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A Mesolithic occupation site near Umm Klait at the Fourth Nile Cataract, Sudan

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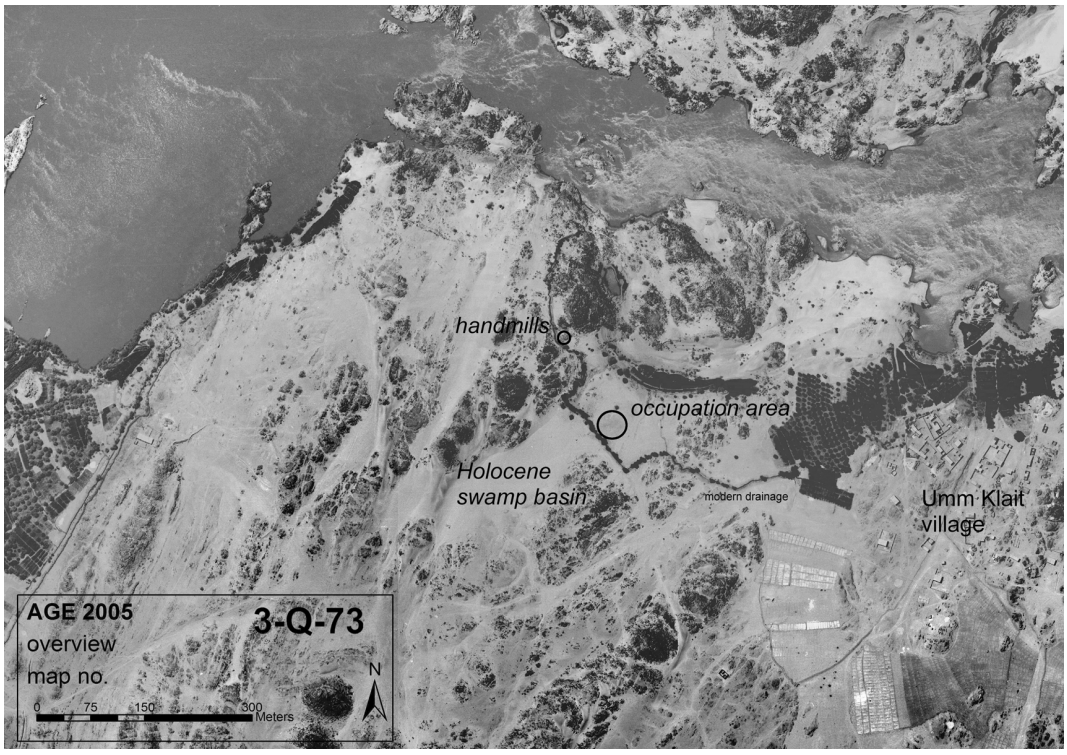
The AKSW survey[1] resulted in the discovery of a few Mesolithic sites, characterized by surface finds of sand-tempered pottery fragments, microlithic stone tools and corresponding debris.

However, due to the omnipresent erosion of most of the sites, no remains of structures or *in situ* context could be expected below the surface. The discovery of the site 3-Q-73[2] close to the village of Umm Klait in winter 2003/2004 was very promising, as the site yielded not only large numbers of lithic and ceramic surface finds, but also lacustrine sediments that favoured the preservation of this occupation site. Today it has the appearance of a flat mound measuring about 30 m in diameter and rising 3 m above its surroundings. It is situated on a terrace overlooking a Nile channel, enclosed by outcrops on two sides (pl. 1).

In winter 2003/2004, a test section of 1 x 9 m (areas A, B, C) was excavated, followed in the winter of 2004/2005 by systematic excavation[3] of an adjoining area of 4 x 8 m down to



Pl. 1: Aerial view with location of the mesolithic site 3-Q-73 and nearby handmills.

1 The Amri to Kirbekan Survey West is a sub-project of the AKS survey of SARS, London, under the direction of Pawel Wolf (Wolf 2004).

2 GPS-position: 0405101E-2083183N.

3 The excavation has been undertaken with the kind help of local workers from Umm Klait.

0.60 m (areas D, C). All debris was sieved. The layer matrix of the section showed that the mound was preserved, in contrast to the surrounding area, by cyclic calcification processes. In detail, the section showed a continuous alternation between former crusted surfaces with embedded calcified plant root and stem casts and fine laminated fluvial silt layers (cf. Gabriel and Wolf, this volume: River and landscape).

