The Neolithic of the Fourth Cataract

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The Fourth Cataract region was penetrated archaeologically already in the 19th century, but early travelers took notice of little beyond standing ruins, fortresses, pyramids, and burial mounds. Scientific interest grew once the dam construction project on the Fourth Cataract was revived in the 1970s. The endangered area extends for 170 km from Hamdab to Mograt Island (**fig. 1**), but it is actually bigger than the water-inundated zone, for it includes the resettlement areas, as well as land reserved under power lines (Hakem 1993: 7; Salah 2003: 11). In the 1990s, despite early surveying by the University of Rome Archaeological Mission (Donadoni 1997),

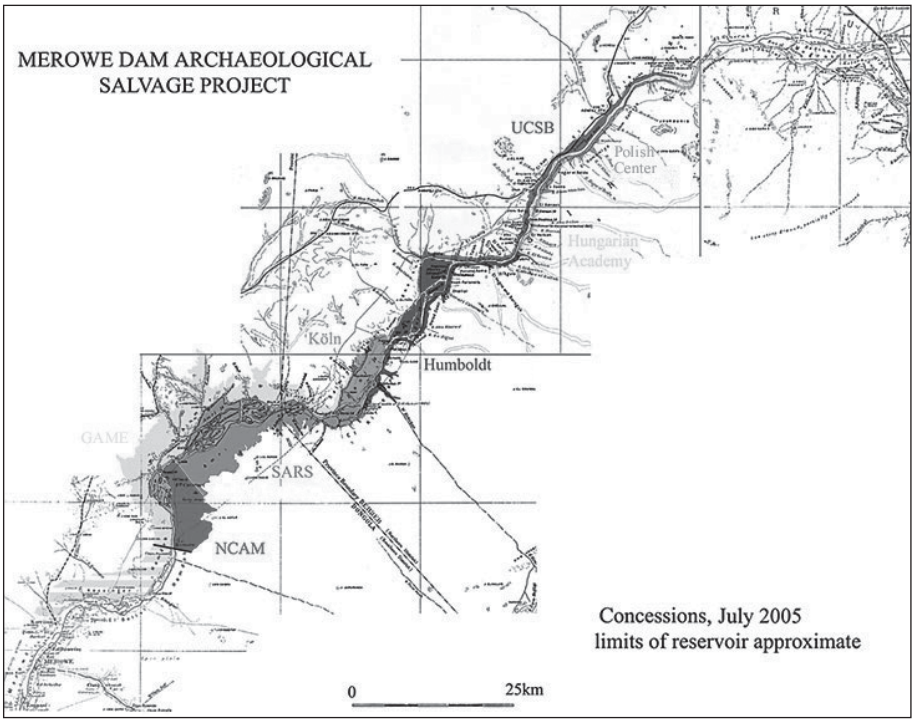

Fig. 1
Merowe Dam Archaeological Salvage Project. Limits of reservoir and the concessions

