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## The early ceramics of the Eastern Butana (Sudan)

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This paper is based on part of the work conducted within the Butana Archaeological Project which is a joint mission of the University of Khartoum, Southern Methodist University at Dallas and the North Texas State University. In itself the work was based on pioneering surveys conducted earlier by Humboldt University at Berlin in the Western Butana (Hintze 1959), and the Combined Prehistoric Expedition in the Eastern Butana (Shiner *et al.* 1971).

The Butana is a flat featureless plain extending from the Nile to the Abbissinian Plateau, an area *ca* 200 miles wide. Two major water systems, the Atbara and the Gash rivers (Fig. 1), interrupt its topography. Annually, but rather seasonally, these two rivers carry a considerable amount of water and silt from the Abbissinian highlands to the Butana plains. Today the area marks the eastern limit of the Sahel belt within the African continent. The area enjoys a hot climate with an average annual rainfall of *ca* 150 mm.

In the course of the project the archaeology of a large area in the Butana was brought to light and a tentative cultural sequence was established (Marks *et al.* 1982; 1983). In the Western Butana the Midden and the Cave sites of Shaqadud provided a stratigraphic sequence of seven metres of cultural deposits, beginning as early as the 7th millennium B.C. and lasting until the end of the 3rd millennium B.C. (Mohammed-Ali and Marks 1984). In the Eastern Butana the work was more extensive, both in terms of the area covered and the material yielded. Here too, a temporal framework extending from the Middle Pleistocene to almost the present time was constructed (Fattovich *et al.* 1984). Our concern in this paper lies in the nature of the earliest ceramic assemblages of the Eastern Butana and their relation to contemporaneous assemblages further west across the plain, along the Nile.

Investigations in the area have uncovered a number of early ceramic sites along the Atbara, in the steppe to the east and in the Gash Delta. These assemblages have been tentatively assigned to two phases, the Pre-Saroba and the Saroba. Apparently the latter marks the beginning of a long ceramic tradition which lasted into historic times (Fattovich *et al.* 1984).

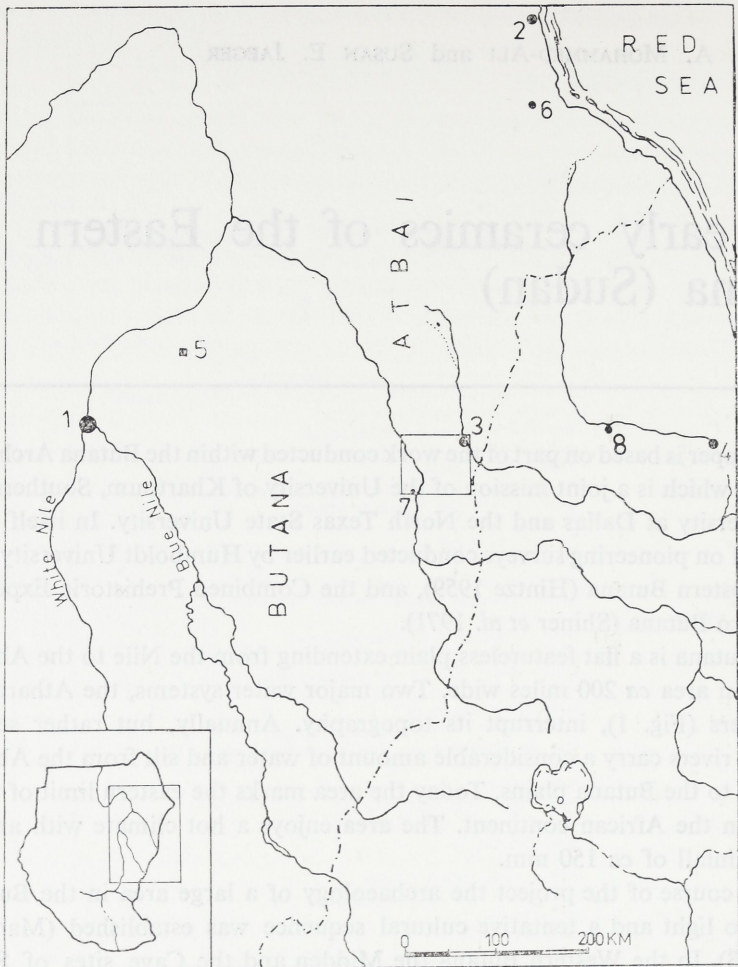


FIG. 1. Map of the Eastern Sudan showing the areas and sites mentioned in the text