This kind of succession will be caused by slow flooding replaced by periods of more or less rapid evaporation (Gladfelter 2001). Such fluctuations have been observed at several early Holocene sites in Sudan. In general it is assumed that the Holocene climate was much wetter than today's. Adamson et al. (1982: 189) have suggested that the Blue Nile, responsible for high seasonal flooding, did not stabilize before the mid Holocene. In the Western Desert, lacustrine sediments are records of huge contemporary lakes (Hoelzmann 2002). It could not be clarified why the calcified sediments at 3-Q-73 were only preserved at this particular spot. The settlement area could, therefore, have been much larger than the present site.

Extensive remains of an intensive lithic tool industry, plus pottery fragments on the surface and in the upper layers, show that the spot, despite the supposed quite inhospitable setting, was sought out by people during the early Holocene. In planum 1 (at a depth of 0.20 m) of the excavated area, we exposed the surface of a very hard calcified crust in which pottery fragments and lithic artefacts were embedded, along with a granite grinder (fig. 3.1), animal bones and mollusc shells. The latter belong to the species *Etheria elliptica* (Nile oyster). The fact that they were always found as single-shell valves points to their relevance as nutrition waste. Thus the diet consisted of aquatic, plant and meat components, as was the case for the bulk of Mesolithic groups in Sudan (cf. Haaland 1993).

The size of the root and stem casts makes their affiliation to Giant Cane very probable. They indicate a swampy territory like it is to be found in the Sudd in the Southern Sudan today, which offers an essential habitat for numerous faunal species, such as cane rat, hippopotamus, turtle, reptiles, lungfish, etc. On the other hand, human populations in such environment run a very high risk of infection.

The excavation revealed no structures aside from some silt-filled pits that cut the calcified crust. Their artificial or contemporary origin was not entirely clear, although a cuboid quartzite block measuring 0.30 x 0.20 x 0.20 m was found in one. On two sides, the block bore fine traces of striking and sanding, as on an anvil. Next to it were a small ball-shaped pick stone and two ostrich eggshell beads. The fact that these artefacts, like many others, bore traces of calcification makes their deposition during the early Holocene very probable.[4]

The levels below the calcified crust, which could be identified as a walking level during the occupation, yielded less lithic artifacts and almost no pottery. Bare of cultural remains, the above-described alternating silt and calcified layers continued to a depth of 0.60 m and below. The third and last excavation planum was cut by channels filled with silt. The sections show a sloping stratification located at a right angle to these channels (pl. 2). These features can only be a product of a very strong water impact predating the early and mid Holocene. The deltaic character of these strata points to a decelerated passing of the main Nile, or a major ephemeral channel through this passage (cf. pl. 1). In the upper part the strata shifted to a more horizontal position, indicating repeated flooding or the presence of a lake (cf. Gabriel and Wolf, this volume: River and landscape). Although the finds were dispersed vertically the major occupation could have taken place only between these two different sedimentation events during a lowered flooding level.

The finds were attributed to three artificial layers of 0.20 m each. In the upper part, the fine laminated layers – frequently only some millimeters in height – did not enable a more

4 Calcified artifacts have been mentioned e.g. from Khartoum-Hospital (Arkell 1949) and Saggai (Caneva 1983). In Saggai calcified Mesolithic finds and even human bones of burials could be separated from Late Neolithic intrusives.

precise attribution of the finds' position. Furthermore, for the periods of rising water level and the subsequent soaking of the soil, spatial transformation processes are to be expected. Therefore, it was possible to fit together pottery fragments deriving from the surface down to level 2. The lithic material, however, was almost entirely in a fresh and sharp state.

Pl. 2: 3-Q-73, trench E, northern section.

As a premise for further argumentation, these observations suggest that the cultural remains fell out of use and were deposited directly at the find spot. The structure of the finds, in particular the lithic raw material and tool types, but also the frequent ceramic sherd fittings, seem to preclude the possibility of a long-term or a multiphase occupation. They do not, however, preclude the possibility that the spot was revisited over several years or seasonally and/or for special activities only. This contrasts to what is known from the Mesolithic sites around the Atbara junction, which cover an occupation span of nearly 1000 radiocarbon years each, and allow a sedentary lifestyle to be inferred (Haaland 1993).