National Corporation for Antiquities and Museums (Leclant 1990), and Monenco, a Canadian company responsible for feasibility studies (Salah 2003: 13), the archeological potential of the area was still barely known with the exception of a number of fortresses located in the region, as well as distinct features like tumuli cemeteries and box graves. Neolithic settlements and indistinct cemeteries remained undiscovered.
Work in the early 1990s by the National Board of Antiquities and Museum (currently National Corporation of Antiquities and Museums - NCAM) identified single Neolithic sites on Shirri, Amri, Usli and Boni islands (Hakem 1993: 17-20). Research continued by NCAM in 1995 brought the discovery of a Khartoum-related site (no. 10) near El-Haraz on the left bank of the Nile. Surface collection yielded pottery decorated with incised lines and dotted wavy pottery, as well as grinding stones, hand axes and scrapers (Mohammed & Hussein 1999: 62).
Archeological explorations intensified with the arrival of the Gdańsk Archaeological Museum Expedition (GAME; Paner 1998). Later research was undertaken by the Sudan Archaeological Research Society in 1999 (Welsby 2003a), University of California Santa Barbara (2003; Smith & Herbst 2005: 133), Polish Center of Mediterranean Archaeology and Poznan Archaeological Museum (2003; Krzyżaniak *et al.* 2005: 39), Humboldt University in Berlin (2004; Lange 2005: 45), Cologne University and the Hungarian Academy of Sciences (2005). This research brought the discovery of hundreds of Neolithic archeological sites, although test excavations remained few and far between, and publications were slow in the coming.
In 1996, GAME embarked on a survey of a stretch 25 km long and 500-800 m wide along the right bank of the Nile, between Karima and Hagar-Sayale. During the first season, 63 sites were identified. Of these 12 were identified as Mesolithic and 12 as Neolithic (Paner 1998: 116). Once an extended 35 km of river bank was fieldwalked by the mission, the number of Mesolithic and Neolithic sites grew to 40 (Paner 1998: 121). Further research, carried on regularly until 2003, registered 762 sites between Karima and El Daghfali, 282 of which contained pottery, stone and flint tools datable to the Neolithic. Neolithic sites are found on ridges and on the slopes of rock outcrops, in small valleys, on the banks of the wadis, and on top and around the gebels, on gravel plateaus and in the alluvial terraces of the Nile. Preferred locations included good vantage points on higher lying ground. Oval and circular stone structures up to 1.50 m in diameter present on some of the sites can be interpreted as remains of hearths, while larger, circular concentrations of stones (3-4.5 m in diameter) may mark the remains of dwellings. Querns and grinders were also found on these sites (Paner 2003: 16; Paner & Borcowski 2005a: 203-206; 2005b: 91).
Raw material used for making tools included chert, quartz and agate. Simple flake technology and microlith techniques are the best represented in the assemblages. A general trend observed for the Neolithic period is the emergence of microblade technology featuring a predomination of segments, borers and side scrapers (Paner & Borcowski 2005b: 93).
Mesolithic sherds display the characteristic wavy line and dotted wavy line patterns. Neolithic potsherds were decorated with impressed dots, incised lines and occasionally zig-zag impressions made using rocker technique. The most common vessel form was a hemispherical bowl of brown or gray ware. Originating from the Late Neolithic cemetery were pieces of bowls decorated with horizontal lines and exhibiting a burnished interior, as well as deep pots with burnished grey-brown surface (el-Tayeb 1998: 36, pl. 2-3; Daszkiewicz *et al.* 2002: 80; Kołosowska & El-Tayeb 2003a: 118-119, fig. 2).
MGR-analysis, chemical analysis and thin-section studies of selected pottery revealed that Mesolithic pottery was made of clay representing a chemical group (G7)

that disappeared from later periods. Ceramic groups G4 and G6 appeared in the Neolithic, although most of the pottery (72%) was created from local ware G1. Also in the Kerma period, 41% of the vessels continued to be made of G1 ware. Neolithic pottery was made of sandy clay fired in low temperatures, at 600-700°C (Daszkiewicz, Bobryk & Schneider 2003: 84-87).

In 1999, a SARS survey of the left Nile bank and islands between Fort Dar el-Arab and Jebel Musa added new findings to the 28 archeological sites that were known before. Of the new 126 sites recorded, 35 contained Neolithic material – flint and pottery. A point to keep in mind, however, is the relative scarcity of the material: from all the sites only a few hundred potsherds, most of them highly fragmented and very abraded (Welsby 2000: 51-52; 2003a: 1, 50, 56, 121).

Two technical categories of the pottery could be identified: the more numerous Q11 pottery was found on 32 sites, while the scarcer M6 pottery on 16. Only on three of these, M6 pottery was the sole Neolithic material. On the others, it was found alongside with Q11 pottery.

The fabric of pottery Q11 has very dense quartz tempering and no other visible inclusions. Quartz, >0.5 mm, is very common, angular, sub-rounded and well-sorted. Fabric M6 is heavily micaceous, with dense quartz and black iron ore inclusions. Mica, > 1 mm, is very common, sub-angular, well-sorted and quartz > 0.75 mm is also common, sub-angular, well-sorted. Black iron ore > 0.5 mm is sparse, sub-angular, poorly sorted (Welsby 2003b: 63-64).

The pottery was decorated with a rocker stamp. Impressions cover the whole pot or are arranged in bands (Welsby 2003a: 55, fig. 3.5).

Neolithic sites are found on the islands, as well as along the shore of the Nile. According to Derek Welsby (2003b:124), site 4-F-16 merits special attention as it probably contained Neolithic pits.