1: Khartoum; 2: Port Sudan; 3: Kassala; 4: Asmara; 5: Shaquadud; 6: Erkowitz; 7: Kashm el-Girba; 8: Agordat

The Pre-Saroba Phase so far is represented by two sites: KG55 and KG14, both of which are situated on the west bank of the Atbara river, about 2 m above the present flood plain. KG55 covers an area of *ca* 3,000 sq. m. and KG14 covers an area of *ca* 8 000 sq. m.; both sites are deflated.

The KG55 site did not consist of a midden. Its faunal remains are of wild animals, including fish, crocodile, hippopotamus and a variety of bovids of different sizes, indicating a rich savanna habitat. The lithic sample from this site is too poor to allow any conclusions to be made, but it includes a few elongated backed pieces. The ceramic assemblage consists of two kinds of fabrics, one with a coarse textured

paste, heavily tempered with medium sized sand, and the other with a slightly finer textured paste, lightly tempered with fine sand. No burnish or slip was applied to any vessel surface, yet about 15% of the sherds were well smoothed on their exterior surfaces. The primary decorative motif in this collection is vertical and sometimes consists of horizontal patterns of wavy lines. The majority of the decorated sherds are rim sherds, while most of the undecorated sherds are body sherds. Thus, decoration is confined to the upper portion of the vessel. The total sample of sherds is limited but several large pieces were reconstructed, suggesting open vessels, with straight rims and pointed bases. These reconstructions have confirmed that the decoration occurred only on a wide band around the upper portion of the vessel.

The KG14 site revealed 35 cm of cultural deposit. Its faunal remains were well preserved and a wide range of molluscs, reptiles and large and small mammals were recovered. These include *Limicolaria*, *Pila*, crocodile, monkey, jackal, cat and *bovid*, indicating much moister climatic conditions than those prevailing today. A large number of grinding stones were recovered from KG14, but no macrobotanical remains, other than charcoal, were found. The tool-kit includes well made, elongated lunates, backed bladelets, rather informal tools such as notched pieces and denticulates, as well as small series of poorly made scrapers. A charcoal sample provided a radiocarbon date of  $6,215 \pm 75$  B.P. (SMU-1139), thus making KG14 essentially contemporaneous with the late phase of the Early Khartoum tradition (Mohammed-Ali 1984).

The pottery from this site differs from KG55. The fabric consists of fine grained clays, lightly to heavily tempered with fine sand and mica. On a few sherds, inclusions of small grains of crushed iron stone and small clumps of fibrils were found. The majority of the sherds are undecorated and about half are highly smoothed, although not truly burnished. The main decorative techniques employed were impressing and rocker stamping. The primary decorative motifs include dotted straight line and dotted zigzag line. In its format, the decoration was limited to the upper portion of the vessels and it was made in wide-zoned bands. There are vessels with zoned rectangular areas of parallel rows of small knobs of clay, also restricted to the upper part of the vessel. This decoration never occurs in combination with any other motif.

Although distinct, the ceramic assemblages from the two sites share a few features, *e.g.*, smoothed exterior surfaces and decorations limited to the upper body of the vessel, but they differ in almost every other aspect. Overall, both sites seem to represent a mixed riverine wooded steppe adaptation with considerable emphasis on the riverine resources.