In terms of activities, the finds show an emphasis on lithic tool production. Pottery, grindstones, debris from food preparation and of course consumption, and personal ornaments like ostrich eggshell beads (fig. 3.11-12) and two shell chips (fig. 3.13; colour pl. 18) were probably also produced on the site. Despite the presence of bone fragments, no worked bone tools or ornaments were found. Within a distance of 150 m NW of the mound, eight so-called handmills were recorded on a granite table outcrop (colour pl. 19). Handmills – often with patinated cracks in the rock – were found during the survey at several sites, always associated with nearby Mesolithic finds. Although their contemporaneity is difficult to prove, a conspicuous absence of grinding bases was observed. In the case of 3-Q-73, the handmills would not only point to plant processing at a windy spot, but give also a hint to the former extension of the site.

Pottery

The pottery finds of 3-Q-73 were characterized by their relative diversity. Most of them belonged to a sand-tempered fabric that might correspond to the chemical group 7 that has been identified as a discrete Mesolithic group for the Fourth Cataract region (Daszkiewicz et al. 2002). However, two or three thin fragments found on the surface were made of a plant-tempered fabric. In the fracture, the frequent 1 to 2 cm long straw blades were sorted horizontally.

Despite the predominant consistent fabric, several variations in wall thickness, surface treatment, and surface colouring due to firing conditions were recognizable, and were furthermore associated with different decoration styles. One group comprised a fine thin-walled grey to light red ware with coarse surfaces and frequent decoration of spaced friezes of elongated dots (figs. 1.5, 7, 11, 14-16). The reconstruction of vessel shapes resulted in the

