Gergaf Pottery (16th - 18th century AD). A Typology

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The Gergaf Group is the material expression of a nomadic population that occupied certain areas of the Eastern Sudan region, between Khashm el-Girba and Kassala, not far from the Eritrean border, from the 16th century to the 18th century AD. This group represents the final stage of the cultural sequence of the region.

Introduction

The Gergaf Group is considered to be the last group of the cultural sequence of the Eastern Sudan region, elaborated through the analysis of material collected by two archaeological missions that have been operating in the area since 1980 (Fattovich 2006, 365). These were the Italian Archaeological Mission in Sudan, Kassala, of the University of Naples "L'Orientale" (IAMSK), directed by Rodolfo Fattovich, and the Butana Archaeological Project (BAP), a joint mission of the Southern Methodist University of Dallas and the University of Khartoum (Fattovich *et al.* 1984, 173), directed by Anthony Marks and A. Mohamed Ali. These two missions operated respectively in the Gash Delta and in the area close to the Atbara. Joint examination of the collected material allowed for the elaboration of a long cultural sequence (Fattovich *et al.* 1988, 394-396), from the sixth millennium BC to the 18th century AD, divided into 'macro-phases' and characterized by human groups that, depending on their livelihoods, occupied different areas of the region at the same time or the same areas in different chronological phases (Figure 1).

Study of the material also led to the discovery of a particular ceramic tradition, the Atbai Ceramic Tradition, which presented a series of typological and stylistic features, such as the pinched rims and the scraped surfaces of the vessels (Fattovich *et al.* 1984, 176). The Atbai Ceramic Tradition lasted until the first millennium AD and appeared to end with the ceramic production of the Hagiz Group (Fattovich *et al.* 1988, 401).

The central phases of the Atbai Sequence have undergone extensive analysis and further studies are ongoing (Fattovich 1995, 191; Manzo 2017, 33-48). The later phases, however, have been somewhat overlooked until now, particularly because of the scarcity of material so far collected. The first and only attempt to conduct a preliminary study of the material belonging to the Gergaf Group was proposed by Karim Sadr in the late 1980s (Sadr 1984, 33-35). Sadr was the first to hypothesize that the Hagiz Group represented a nomadic people and the first to have made some preliminary assumptions about the Gergaf Group, about its settlement pattern and ceramic production (Sadr 1984, 33-35).

