

THE NEOLITHIC SITE OF HAJ YUSIF (CENTRAL SUDAN)

POR

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RESUMEN Informe de la excavación de 1989, que incluye la descripción y análisis preliminar de la cerámica, útiles líticos y fauna. A pesar de su condición alterada por ocupaciones posteriores, en el yacimiento se han podido detectar dos áreas con distinta proporción de motivos decorativos en la cerámica, lo que implica diferencia funcional o, más probablemente, cronológica. El asentamiento parece haber sido de corta duración y corresponde a un grupo pastoril de alta movilidad, con rasgos similares a otros conocidos en el Sudán central durante el «Neolítico de Jartúm», tipo Shaheinab, en la segunda mitad del quinto milenio a. C.

Palabras clave Neolítico de Jartum, Shaheinab, Sudán Central, Africa.

THE SITE

During the month of January, 1989, the Spanish Archaeological Mission in the Sudan carried out a test excavation on a site of Neolithic age near the town of Haj Yusif (1). With this campaign the Mission resumes its work in that country, work interrupted from the year 1981 onwards (Fernández 1982; 1984; 1985; Trancho, 1987). The site was discovered by A. J. Arkell in 1942 (Arkell, 1953: 108, fig. 57, Khartoum Antiquities Catalogue No. 4580), and briefly surveyed on surface by the Spanish Mission in February, 1981, upon the recommendation of the Sudan Antiquities Service (Fernández

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(1) We wish to thank the Spanish Foundation Durán-Vall Llosera, which has financed again this archaeological work in The Sudan. Also to Dr. Usama Abd-el-Rahman Elnur, Director of The Sudan Antiquities Service, and Dr. Khidir Adam Eisa, deputy Director, who facilitated our field work; the Ambassador of Spain in The Sudan, Pedro García-Trelles, for his help with administrative problems, and Dr. Isabella Caneva, for her contribution in classifying the intricate pottery we had to deal with. Finally, our thanks to Antonio Gilman, who most kindly corrected the original english draft of this paper.