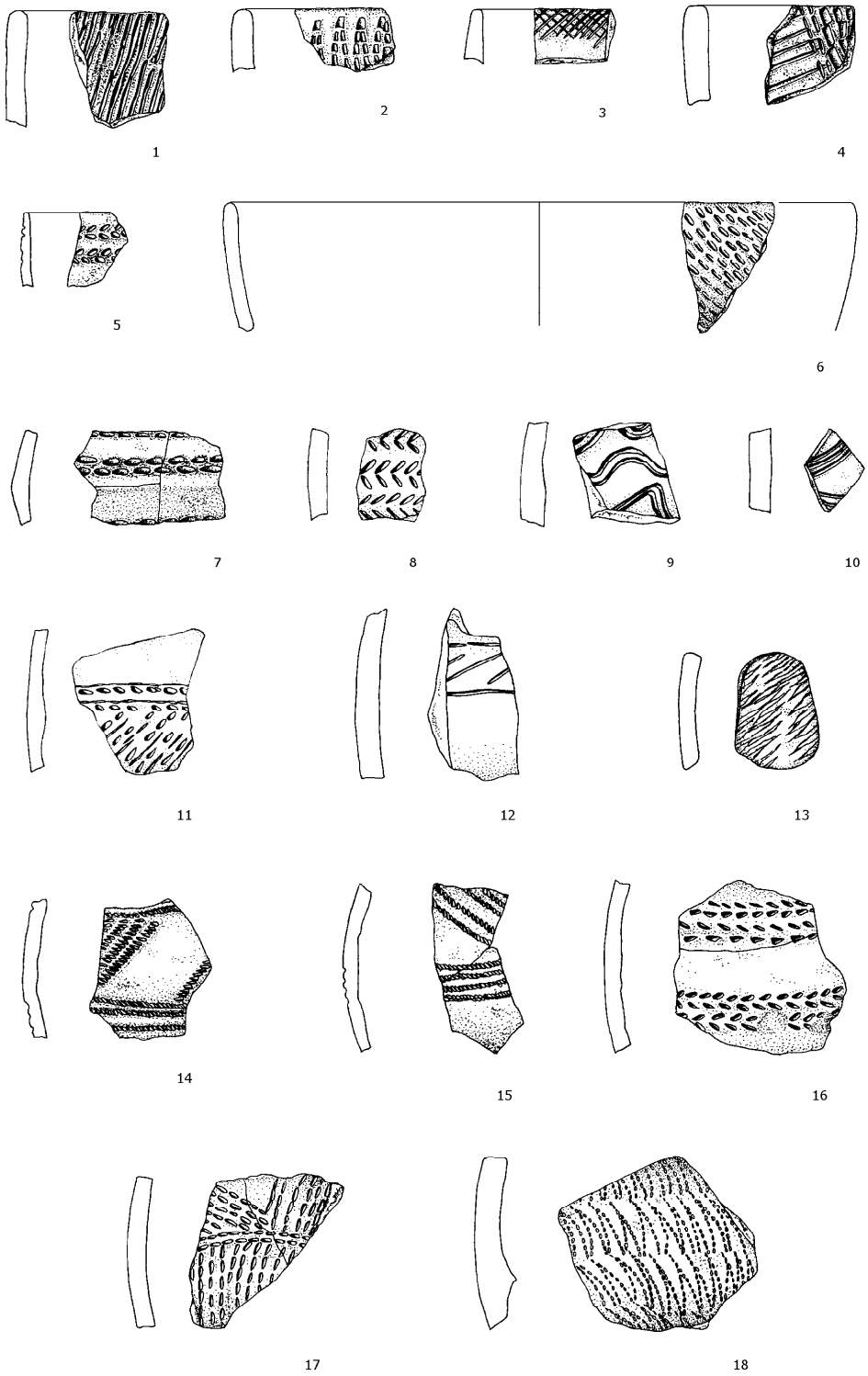


Fig. 1: 3-Q-73, variety of pottery decorations: 1-6 rim fragments; 7-12, 14-17 wall fragments; 18 bottom fragment; 13 reused sherd; scale 1:3.

identification of bowls, some of them carinated (figs. 1.7; 2.8).[5] Rim decorations included crosshatched patterns and parallel strokes (figs. 1.3; 2.1, 3). Some fragments with precisely executed zigzags in rocker stamp technique belonged to the same group, but were reused in many cases, judging by the smoothed and rounded edges (figs. 1.13, 18).

A second group was represented by a coarser tempered ware with red smoothed surfaces. The decoration, consisting of flat dots, seemed to be impressed only in the thin slip, partly also with the aid of a mat (figs. 1, 6, 17; 2.9). It is very probable that most surface finds from the area would not retain signs of this kind of decorative treatment, since erosion generally leaves such sherds with only sandy beige or black burned surfaces.

A third group consisted of thick-walled fragments with dark red and coarse surfaces, derived from larger-sized bowls and vessels. The decoration consisted of deeply cut dots, lines, zigzag and crosshatched patterns below the rim, combined with a dense rocker-stamp filling of the walls (figs. 1.1, 2, 4; 2.7).

The fragments in the fourth group were made of a very similar ware, but had smoothed surfaces. Only a few of them were found decorated with spaced incised wavy lines (figs. 1.9, 10) or – in the case of one surface find – with a combination of incised lines (fig. 1.12).

The fifth and last group was the most distinctive. Although the fine-tempered ware was comparable to that of the other wares, all fragments were very soft, and broke during the excavation. There were no signs of oxidation; the surfaces were beige, and the matrix consisted throughout of a weathered black friable paste. It seems that they were fired only briefly or – more probably – were not fired at all.[6] Most of these fragments were undecorated, though some of them had simple rim decorations, such as rows of dots or a modelled waved rim (figs. 2.2, 4, 6). It is quite clear that they were preserved only because of the cover of lacustrine sediments. Furthermore, it cannot be excluded that they represent an unfinished state of the pottery-making process.

Because of the stratigraphic position of the finds, all groups seem to be contemporary. They reflect the smallest units or subtraditions of a broader pottery style. Their background could reflect varying functional demands on pottery (e.g. size, decoration), or simply different potters and household units. The number of immobile handmills could possibly be related to the number of the latter.

Lithics

The excavation of both trenches yielded a total of 9661 lithic artefacts (tab. 1). The majority (83.5 %) were made of local flint and chert pebbles, which were found in great quantities next to the site in the Nile deposits. Of the rest, 12.3 % were made of quartz, and only 2.5 % of quarzite from a nearby ridge that was intensely exploited during the Palaeolithic period. Other raw materials, such as agate, basalt, volcanics, rock crystal, etc., do not exceed a proportion of 1 % altogether.

	debris	flakes	cores	blades	tools	raw mat.	sum
total	6312	2314	506	362	145	22	9661
percent	65.3	23.9	5.2	3.7	1.5	0.2	99.8

Tab. 1: 3-Q-73, total and percental amounts of lithic artefacts from areas A-E.