The SARS Anglo-German Expedition, which started work in 2003, went on to discover 24 Neolithic occupation sites and 4 cemeteries (Wolf 2004: 17). The Neolithic sites were tested to a limited extent. Among the best preserved Early Neolithic settlements was site 3-Q-73, located quite close to the Nile channel on a mound 4 m high. It delivered thousands of microlithic artifacts and Neolithic potsherds. A multi-phase Neolithic occupation was attested, standing in contrast to the eroded character of most Neolithic sites on the Fourth Cataract. Unfortunately, no evidence of structures of any kind was found. The site was located close to the river bank in periodically dried marshland. This setting guaranteed its inhabitants a wide variety of food resources. The lithic inventory, including geometric tools – lunates, triangles, drills - points to hunting as a major activity. Reptiles, large mammals and fish bones, as well as mollusk remains were noted. Numerous potsherds with impressed rocker stamp and incised wavy line decoration, not to mention plain pottery, were found and the thick layers are evidence of long occupation. Pottery and flint finds were concentrated in the uppermost 30 cm of the mound. According to Wolf and Nowotnick, although the pottery is reminiscent of the Khartoum Variant, the composition of the lithics points to a later phase of the Neolithic. Another tested site was 3-Q-92 located on a terrace between rock outcrops and the wadi. The site was associated with grinding hollows in natural rock (Wolf 2004: 20; Wolf & Nowotnick 2005a: 186; 2005b: 24).

Meriting attention are the excavations on the small island of Umm Melyekta within the SARS concession. Three Neolithic burials were excavated there. The poorly preserved skeletons were found immediately below the surface. Other graves may have been destroyed owing to erosion and deflation. The skeletons are in contracted position and the burials are well-furnished. A red ochre layer was found under the torso.

The best preserved burial no. 174 was furnished with two bowls, a *caliciform* beaker, stone axe, pebble cores, bone tools, a palette and pumice stone rubbers. Other finds included a small fragment of amazonite, carnelian beads and ochre pebbles. A bone spatula was identified among the bone tools, most of which were of uncertain function, although some of them could have been parts of composite handles. In another grave, bucrania were found. Pumice rubbers found in the grave have no parallels in the Neolithic of central and northern Sudan (Fuller 2004: 7-8, fig. 3, 5; Edwards & Fuller 2005: 24, fig. 3).

Polish activity on Saffi and Uli islands brought the discovery of more Neolithic sites (seven Early Neolithic and four late Neolithic sites on Saffi Island, 19 Neolithic sites on Uli; Żurawski 2005: 327; Klimaszewska-Drabot & Obłuski 2005: 336; Osypiński 2005:351).

Three sites on Uli island (Uli 60, 9, 10) yielded some Mesolithic and Early Neolitic pottery. The fabric was very hard with sand temper, often with mica inclusions. Interior surfaces were smoothed, while the exterior was decorated with impressed dots (no wavy line or dotted wavy line pottery has been found; Klimaszewska-Drabot 2005: 357). Sites with Late Neolithic pottery were more abundant (Uli 6, 9, 10, 15, 20, 233, 34, 36, 49). The fabric is similar to that of Early Neolithic wares: quartz and mica temper. Of greatest popularity are the large open bowls with rather thin walls (5 mm thick). Surfaces are smoothed with red, brown, gray or black color. Rims are simple, often decorated on top with incised lines.

On Saffi Island, Mesolithic/Early Neolithic pottery was found next to the Late Neolithic examples. The oldest pottery is connected with the Karmakol tradition. It is heavily chaff-tempered and has comb impressions all over the exterior surface. A similar decoration is found on pottery with mineral temper including mica particles, which was produced into the Neolithic period. Settlements dated to the Late Neolithic are less numerous but more widespread, especially in the lower parts of the Island. The pottery characterized by mineral temper was decorated with bands of

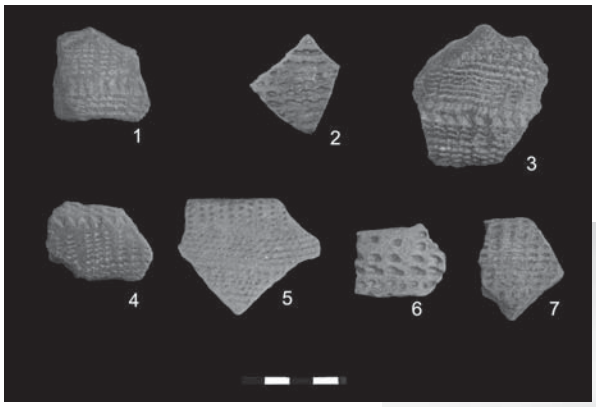

Fig. 3
Pottery from the Jebel Umm Sueifa 2 (1-6, 6) and Jebel Umm Sueifa 3 (5, 7) sites