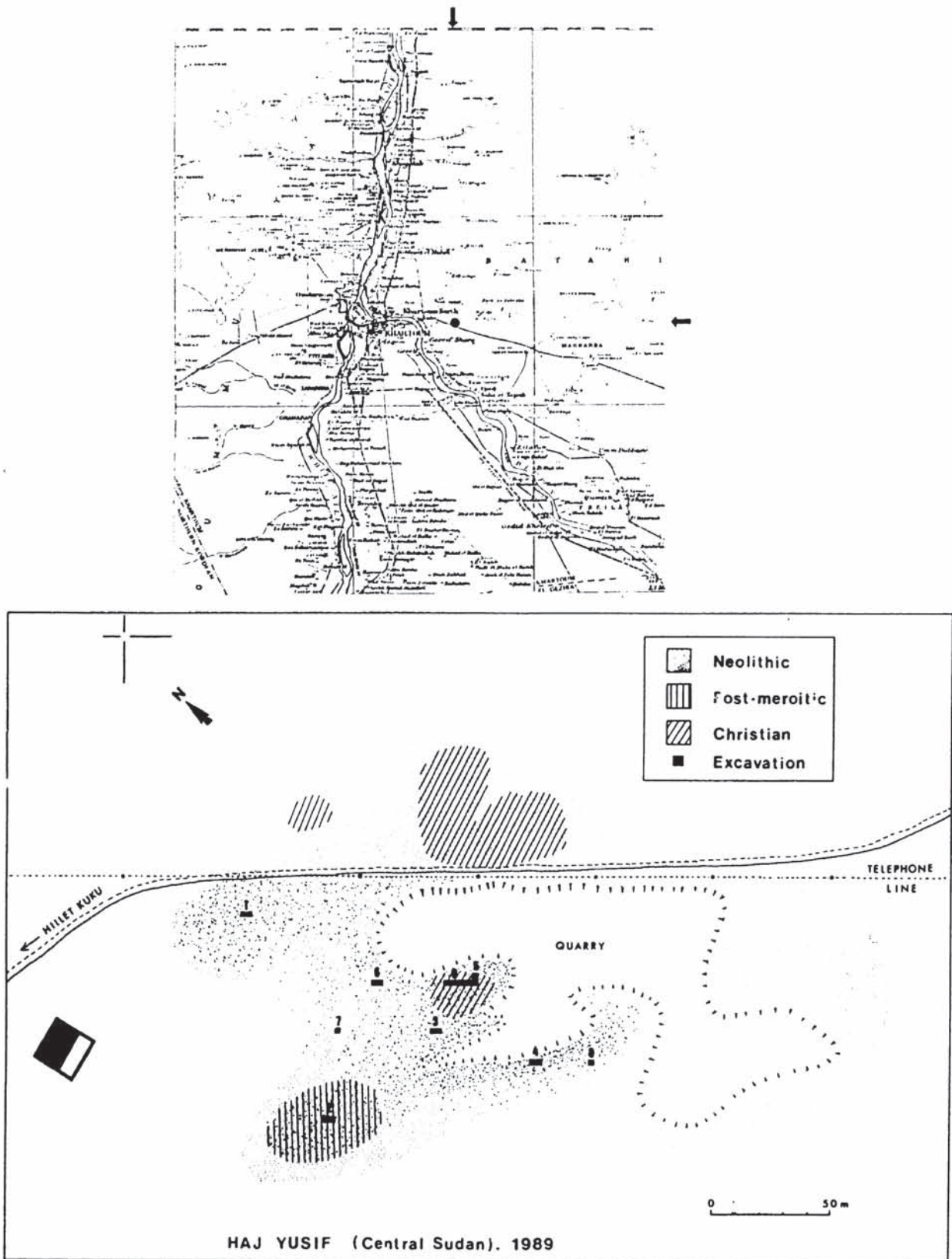


FIG. 1.— 1. The location of the Neolithic site of Haj Yusif, in the vicinity of Khartoum. 2. Plan of the site, showing the area of Neolithic pottery distribution, Christian and post-Meroitic remains, and the modern quarry excavation.

in press). It is located about 10 Km east of Khartoum North, beside the earth track to Abu Deleiq, halfway between Haj Yusif and Gereif East, in the area administratively known as Haj Yusif New Extension. It is 5 Km east of the Nile river (the coordinates are 32°, 38', 18" E, 15° 36' 30" N) (Fig. 1.1.). To our knowledge, the area has not yet been archaeologically inspected, with the exception of the salvage digging by P. Lenoble at the Meroitic cemetery of Gereif East (Geus, 1984: 12-3; Geus, 1986: 32-3).

In recent years the zone has started to become urbanized, and numbers of new houses have been erected, sparsely distributed, sharing the arid land with rough temporary shacks occupied by refugees from the South (two of these, Dinkas, were employed as workers in the dig, together with eight Arabs from Haj Yusif). Possibly as a result of the building activities, a large area was excavated for quarrying just in the middle of the site before our arrival in 1981, destroying a great deal and seriously menacing the rest (Fig. 1.2.).

The site was first inspected on surface, by collecting pot-sherds and recording the most important features. A planimetric survey was made on this essentially flat area (the greatest difference in altitude, between the low ridge along the telephone line and the bottom of the quarry pit, is about 1.50 mts.), This survey marked the outer limits of Neolithic pottery distribution (points in fig. 1.2.), the two heaps of red bricks north of the line (possibly the remains of a Christian medieval church), and the quarrying hole. A quick inspection of the sherds picked up from the different areas did not reveal significant differences, but special concentrations were clearly detected (more dense points in the map) and were taken into account when deciding where to dig. An overall site grid was established, using a line parallel to the telephone line, 100 mt to the NE, as the longest axis, and the datum point was put to the N of the surface distribution (Fig. 1.2.). The trenches were consequently numbered in a two dimensional system of square meters; trench No. 1 (measuring 5 × 2 meters) is listed, for example, as BO-BS/116-117.

The distribution of Neolithic sherds covers 300 X 150 mts, the complete surface of the site thus amounting to about 4,5 hectares. The subsequent excavation, however, revealed this figure to be an exaggeration of the real size of the settlement. No doubt due to water and wind erosion, and to later activities in Meroitic and Christian times, the Neolithic sherds and lithic implements had spread beyond their original distribution. This seems to have been located in the middle of the area and, consequently, most of it has been destroyed by the modern quarrying activities. A total of 9 trial pits were dug in the more promising zones, but only those in the middle areas (Nos. 3, 4, 5, 6, 8 and 9) unearthed enough artefacts, more or less in their original position for the place to be considered a part of the actual settlement. Trench n^o. 1 yielded a few Neolithic sherds mixed, even in inverse stratigraphic position, with sherds of the Christian period. Trench n^o 2 revealed the top of a partially destroyed (plundered) tumulus of Meroitic or (more probably) post-Meroitic date, together with a very few prehistoric artefacts. Trench n^o 7 yielded nothing at all.