5 This contradicts the opinion that Mesolithic vessels had generally only simple shapes. A very similar carinated pottery fragment was published from site 21-I-16 near Akasha (Rudin 1980: pl. 31).

6 Probably a similar ware was reported by Clark (1973: 62) from an unclear dwelling structure from the Early Khartoum site of Shabona.

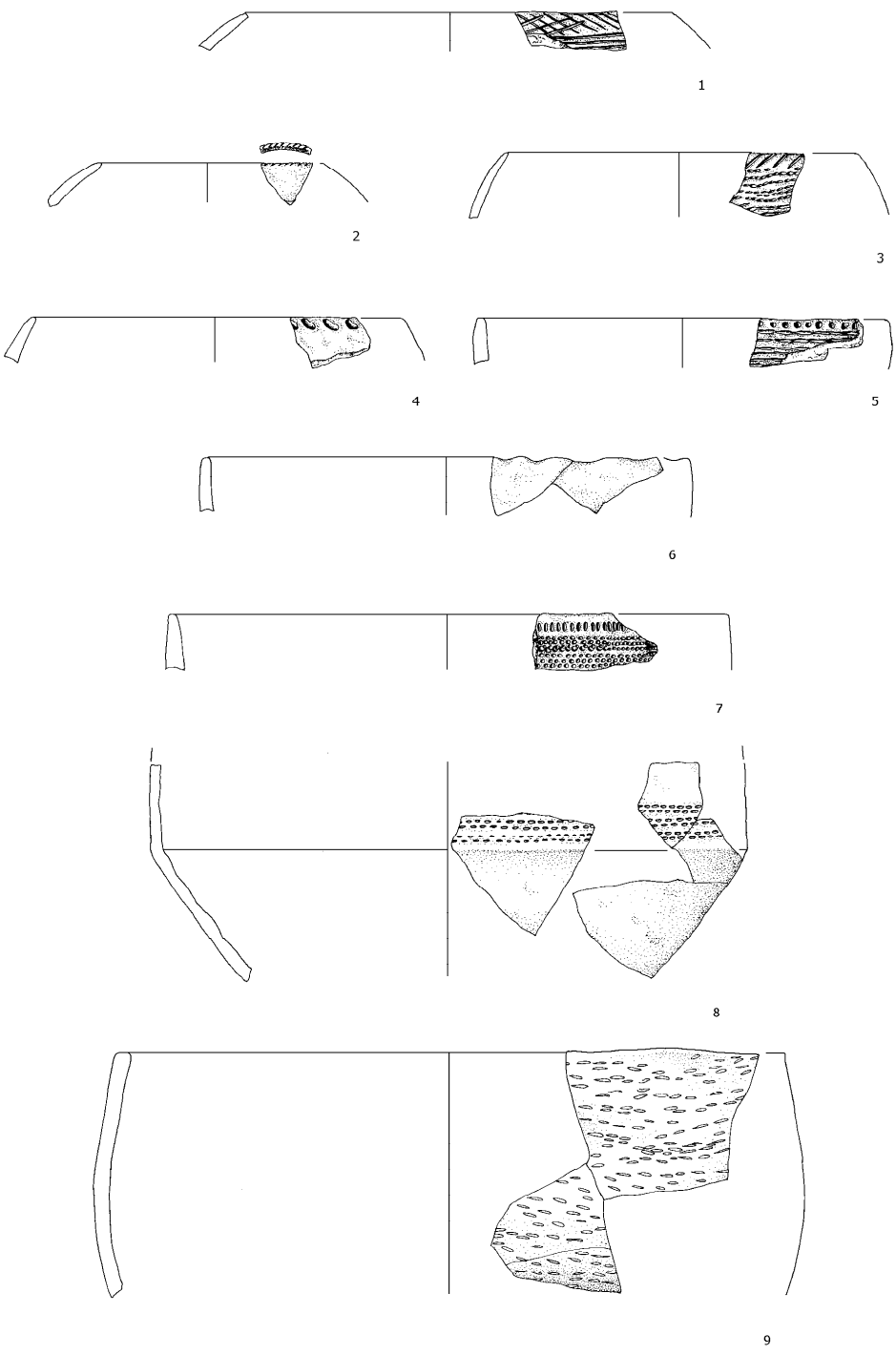


Fig. 2: 3-Q-73, reconstruction of pottery vessels; scale 1:4.