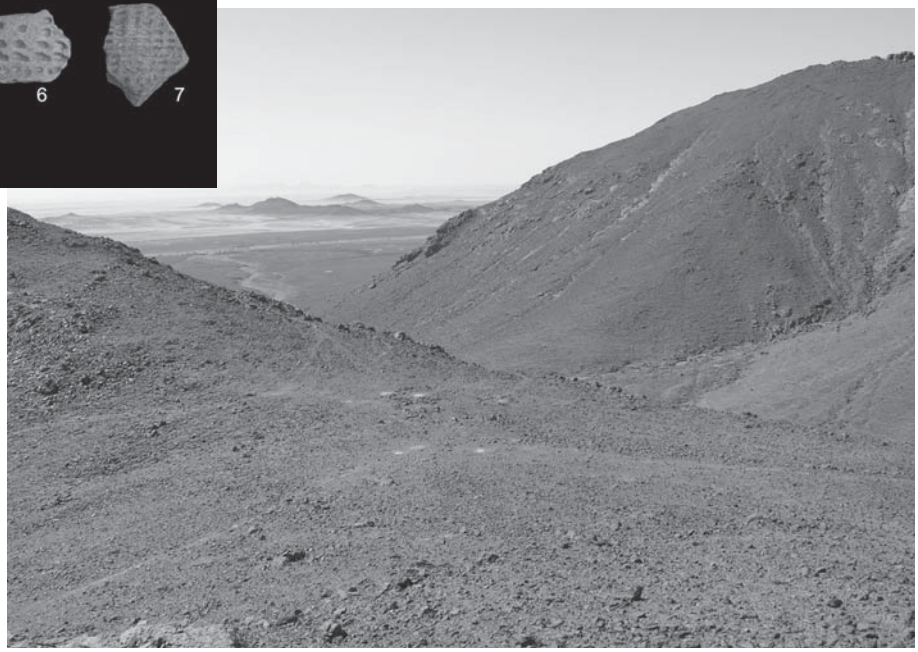

Fig. 2
Jebel Umm Sueifa. View of the site no. 2

horizontal zig-zag incised lines and dotted lines. Some vessels were decorated only at the rim edge (Phillips & Klimaszewska-Drabot 2005: 117).
Material from the Early Neolithic site at Battareen E (Dar el-Arab) was investigated by P. Osypinski and M. Gauza (2005: 176-178). Stone tools were made of local raw materials – quartz, chert, agate. Cores were mostly of the single-platform type. Opposed-platform cores were far less common. The most common category of flint artifacts was debitage from production flakes and blades. Very few tools were collected and they include burin and retouched flakes. Pottery represented two technological groups: first with mineral temper, the minerals being quartz and mica, and second with chaff temper. Pots were decorated with rocker stamps forming rows of dots, as well as zig-zags of dotted lines (Osypiński & Gauza 2005: 176, fig. 2). Animal bones were also collected and examined. They were found to represent large and small antelopes, as well as hippopotamuses, reptiles and oyster (Osypiński & Gauza 2005: 177-178).
Between el Kab and Mograt Island, the UCSB Mission discovered 12 Neolithic sites in 2003. In the lithic material, we can observe high indices of notches, denticulates, piercing tools, retouched flakes and blades. Grinding stones, as well as two axes and a stone ring, have also been found. Decorative motifs on pottery were similar to the general typology of the Neolithic (Smith & Herbst 2005: 135).
In 2003, another Polish Mission embarked on a reconnaissance of the left bank of the Nile between Es-Sadda and Shemkiya. Nothing but scattered Neolithic potsherds and flints, possibly also of Neolithic chronology, were discovered at the time (Krzyżaniak *et al.* 2005: 40-42), but continued activity in 2004 recorded more Neolithic sites located on the edge of the Nile valley, as well as in the wadis and mountains far from the Nile. In the Jebel el Sueifa a brief reconnaissance identified two Neolithic sites. One of these (Jebel Umm Sueifa 2) was located on a hill, well sheltered from the northern wind and with an excellent view toward the Khor Abu Haraz and surrounding area (**fig. 2**). Potsherds with dotted zigzag and flint implements were found there (**fig. 3**). A second site (Jebel Umm Sueifa 3) lies at the foot of the hills, in a sort of saddle near the edge of the rocky ridge, below site Jebel Umm Sueifa 2. Neolithic pottery and flint was scattered among the stone circles (**fig. 4**). It seems that Jebel