The geological interpretation, based exclusively on surface and subsurface observations at the site, and on general descriptions of the area North of Khartoum by the Italian Mission, must be viewed as merely provisional and preliminary. Two kinds of deposits, below the loose sand on the surface, were recorded during the dig: a light brown mixture of sand and small watered pebbles, and a much darker grey/black, fine grained clay of harder consistency. The former was detected in the more elevated areas, such as trench N^o. 1, which has deposits 1.4. mt thick (completely sterile after the initial 60 cms). Isolated remains of this formation could be seen in other, lower parts as in trenches 4 and 8, while the excavated areas in the middle zone, of still lower elevation, revealed a continuous stratum of dark mud, over which the Neolithic settlers left their debris. This flat band probably corresponds to the upper clay member of the Gezira formation, that lies almost exclusively in the east bank of the river and may be dated at the terminal Pleistocene. The overlying lenses of gravel and sand could be ascribed to the early and middle Holocene (before ca. 5000 B. P.), when the Blue Nile flowed along a few channels cutting the Gezira formation. During this wetter phase, the Neolithic settlements usually occupied isolated hillocks on the edge of the alluvial plain along

the water course, which was already in the present western channel before the end of the Neolithic period (Marcolongo, 1983; Marcolongo, Palmieri, 1988).

The Neolithic strata, apparently intact, in trenches 3, 4, 6 and 8, were of only 10-20 cm in thickness, containing a big number of potsherds and millstones, and a few lithic tools and waste. No remains of huts or hearths were detected, and the faunal remains, shells included, were scarce. The Christian sherds, usually thick, black burnished potsherds with some incised decoration, were collected in small numbers only in the upper sand layer above the Neolithic stratum. These deposits were thinner than usual in the area (60-70 cms are attested at Shaheinab and Kadero; 40-50 cms at El Geili; Caneva 1988: 24). During the Mesolithic period the sites show thicker strata, suggesting a more regular occupation or less intense erosive processes (70-135 cms at Saggai, Caneva, 1983: 18). In spite of this fact, the site of Haj Yusif was not disturbed by subsequent Late Neolithic burials, as in Geili or Saggai, and the cultural assemblage belongs exclusively to a single prehistoric phase.

The trial excavation in the central area of the site, trenches 5 and 9, joined by numbers 9/1 to 9/3 (squares FF-FS/143-14 in the general grid), proved to be much more interesting. In this zone an almost superficial, thin layer of Christian remains, consisting of small hearths, bones and sherds, suggests temporary activity linked to the nearby buildings. In some places (nº 5, 9 and 9/1), the irregular, discontinuous lenses overlay patches of intact Neolithic deposit. By intact we mean here a condition somewhat different to the one present in the other trenches previously mentioned: the horizontal position of sherds, grinders and shells suggest a more stable occupation of the area. In zone nº 9/2, however, the Neolithic layer had been destroyed by a Christian hearth (or never existed at all), and in 9/3 all the remains had been washed out by superficial water runoff.

A sterile level (of only 7 cm) in trench nº 5, under the Christian debris and above the remains of two hearths, moved us to think that these could be of Neolithic date. The hearths were of a more consistent character than those found in the superficial level, and they had a very few Neolithic sherds in the nearby. The radiocarbon analysis of two charcoal samples, however, revealed that they actually were made at the beginning of the Middle Ages (Groningen nos. GrN-16554, 1265 ± 25 BP, 1205 ± 25 BP).

In the nearby zone of trench 9, a larger area was recorded with potsherds, broken milling stones and querns (one of them associated to a piece of red ochre), and a fairly large number of *limicolaria* and fewer *Pila* shells. Although the remains appeared to constitute a «living floor», the pottery sherds came from a lot of different vessels. Only a few sherds, actually those that lay together on the ground, could be assembled together.