The manufacture of tools on the spot is best illustrated by the usual dominance of debris followed by flakes. Thus the inventory can be labelled as flake-oriented. Corresponding cores were well represented. The relatively high proportion of blades might be explained by their use as basic forms for the production of microliths. Despite that assumption, many of them showed use-wear at the cutting edges.

The tool's microlithic index (< 3 cm) reaches 85.5 %. Since the proportion of lunates[7] is as high as 48.3 % (tab. 2) the lithic production was predominantly specialized in the manufacture of this functionally versatile tool type (fig. 3.2). Lunates are generally considered as elements of composite arrowheads, knives, sickles etc., as has been recently confirmed through Neolithic grave contexts. The backed sides of some of the analyzed lunates show burin blows. As Usai (2003: 98) pointed out, this is a characteristic feature of the Late Mesolithic period, they have for example been reported earlier from the region of Debba (Hays 1971: 104). Only two specimens exceeded the microlithic dimensions. With a length of nearly 5 cm, they were comparable to the so-called crescents known mainly from the Khartoum region. They might have functioned as insets for larger cutting tools, e.g., for cane.

	total	percent
lunate	70	48.3
triangle	14	9.7
trapez	3	2.1
micropoinçon	13	9.0
perforator	13	9.0
backed piece	13	9.0
double backed piece	4	2.8
side scraper	8	5.5
end scraper	2	1.4
denticulated piece	2	1.4
notched piece	1	0.7
tanged point	2	1.4
sum	145	99.3

Tab. 2: 3-Q-73, total and percental amounts of lithic tool types from areas A-E.

Amongst the geometric lithics, triangles (fig. 3.3), which are closely related to lunates, were much more frequent than trapezes (fig. 3.4). Micropoinçons (fig. 3.7), a common tool type on Mesolithic sites, made up 18 % of all tools, together with perforators (figs. 3.8-9). This tool class is related to activities like drilling beads and repair holes but also the processing of wood, leather etc. As a peculiarity, three of the perforators were made of rock crystal, preserving the specific structure of this quartz mineral while shaping a distinctive point at one end (fig. 3.9). Other tool types, such as backed pieces, scrapers (fig. 3.10), and denticulated or notched pieces, were rather scarce. However, the presence of two tanged points (figs. 3.5-6) should be emphasized. One of them was shaped by a specially prepared flake, with almost no retouches (fig. 3.5). Similar points have been recorded at the Khartoum Variant site 428 in Lower Nubia (Nordström 1972: pl. 127.7) and probably also from Abu Darbein (Haaland 1993: fig. 10i).

7 Shiner (1968) distinguished beside lunates between CC-shaped and J-shaped lunates which are all well represented at 3-Q-73.