Fig. 4
Jebel Umm Sueifa. View of the site no. 3. Stone circles

Fig. 5
Es-Sadda. View of the site no. 28

UmmSueifa 3 was a satellite site to Jebel Umm Sueifa 2 (Chłodnicki & Żurawski 2005: 372-383). Neolithic sites between Es-Sadda and Shemkiya are strongly eroded and archeological material is very scarce. An extensive survey around Es-Sadda brought a picture of settlement very close to primal. The pottery fragments from this region were innumerous, found scattered among the burial mounds of Post-Meroitic date. Careful penetration of the surrounding area increased the number of sites from two to 11. These sites were situated in exposed places, either small synclines or flat areas among rocks found on the edge of the Nile (**fig. 5**), elevated ground where the *wadi* joins the Nile valley, and the edges of the Nile terrace. Relics were found in a radius of a dozen or so meters, rarely a couple dozen, and pottery acquired from the sites amounted to a couple dozen sherds, accompanied by a few flint artifacts. The pottery appears to have been made from a fabric with mineral admixture, but sherds with mica were also in evidence. Pots were decorated with dotted wavy lines, lines of impressed dots and zigzags of dotted lines (**fig. 6**). Stone artifacts included grinding stones and flint flakes. The richest site located on a rocky Nile bank yielded a pottery

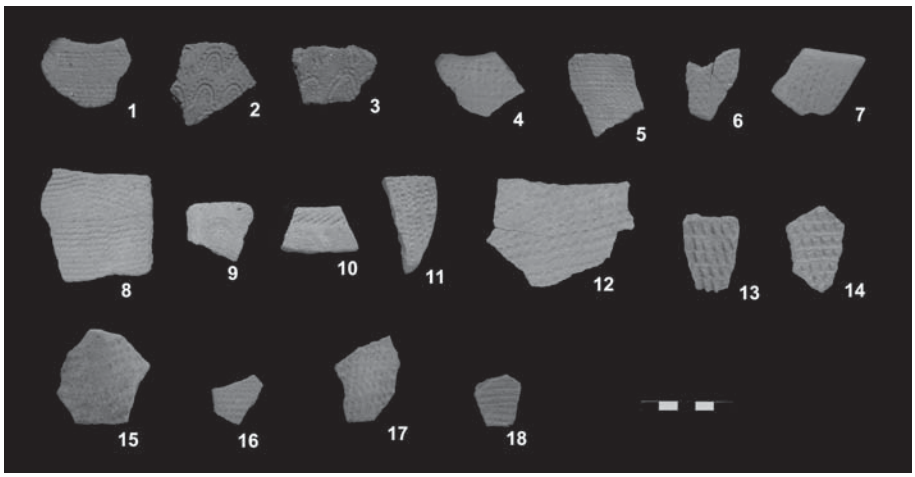

Fig. 6
Pottery from the Es-Sadda 1 (1-3), Es-Sadda 4 (4), Es-Sadda 21 (6-7), Es-Sadda 27 (5, 17-18), Es-Sadda 28 (8-14) and Es-Sadda 29 (15-16) sites