The cultural assemblage

The pottery (Fig. 2) was the most abundant artefact at the site, and a preliminary comment will be attempted here. The previous classifications of Khartoum Neolithic impressed ware, by Arkell (1953: 68-77), which was followed by the Mission in the first report on the site (Fernández in press), Haaland (1987: 144-80), Mohammed Ali (1982: 74-82), Chlodnicki (1984) and Caneva (1988: 67-114), differ with respect to which decorative attributes are considered more diagnostic, and consequently are very difficult to compare or follow as a whole. The typology elaborated by Isabella Caneva, hierarchically based on the sequence of decorative technique, implement used to perform the impressions, motif and structure, and not merely on the visual impression of the final result by the classifier, seemed to us the most culturally significant and simple to apply, and so has been the system followed in the analysis of our ceramic material.

A total of 1833 pottery sherds were recovered from the excavated areas, the overall percentages of the types being as follow: rocker stamp resulting in packed zig-zags, with evenly serrated edge

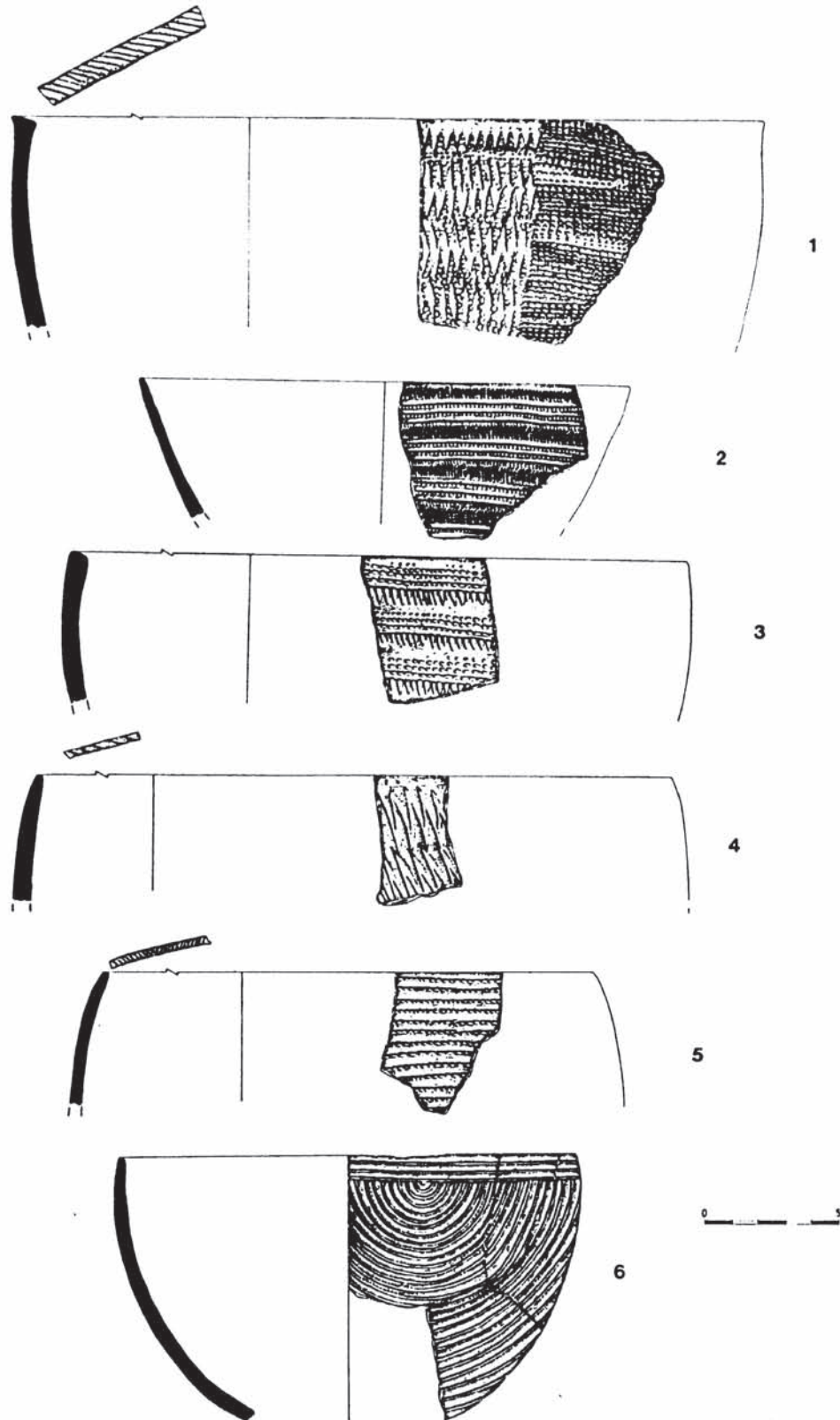


FIG. 2.— A selection of decoration types of the Neolithic pottery: 1. A combination of rocker stamp, evenly serrated edge resulting in spaced zig-zag (at left) and packed zig-zag (at right). 2. Rocker stamp, evenly serrated edge, packed zig-zag. 3. Rocker stamp, unevenly serrated edge, packed zig-zag. 4. Rocker stamp, plain curved edge, spaced zig-zag. 5. Alternately pivoting stamp, dotted lines. 6. Incision.

(33.7 %) or with unevenly serrated edge (26.7 %); rocker stamp, evenly serrated, but resulting in spaced zig-zags (17.2 %); rocker stamp of plain and curved edge (2 %); alternately pivoting stamp with double pronged implement, resulting in paired lines of single dots (8.1 %), and of opposed triangles (4.7 %); simple impression of dotted lines, with serrated edge (0.3 %); incisión of simple and double lines (6.7 %) or scraping comb (0.2 %); red burnished black topped ware, with black triangles on the rim (0.4 %). Only a small fragment of dotted wavy line, too eroded for the technique to be conspicuous, was picked up on the surface of trench nº 9. The rim decoration was mostly of oblique dotted lines.

