julia Budka, for their support and cooperation. I sincerely thank Neal Spencer of the British Museum, Director of the Amara West Research Project, for encouraging research on the prehistory in the area. I also wish to express my sincere gratitude to Hassan Husein Idris, Abdel Rahman Ali Mohamed, and Salah Mohammed el-Din of the National Corporation for Antiquities and Museums for their continuing cooperation and support.

REFERENCES

- ARKELL, A.J. 1939. Late Sebilian. *Sudan Antiquities Service Files*, 22-11-39.
- ARKELL, A.J. 1941. Levallois type. *Sudan Antiquities Service Files*, 13-12-41.
- CLARK, J. D. 1984. Epilogue. In: L. Krzyzaniak, M. Kobusiewicz (eds.), *Origin and Early Development of Food-Producing Cultures in North-Eastern Africa* (= Studies in African Archaeology 1): 497-503. Poznań.
- GARCEA, E. A. A. 2010. Bridging the gap between in and out of Africa. In: E.A.A. Garcea (ed.), *South-Eastern Mediterranean Peoples Between 130,000 and 10,000 years ago*: 174-182. Oxford.
- GARCEA, E. A. A. 2011. Modern human desert adaptations: a Libyan perspective on the Aterian. In: J.-J. Hublin, S. McPherron (eds.), *Modern Origins: A North African Perspective*: 127-142. Dordrecht.
- GARCEA, E. A. A. 2011-2012. Revisiting the Khartoum Variant in its environment. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 29: 139-150.
- GARCEA, E. A. A. in press. The evolution from large social units with loose networks into small social units with tight networks from the Khartoum Variant to the Abkan and the Pre-Kerma at Sai Island. In: D. Welsby, J. Anderson (eds.), *12th International Conference for Nubian Studies*. London.
- GARCEA, E. A. A. and E. HILDEBRAND 2009. Shifting social networks along the Nile: Middle Holocene ceramic assemblages from Sai Island, Sudan. *Journal of Anthropological Archaeology* 28: 304-322.
- HINKEL, F. W. 1977. *The archaeological map of the Sudan: a guide to its use and explanation of its principles*. Berlin.

- KLEINDIENST, M. R. 1998. What is the Aterian? The view from Dakhleh Oasis and the Western Desert, Egypt. In: M. Marlow, A.J. Mills (eds.), *The Oasis Paper 1: The Proceedings of the First Conference of the Dakhleh Oasis Project*: 1-14. Oxford.
- SHINER, J. L. 1968. The Khartoum Variant industry. In: F. Wendorf (ed.) *The Prehistory of Nubia*. Volume 2: 768-790. Dallas.
- VILA, A. 1977. *La prospection archéologique de la vallée du Nil, au sud de la Cataracte de Dal (Nubie soudanaise): Le district d'Amara Ouest*. Volume 7. Paris.
- WENDORF, F., CLOSE, A. E. and ASSOCIATES (1993). *Egypt during the last interglacial: the middle Palaeolithic of Bir Tarfawi and Bir Sahara East*. New York.