The Saroba Phase is currently defined by four sites, (KG10, 13, 94 and 104), while another four sites have been identified but await further investigation. All the Saroba sites are located in the steppe between the Atbara river and the Gash Delta. KG10, KG13 and KH14 occupy areas of about 5,000 sq. m on the average

and have middens of maximum depth of *ca* 10 cm. KG94 is the largest Saroba site and occupies an area of about 12,000 sq. m. The faunal material from these sites consists of wild animals, including lizards, warthog and large and small bovids. A high concentration of *Pila* shells indicates seasonal inundation. No botanical remains were recovered but many fragments of grinding equipment were found. The ceramics from these sites are quite uniform. The fabrics consist of fine to coarse grained clays, moderately to heavily tempered with sand. The sand grains vary from fine through medium to coarse. The wares are friable, buff-coloured and unburnished. They are decorated with dotted straight lines and dotted zigzags. The tool types include well made elongated lunates, backed pieces, notches, denticulates and scrapers. A radiocarbon date of  $5,644 \pm 70$  B.P. (SMU - 1181) was obtained from KG10.

When the early ceramic groups of the Eastern Butana are compared with their counterparts on the Central Nile, *i.e.*, the Early Khartoum and the Khartoum Neolithic (Arkell 1949; 1953) certain similarities and differences have been observed. Both groups were adapted to riverine environments during periods of moister conditions, with economies oriented towards hunting, gathering and fishing. The tool-kits are similar in the abundance of grinding implements and backed pieces, but the Pre-Saroba and the Saroba phases lack the stone rings, net sinkers, and bone points of the Early Khartoum. In addition, the raw material for tools utilized on the Nile was mainly quartz, while on the Atbara it was primarily chert and agate, which were locally available.

Similarly to other aspects of the material culture, the ceramics from these two areas exhibit similarities and differences. While wavy line, dotted straight line and dotted zigzag line motifs are found in both, the dotted wavy line and banded motifs are confined only to the Early Khartoum assemblages on the Central Nile. On the other hand, the knobbed decoration of the Pre-Saroba and the format of the decorative motifs of the Eastern Butana in general have no parallels on the Central Nile. The apparent similarity between the Pre-Saroba and contemporary Early Khartoum assemblages disappears between the Saroba and the succeeding Khartoum Neolithic assemblages of the Central Nile.

The Saroba Phase sites have only been found, so far, on the steppe at some distance from the Atbara river, while the Khartoum Neolithic sites continue to be located along the river bank. In addition, compared to the Khartoum Neolithic sites, the Saroba settlements are smaller and have very shallow occupational debris, suggesting a mobile economy and probably a different adaptive pattern to that of the Central Nile. Both the Saroba and the Khartoum Neolithic tool inventories include poorly made scrapers and retouched and backed pieces, but stone rings, flaked adzes and polished gouges are not found in the former, suggesting, perhaps, less wood working. Among the ceramics, all the decorative features, indicative of the Khartoum Neolithic (such as straight lines, triangle patterns, burnishing and/or slipping) are absent in the Saroba assemblages. While the Saroba groups were still hunters-gatherers, those of the Khartoum Neolithic had domestic cattle, sheep and goats. They also

exploited fish to a large extent. The differences between these two groups therefore seem to outnumber the similarities.

On the basis of stylistic continuity of certain ceramic design motifs, an evolutionary sequence of the Early Khartoum — Khartoum Neolithic development along the Central Nile, was suggested (Arkell 1949: 115; 1953: 102). The discovery of similar decorative motifs further west in the Sahara resulted in a theory of westward diffusion of these Nilotic traits (Arkell 1949: 115; Hugo 1963; Kennedy 1968: 160; Camps *et al.* 1968); at a later date the theory was reversed (Hays 1971; Mohammed-Ali 1978; 1982). These observed cultural affinities, have been broadly defined as the "Saharan-Sudanese Complex" (Camps-Fabrer 1966) and the "Neolithic of Sudanese Tradition" (Hugo 1963; Bishop and Clark 1967). When the archaeological data from a variety of sites within this "Culture Area" were examined, these concepts were reconsidered and a model of a "Khartoum Horizon Style" was proposed (Hays 1971; 1974).