The percentages look very similar to the Geili data (Caneva, 1988: table 2), the differences being in the rocker comb technique (77.2 % in Haj Yusif and 44.8 % in Geili), the simple impression of comb (0.3 % as opposed to 7.9 %) and undecorated sherds (14.1 % in Geili; negligible number in Haj Yusif). In Geili, however, the sherds from two occupations (some of them are Late Neolithic) were mixed up and so the data are hardly comparable. Another problem comes from the fact that the excavators in Geili did not sort out the spaced from the packed zig-zags in the rocker stamp technique, a distinction of probable chronological significance in our site.

The table of frequencies and percentages of types in the trenches was analyzed by several statistical multivariate techniques (namely Cluster, Principal component and MDSCAL analysis) and a significant clustering of trenches and correlation of pottery types were clearly apparent in all the results. The area in the middle of the site (i. e. trenches 5 and 9) is characterized by a higher frequency of spaced zig-zags (30.7 %), alternately pivoting stamp (14.4 %, 10.8 for the dots), and by a lower quantity of packed zig-zags (52 %) and incision (2.6 %). In contrast, the outer parts of the site (trenches 3, 4, 6 and 8) has less spaced zig-zags (10.6 %) and alternately pivoting stamp (5.9 %, 3.9 for the dots), and more packed zig-zags (72.5 % the increase being bigger in the unevenly serrated edge, from 18.4 % to 35.5 %) and incision (10 %). The chronological significance of these differences is indicated not only by the increase of incised pottery (a continuous trend during the Neolithic) in the periphery of the site, but also by the fact that the only dotted wavy line sherd occurred in the central part and the only black topped sherds in the outer area, thus suggesting the first as older than the second.

The fall in the percentage of spaced zig-zag pottery has not been observed up to now in other sites of the area, but this kind of decoration, as opposed to the packed zig-zag (where the rocker technique, is not so evident at first sight), seems more frequent in the Mesolithic sites such as Saggai (where it was not counted apart from the whole rocker comb technique, Caneva, 1983: fig. 13, 1-3, 6) and Early Khartoum (Arkell, 1949: Pls. 65, 70-2 and possibly 90-2). The alternately pivoting double tooth pottery was already present in the Mesolithic (Caneva, 1983: fig. 16; Arkell, 1949: Pls. 83-84), and apparently increased in frequency until it eventually replaced the rocker comb technique in the Late Neolithic (Caneva, 1988: 112), this being in contradiction with the decrease observed in Haj Yusif. The rise in percentage for the unevenly serrated edge pottery, unknown in the Mesolithic and typical of the early Neolithic (*Ibid.*), is in accordance with the supposed typological trend in the Central Sudanese Neolithic sites.