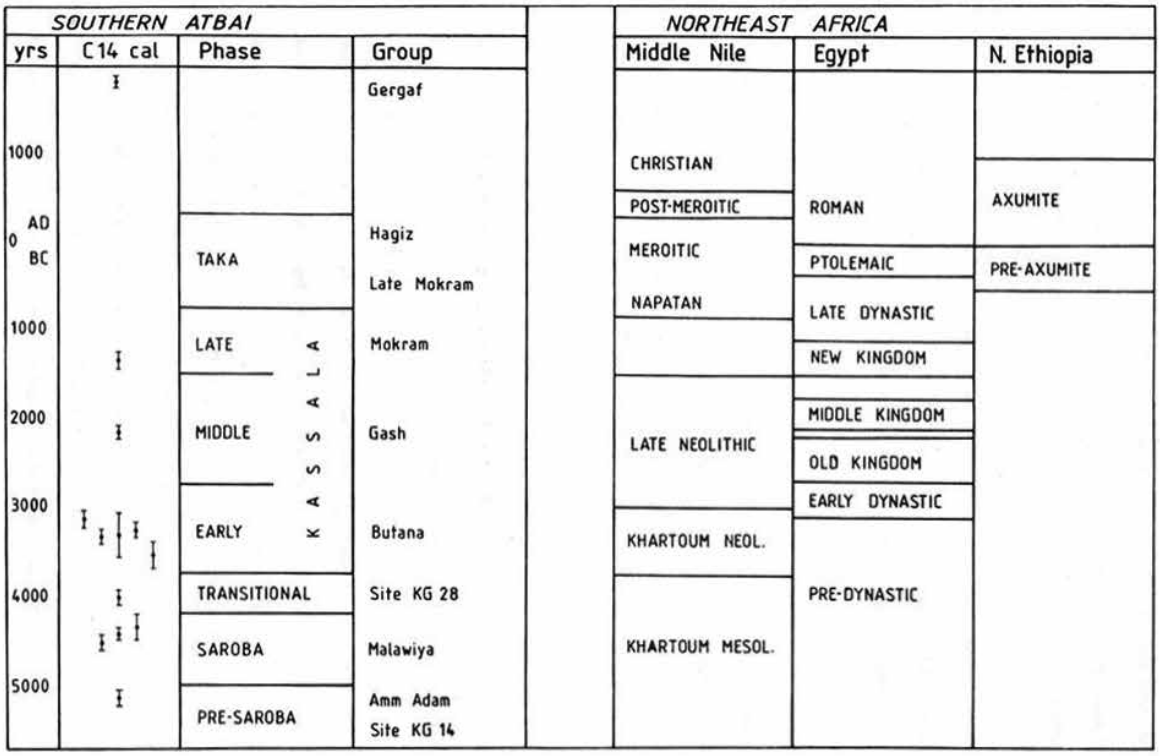

Figure 1. Cultural sequence of the Atbai and comparisons with other cultures of North-East Africa (Manzo 2017, 6, modified from Sadr 1991).

The resumption of field activities in 2010, thanks to the Italian Archaeological Expedition to the Eastern Sudan, directed by Andrea Manzo,[1] has led to an increase in collected ceramic material and information on this archaeological culture.

[1] For the archaeological reports of IAEES, see Manzo 2012a; 2012b; 2013; 2014; 2015; 2017.

At the request of the Sudan Government, within the Upper Atbara Agricultural Scheme[2] (Manzo 2012b, 6-22; 2013, 257-259; Manzo *et alii* 2012, 10-12), further sites have been excavated, and areas that were occupied by the populations belonging to the final phases of the Atbai Sequence were investigated.

The ceramic analysis has facilitated the elaboration of a ceramic typology, albeit in a preliminary state (Perna 2015) which, using the minimal knowledge currently available as a starting point, provides a basis for the classification of forms and most common ceramic types used by the populations of the Gergaf Group.

The Gergaf Group: chronology and settlement pattern

The Gergaf Group people occupied the area of Eastern Sudan, where our research is focused, and was identified from numerous small sites between Khashm el-Girba and the south-western area of Kassala, towards the northern limit of Shurab el-Gash. As previously noted, some of the Gergaf Group settlements were identified by the BAP and others by IAMSK. During these preliminary investigations, radiometric dating was carried out on the material collected at a site at Khashm el-Girba, KG 114. The results provided the following dates:[3] 1791 (68.2%), 1660-1710 (11.9%), 1720-1820 (29.2%), 1830-1890 (15.6%) and 1910-1950 (11.5%) (2-sigma calibration) (Sadr 1984, 33; Manzo *et alii*. 2012, 128).

New radiometric dating was carried out after the 2011 field season of the Italian Archaeological Expedition to the Eastern Sudan of the University of Naples "L'Orientale" (IAEES). An excavation at site UA 53 resulted in the detection of a fireplace, associated with remains of structures, which were dated[4] 1520-1570 AD (68.2%) and 1630-1660 AD (35.6%) (2-sigma calibration). On this evidence, this Group may date back to the period between the 16th and the 18th century AD.

Since the identification of the Gergaf Group, its settlement pattern was considered comparable to that of the Hadendowa, who currently inhabit the region and practice limited transhumance (Fattovich *et al.* 1984, 173-188) over a maximum distance of 15km, from the Atbara to the steppe, thus exploiting both the areas richer in water for agriculture and the steppes for breeding. This system is likely to have been used by the Gergaf Group, with the exploitation of groundwater alongside the river. This was later confirmed by the study of the settlement pattern conducted by Sadr and based on the materials collected by the BAP and the IAMSK between 1981 and 1984, during which 71 sites related to this cultural unit were identified.

According to Sadr's reconstruction (Sadr 1984, 34), the presence of larger Gergaf Group sites along the Atbara and Gash rivers would suggest a cycle of mobility for the population. This hypothesis presupposes the occupation of these areas during the dry season, part of autumn, winter and spring, and dispersion throughout the steppes during the summer-wet season and just after the rainy season, as indicated also by the number of small temporary sites scattered along the basins in the Malawiya area. According to Sadr (1984, 34-35) peoples of the Gergaf Group occupied places formerly occupied by earlier human groups because the surfaces of the ancient sites already had a flat, exploitable surface, covered with broken stones and pottery, useful during the wet season to drain the soil.