The theory of the horizon style was first formulated by A. L. Kroeber (1944: 108) as "one showing definably distinct features some of which extend over a large area". Willey and Phillips (1958: 32) characterize the concept as a specialized cultural continuum, represented by a wide distribution of a recognizable art style. Assuming the historical uniqueness of a stylistic pattern and assuming that styles normally change with considerable rapidity, the element of time is reduced to the point where the style serves to equate phases of larger units of culture, otherwise widely separated in space, within that span of time. Willey and Phillips also note that the concept has a limited application, since it presupposes a certain level of aesthetic development. What is meant are highly specialized artifact types, widely traded objects, new technologies, unusual burial practices, or peculiar ritual assemblages. In other words, a horizon style is identified archaeologically by any kind of evidence indicating the rapid spread of new ideas over a wide geographical area.

Our aim here is to examine the validity of the "Horizon Style" concept for Eastern Sudan in the light of the available information on its early ceramic assemblages.

The concept of a "Horizon Style" rests upon two fundamental criteria: 1. A resemblance of certain style groups; and 2. A rapid spread of this style over a wide geographical area. When the ceramic material from Eastern Sudan is examined in the light of these criteria, it becomes obvious that a reevaluation is required.

As for the spread of motifs, those of Eastern Sudan and those of the Central Nile differ in many respects. For instance, in their format those of the Nile cover the entire surface of the pot, while those of Eastern Sudan are confined only to the upper portion of the vessel. Also, the wavy line motifs of the Nile are always placed horizontally while those of Eastern Sudan are often vertically oriented. The rest of the decorative motifs of the Nile such as the dotted wavy line are almost nonexistent in Eastern Sudan. By the Khartoum Neolithic period ceramic motifs on the Nile had become dominated by straight-line, triangle pattern and zigzag lines. These

decorative elements never reached Eastern Sudan. In addition, burnishing, which is characteristic of the Khartoum Neolithic, is unknown among the Saroba assemblages.

In regard to the rapid spread, the wavy line motif is evidenced over a long period of time on the Nile, ranging from about 8,000 B.P. from sites on the White Nile (Clark 1973) to *ca* 6,500 B.P. at Sorourab 1 (Mohammed-Ali 1984). This is also confirmed by dates from Saggai of *ca* 7,300 B.P. (Caneva 1983). Further east the site of Shaqadud, 50 km east of the Nile, gave a date of *ca* 7,000 B.P., associated with wavy line pottery (Mohammed-Ali and Marks 1984). Although we do not have a date from KG55, it can only date shortly before the KG14 site (*ca* 6,215 B.P.).

Thus, at the present state of knowledge, the wavy line motif, not to mention pottery making itself, may have been present on the Nile for *ca* 2,000 years before it spread across the Butana to the Atbara river basin. At this time level, at least, Eastern Sudan cannot be linked to the Nile Valley by a "rapid" spread of any ceramic tradition.

How then, if at all, did the Nile Valley and Eastern Sudan become linked to a "Khartoum Horizon Style"? These assumptions were based only upon the broadest cultural affinities. At the Early Khartoum level, these included a riverine oriented adaptation, as well as the common presence of similar techniques and ceramic decoration (*e.g.*, combing, impressing, *etc.*). These, however, are not only too general to constitute a horizon style but also their much later appearance in the Atbara river basin, as opposed to the Nile, indicated a rather slow diffusion of features while a rapid one is rather required for the horizon style. It should be emphasized as well that the Khartoum Neolithic ceramic patterns reached neither the upper Atbara river basin nor the steppe to the east of it. At best, it spread only to the nearer hinterlands of the Nile as seen at Shaqadud. In this regard the limited spread of Khartoum Neolithic ceramic patterns pertains to the Central Nile as well, since all "Khartoum Related" (Marks *et al.* 1968) and "Khartoum Variant" (Shiner 1968) assemblages show no links to this ceramic tradition.

Thus, whatever the validity and utility of the "Khartoum Horizon Style" for the Nile and the areas west of it, it cannot be applied meaningfully to the area to the east of this river.

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