Vessel shapes at Haj Yusif include open-mouth forms (6.4 %), vertical walls (56 %) and close-mouth ones (37.1 %), with minor variation in the rim shape and thickness. No possible identification of bottom sherds was possible, since the decoration seemingly occupied all the vessel surface, but rounded bowls were probably the most common or unique shape. With respect to the association between shape and decoration, vertical walls are the usual form in all the types (also the close-mouth is connected to the evenly serrated edge), except in the rare undecorated rim sherds, where inverted rims appear to be slightly more abundant.

All the aforementioned percentages were computed on the basis of sherd counts, yet a rough estimate of surface area was made for every sherd. The mean size was greater for the packed zig-zag (about 12 cm²) than in the other categories (about 8-9 cm²), suggesting that this decoration was applied to bigger vessels. This agrees with differences in rim diameter, greater in the packed zig-zag (mean about 36 cm) than in spaced zig-zag (32 cm), pivoting stamp (30 cm), incisión (29 cm) and

black topped (25 cm). Differences in mean size were not observed between the two supposed chronological areas of the site.

The lithic assemblage (Fig. 3) was extremely scarce in the areas excavated this season, the raw material being rhyolite (60.8 %), basalt (9.8 %), fossil wood (9.8 %), and others (including quartz, gneiss and a type of caramel coloured flint). No differentiation was noticed between the trenches and areas, and the complete list of retouched tools is as follows: two scrapers (one core-scraper), one steep retouched perforator, one retouched notch, five side scrapers (mostly simple convex and one possibly made on a fragmented celt), and a truncated blade. Bifacially retouched or polished implements included six worn or fragmented gouges, one complete, bifacially retouched celt; and three broken, completely polished axes. Up to sixteen unretouched or slightly retouched flakes, two blades (one retouched) and two globular cores were also recovered from surface and excavated areas. Not a single geometric microlith was found, although most of the earth from the trenches was carefully sifted.

The ground stone implements were abundant, and the list coincides with the known typologies of the sudanese Neolithic, with the exception of rings and mace-heads, absent in our site. Querns were scarce and always in a very fragmentary condition, the contrary being the case with milling stones, which included circular and oval shapes, pestles, rubbers and spheroids. The raw materials was usually sandstone with some examples made on gneiss. No bone or shell implements were found in the excavation.

The faunal remains

As with the lithic tools, the animal bones recovered in the dig were very scanty, so that calculating their percentages would appear unsound. The preliminary identification of the different species is coincident with many of the remains from other Neolithic sites (e. g. Gautier, 1983; 1988), yet the diversity looks considerably lower. Freshwater mollusks include *Pila wernei*, *Aspatharia* (possibly *A. rubens* and *A. hartmanni*) and *Etheria elliptica*. The landsnails group consisted of very abundant remains of *Limicolaria cailliaudi*, ubiquitous in every part of the site including the surface. As far as fish are concerned, only a single bone of catfish (*Siluro ind.*) was found, from a very big specimen. The mammal bones were very eroded and fragmented, the identity being dubious in most cases: the big antelope *Tragelaphus strepsiceros* was present, as well as several remains of *Capra aegagrus* (or possibly *Ovis ammon* in one case). From trench nº 4 come several bones of a large bovid, yet the identification of *Bos* has not been possible.

Conclusions

As has been clearly stated, the site is in a disturbed condition, and we have not been able to ascertain whether this is due to the subsequent occupations of the zone or to the fact that the settlement belonged to a very mobile group that left few traces. The suggested chronological division of the remains, an earlier phase in the central area and a slightly later occupation in the peripheral zones, seems probable after the analysis of the respective pottery attributes, but the possibility of a functional explanation for that difference cannot be precluded. The depositional conditions are different in the two areas, but a control for functionality, based on the lithic or faunal remains, was not possible because of their scarcity.