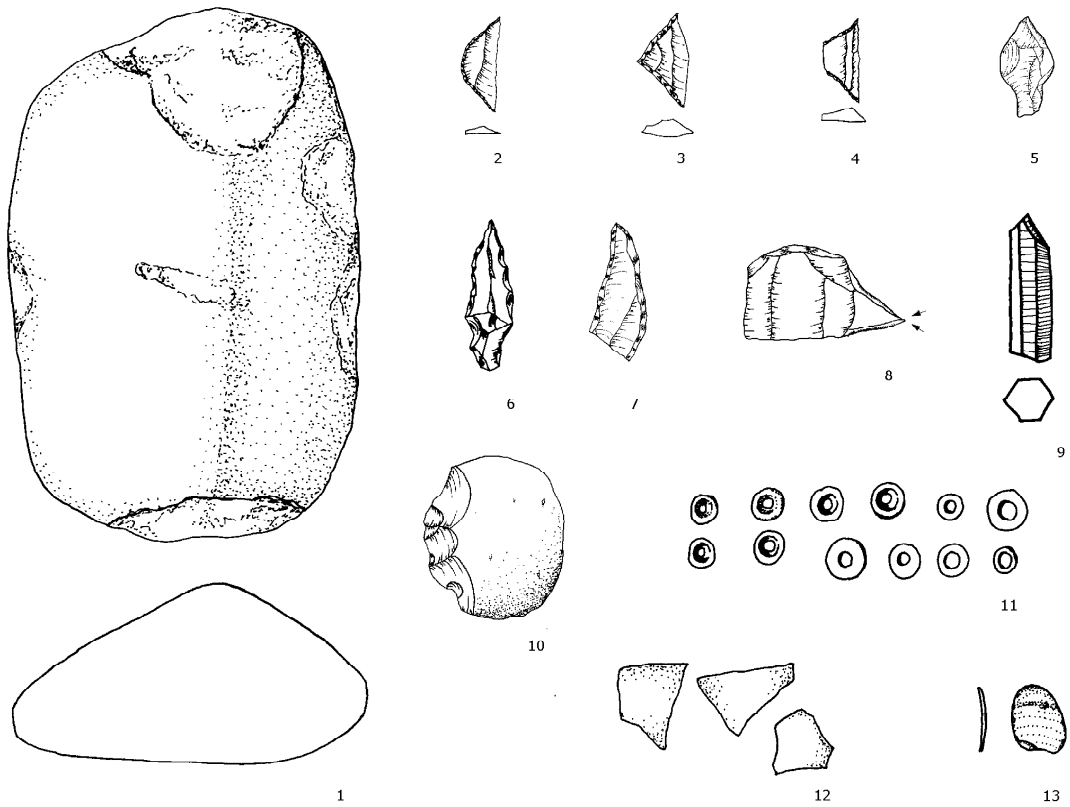


Fig. 3: 3-Q-73, lithics and ornaments: 1 keeled granite handstone; 2 lunate; 3 triangle; 4 trapez; 5-6 tanged points; 7 micropoinçon; 8-9 perforator; 10 side scraper; 11 ostrich eggshell beads; 12 ostrich eggshell raw material; 13 worked shell chip (2-4, 6-8, 10 flint; 5 quartz; 9 rock crystal); scale 1:2.

The whole lithic inventory shows a main focus on microlithic tool production at 3-Q-73. In the excavated areas, lunates were the most frequent retouched tool type, with one of the highest proportions ever recorded in Sudanese Mesolithic settlements.

Conclusions

The variety of the rim decorations, the parallel rows of impressed dots and the spaced incised wavy line decoration are very typical features of the Khartoum Variant pottery that was defined for sites from Lower Nubia (Nordström 1972: 9).[8] The lithic material also shares particular features with the Khartoum Variant, such as the presence of tanged points, although other Lower Nubian tool types, like exotic or strangled scrapers, are completely absent. On the other hand, the two large crescents provide a link to the Khartoum area.

Pottery with banded decoration (fig. 1.16) has been recently dated to 7300–7100 cal BC from El Barga near Kerma (Honegger 2003). The time frame for the Khartoum Variant is

8 Since Shiner (1968) put more importance on the composition of the lithic material the concept of the Khartoum Variant still remains debatable. Later Geus (1992) inspired a more general and arraying usage of the term by assigning several find complexes, e.g. from Sai island, to it.

closed by 5850–5650 cal BC, which is the dating for the type site Debeira West 5 (Shiner 1968). The wide range of pottery decorations, as well as several aspects of the lithic technology of 3-Q-73, point to a later date within the Mesolithic sequence. The find complex shows a clear northward cultural orientation, providing a link from the sites at the Atbara junction (Haaland 1993) to Lower Nubia (Shiner 1968; Nordström 1972). Furthermore, some similarities concerning the pottery decoration exist also to the Nabta Playa area in Egypt, namely to the site E-91-1 of Al Jerar (Wendorf and Schild 2001).

Consequently, the Sudanese Khartoum Variant could be considered as the northern Nile-based pendant to the Early Khartoum or Khartoum Mesolithic, although the internal chronological structure remains quite unknown. The most striking difference is the decoration with spaced incised wavy lines in the north and with dense parallel incised wavy lines in the Khartoum area and further to the south, which requires a strict distinction between both patterns. Furthermore, the presence of tanged point types in the north and crescents as well as bone harpoons in the south supports this cultural division. This could be not only a reflection of different group identities, but also of related different economies.

However, some of the pottery decoration patterns of 3-Q-73 are completely unknown from other sites. They could form the base for establishing and investigating a local Mesolithic tradition of the Fourth Cataract area.

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