Fig. 7
Flints from the Es-Sadda 28 site

assemblage supplemented with a stone axe, flint flakes, but also crescents and a micro burin (**fig. 7**), as well as fish bones and ostrich egg shell.
In its first season of work in 2004, the Humboldt University Nubian Expedition focused on the area between Kirbekan and Salamat, finding Neolithic sites as well. Two Neolithic settlements (US07 and US12) were found on Us island, situated on somewhat elevated ground at the edge of the wadi and covering c. 100 m in area. The surface was littered with potsherds, lithic tools, grinding stones and animal bones, the latter including cattle remains (Näser 2005: 76-77; Budka 2005:12).
Four Neolithic sites were found on Boni Island. These were rather small, heavily eroded sites. Pottery was decorated with stamp, and combination of rocker stamp and incisions. Pivoting (return) technique was also used.[1]
The first reconnaissance in the Hungarian concession recorded sites featuring pottery decorated with dotted wavy line and zigzag of dotted lines.[2]
As we can see, hundreds of Neolithic sites have been noted in the Fourth Cataract area, but few have actually been tested and not much of the material has been published. Current discoveries have shown that Neolithic settlement was concentrated in a strip 2 km wide bordering land under cultivation along the Nile, similarly as in the better researched resettlement area in Multaga (Geus & Lecointe 2003: 35), as well as on islands or hills, sometimes quite distant from the Nile. The small size of most of the Neolithic settlements and low grave concentration contrast with Neolithic sites known from central Sudan and the Third Cataract. The situation may reflect adaptation patterns based on nomadism or semi-nomadism, which may have been connected to the exploitation of the large wadis and Nile sources (Geus & Lecointe 2003: 38-39). It is suspected that small settlements on high ground were the preferred location, permitting a good observation range.

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1. Bettina Patrick: The Cologne Fourth Cataract Project 2005 field season on Boni Island, Paper delivered at the 3rd International Conference on Archaeology of the Fourth Nile cataract, Koln, 13-14 July 2006.

2. Gabor Lassanyi: Preliminary report on the work of the Hungarian-Sudanese Archaeological Salvage Project (HSAP) in the area of El-Ganaet: the 2006 season. Paper delivered at the 3rd International Conference on Archaeology of the Fourth Nile cataract, Koln, 13-14 July 2006.

Very few Neolithic cemeteries have been discovered. Those that have been located lay on the Nile banks, as well as on the islands. Many could have been simply eroded away beyond trace. Cracks in bedrock sometimes used for burial purposes could be connected perhaps with the Neolithic (Welsby 2005: 2).
Pottery wares belong mostly to the Early Khartoum and Khartoum Neolithic Related Group, also described as Karmakol and Karat Industries, as well as Late Neolithic including *caliciform* beakers (Marks *et al.* 1968; Geus & Lecointe 2003: 37-38). The most commonly encountered pottery is decorated in the rocker stamp technique, forming different kinds of zigzags and lines of dots. Pottery decorated with incised lines and undecorated vessels also occur.
A characteristic feature of flint production is the use of pebbles as raw material. Flakes were produced from single-platform cores with the hard, direct hammering technique. Cortex present on the dorsal face, platform remnants and the small size of the artifacts are all technical attributes found in the Mesolithic, Early Neolithic, as well as Late Neolithic assemblages. The high proportion of modified pieces with use-retouch, denticulated pieces and notched pieces can be considered a common feature of the Neolithic assemblages (Usai 2003: 96; Lange 2005: 48).
Owing to the fact that stone artifacts come mostly from surface collections, a Neolithic attribution is not always certain beyond any doubt. A few hand-axes have been found in the Cataract area. The hand–axe found at site US 07, made of magmatic rock, corresponds in shape with the typical Neolithic implements (Lange 2005: 45), but the same type occurs in Kerma culture as well. A similar axe found on the Fourth Cataract by Kolosowska and El-Tayeb (2003b: fig. 7.1), connects it with the Kerma culture. Another axe of the kind was found at Hagar el-Beida outside an archaeological context (**fig. 8**). Grinding stones have also been recorded at some sites, and in a few cases, settlement was associated with grinding hollows in the natural rock.

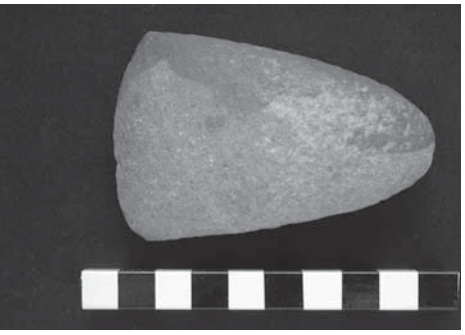

Fig. 8
Stone-axe from the site Hagar el-Beida

Time is running out for the archaeological research on the Fourth Cataract and there is little chance that many more Neolithic sites will be researched. Faced with time constraints and the heavily eroded character of the sites, it is hardly a surprise that Neolithic settlements and cemeteries lose out in competition with sites from later periods when choosing locations to excavate. Nevertheless, the completion of the archaeological survey should give us an almost complete map of Neolithic settlements, and a selection of materials coming from probe research will allow for a basic characteristic of the Neolithic period in this part of the Nile Valley.

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