As an overall interpretation of the site, the abundance of grinders and scarcity of flint, specially microlithic, tools, would, in the light of the model proposed by Randi Haaland (1987) suggest that Haj Yusif was a permanent base site, agriculturally based, similar to Kadero (Krzyzaniak, 1978; 1984), where similar proportions of implements existed (Nowakowski, 1984). Nonetheless, the poorly preserved, scanty remains of domestic fauna, together with the thin condition of the deposits,

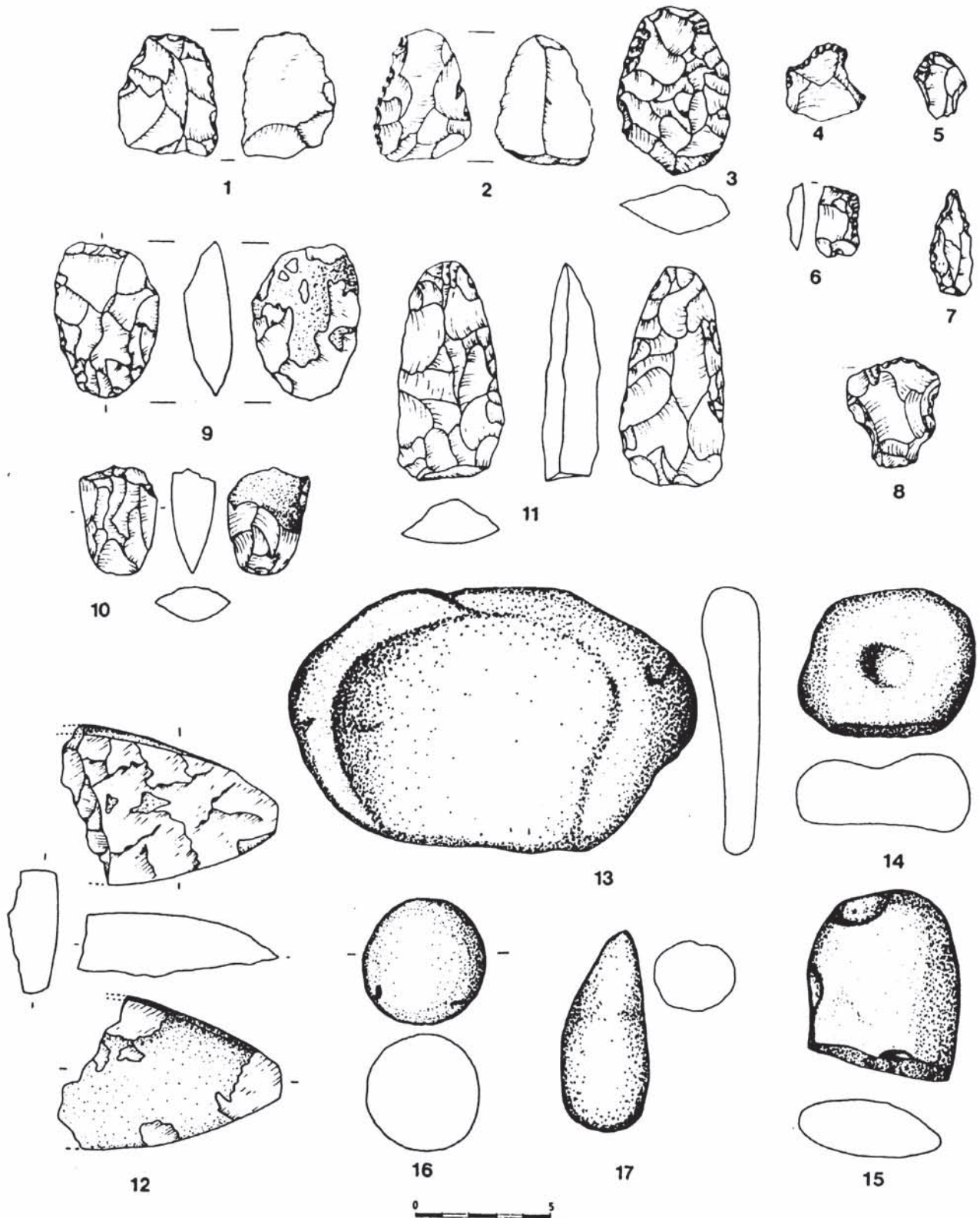


FIG. 3.— A selection of chipped and ground stone tools: 1, 2, 3: side scrapers, No. 3 possibly made on a fragmented celt. 4; 5: scrapers, No. 4 is a broken core scraper. 6: truncated blade. 7: steep retouched perforator. 8: retouched notch. 9, 10: fragmented gouges. 11: complete celt. 12: completely polished axe. 13, 14: upper? grinders with hollow in centre. 15, 16: pestles. 17: rubber.

more clearly recommends a vision of the site as a short duration settlement belonging to a nomadic pastoralist group. This is more in accordance with the model advanced by Caneva (1983; 1988), that the Neolithic people of Central Sudan were mostly mobile groups who practised a pastoralist economy with little reliance on plant cultivation. Chronologically, the site can be related to the «Middle Neolithic» group (Hassan, 1986), together with Shaheinab, Kadero I, Zakiab, Nofalab, Geili, etc., approximately between 4400 and 3800 B. C.

BIBLIOGRAPHY

- ARKELL, A. J. (1949): *Early Khartoum*. Oxford U. P. London.
- (1953): *Esh Shaheinab*. Oxford U. P. London.
- CANEVA, I. (1983): *Pottery using gatherers and hunters at Saggai (Sudan): Preconditions for food production*. *Origini*, XII. Roma.
- (1988): *El Geili. The History of a Middle Nile Environment 7000 B. C.-A. D. 1500*. Cambridge Monographs in African Archaeology 29. BAR international Series 424. Oxford.
- CHLONICKI, M. (1984): «Pottery from the Neolithic settlement at Kadero (Central Sudan)», in KRZYZANIAK, KOBUSIEWICZ 1984, 337-42.
- HASSAN, F. A. (1986): «Chronology of the Khartoum 'Mesolithic' and 'Neolithic' and related sites in the Sudan: statistical analysis and comparisons with Egypt», *The African Archaeological Review*, 4, 83-102.
- MARCOLONGO, B. (1983): «Late Quaternary Nile and hydrology of the Khartoum-Sabaloka region (Sudan)» in CANEVA, 1983, 39-45.
- MARCOLONGO, B. y PALMIERI, A. M. (1988): «Dynamics of natural environment in the Geili area» in CANEVA 1988, 35-47.
- FERNÁNDEZ, V. M. (1982): «El cementerio Kerma de Abri-Amir Abdallah (Prov. del Norte). Excavaciones de la Misión Arqueológica Española en El Sudán» *Trabajos de Prehistoria*, 39, 279-334.
- (1984): «Early Meroitic in Northern Sudan: the assessment of a Nubian Archaeological Culture» *Aula Orientalis*, II(2), 43-84.
- (1985): *La cultura alto-meroítica del Norte de Nubia*. Universidad Complutense de Madrid. Colección Tesis Doctorales, Nº 132/85.
- In press: «A New Neolithic site near Khartoum» *International Symposium on the Late Prehistory of the Nile Basin and the Sahara*. Poznan, 11-15 Sept. 1984.
- GEUS, F. (1984): *Rescuing Sudan ancient cultures*. French Unit of the Directorate General of Antiquities and National Museums of the Sudan.
- (1986): «La section française de la Direction des antiquités du Soudan. Travaux de terrain et de laboratoire en 1982-1983» *Archéologie du Nil Moyen*, 1, 13-58.
- GAUTIER, A. (1983): «Animal life along the prehistoric Nile: the evidence from Saggai 1 and Geili (Sudan)», in CANEVA 1983, 50-115.
- (1988): «Notes on the animal bone assemblage from the early Neolithic at Geili (Sudan)» in CANEVA 1988, 57-63.
- HAALAND, R. (1987): *Socio-Economic Differentiation in the Neolithic Sudan*. Cambridge Monographs in African Archaeology, 20. BAR International Series 350. Oxford.
- KRZYZANIAK, L. (1978): «New light on early food production in the Central Sudan» *Journal of African History*, 19, 159-72.
- (1984): «The Neolithic habitation at Kadero (Central Sudan)» in KRZYZANIAK, KOBUSIEWICZ 1984, 309-15.
- KRZYZANIAK, L. y KOBUSIEWICZ, M. (Eds.) (1984): *Origin and Early Development of Food-producing cultures in North-eastern Africa*. Poznan.
- NOWAKOWSKI, J. (1984): «The typology of lithic implements from the Neolithic settlement at Kadero (Central Sudan)», in KRZYZANIAK, KOBUSIEWICZ 1984, 343-51.
- MOHAMMED-ALI, A. S. (1982): *The Neolithic Period in the Sudan, c. 6000-2500 B. C.* Cambridge Monographs in African Archaeology 6. BAR International Series 139. Oxford.
- TRANCHO, G. (1987): *Estudio antropológico de una población meroítica sudanesa*. Universidad Complutense de Madrid.