Despite the re-occupation of several earlier sites, the ceramic production of this group has not been considered part of the Atbai Ceramic Tradition, even though in some cases, it is possible to note a scraping effect on the surfaces of some vessels, an effect which is one of the main characteristics of the Atbai Ceramic Tradition (Manzo 2017, 61). It should be also remarked that a chronological gap of *c.* 1000 years may separate the Gergaf Group from the Hagiz Group, representing the last phase of the Atbai Ceramic Tradition (Fattovich *et al.* 1988, 398; Sadr 1991, 48-50; Manzo 2004, 75).

In the past Gergaf Group material was often erroneously attributed to the cultural phase of the Hagiz Group. Thanks to the recent investigations, the two groups can be more clearly distinguished. However, it can be said that in the multiphase sites where both Hagiz Group and Gergaf Group occur, the Gergaf component has actually been the most prolific in terms of the amount of ceramic fragments found.

The frequent exploitation of territories occupied previously by the Hagiz populations by the Gergaf Group people suggests that both populations were presumably composed of nomads, and we can assume that they probably had a similar economy, exploiting territories that could meet their needs and accommodate their lifestyle. It should be remarked that for the Gergaf Group, chronologically closer to our time, we also have more information from literary sources, which are almost completely non-existent for the Hagiz Group. These sources, mainly in Arabic, describe Eastern Sudan and the southern fringes of the Eastern Desert as inhabited by nomadic pastoral peoples (Vantini 1975, 618-633).

For this reason, the analysis of ceramics of the Gergaf Group should be regarded as a very promising contribution to the well-known research on the pottery and material culture produced by nomadic people (Bradley 1992, 32-33). Actually, pottery is often the only evidence of their lifestyle, and is useful also for reconstructing their everyday life which is otherwise often unclear, when considering the problems associated with their archaeological visibility.

The pottery of the Gergaf Group

The amount of ceramic material found during the IAEES campaigns enabled us, for the first time, to compile a catalogue of fragments and to identify types, thus opening up a new study perspective and considerably enriching the evi-

[2] In the course of this project, promoted by the Sudan Government, some areas of Eastern Sudan will be exploited for agricultural use. Some of them are considered to be potentially key archaeological sites.
[3] SMU 1289, 159 ± 75 BP. The calibration curve was Int. Cal. 98.14.
[4] BETA 311301, 280 ± 30 BP.

dence available to Sadr on which he based his preliminary study of Gergaf ceramics (Sadr 1984, 33-35).

According to him (Sadr 1984, 33) Gergaf Group's ceramic production is characterized by a mixed fabric, which contained both mineral and vegetal inclusions, with surfaces characterized by a range of colours from reddish-brown to pink. None of the rims found had a rounded shape, and some fragments had handles or grips.

According to Sadr's preliminary study, 40% of the fragments were decorated and among them, the majority (about 85%) had decorations with bands of incisions in the upper part of the vessel (Sadr 1984, 33). Only 15% of the analysed decorated vessels had a different type of decoration, made by cord impressions.

As stressed above, the research carried out by IAEES in recent years has made it possible to expand the knowledge of this ceramic production. In particular, the collections from sites UA 129 and UA 143 are crucial.

Gergaf Group pottery[5] collected at UA 129 is characterized by a high frequency of bag-shaped containers with incised and impressed decoration (Plate 1). The fabrics show the presence of both vegetal and mineral temper, a very high degree of hardness and compactness and red slip on the surfaces. None of the collected sherds have the incised striped decoration, widely reported by Sadr (1984, 33); however, the dominant shape is always that of a container or flask with button grips or, more rarely, without a handle and with a flat rim.

Plate 1. Gergaf Group rim sherd from site UA 129.

The ceramics collected during the survey at UA 143 can be attributed almost entirely to the Gergaf Group, except for a few fragments that had similar characteristics to those of the Hagiz Group. As revealed after the 2013 field season (Manzo 2015, 234), UA 143 was undoubtedly a cemetery, used during and subsequently to the Gergaf Group phase. It is possible to assume that the area had a funerary purpose also for the Hagiz Group people, but the scant evidence so far collected cannot confirm this hypothesis, perhaps also due to the agricultural exploitation of the area and to the extension of the modern Islamic cemetery. The Gergaf Group pots from UA 143 had vegetal impressions (Plate 2) on the surfaces and no decorative elements, except for the scraping sometimes occurring on the surfaces. At site UA 143, previously unnoticed forms of the Gergaf Group were also found: bowls, often with horizontal or button grips and thick walls, compared to the walls of bag-shaped pots, possibly used as kitchenware.

Plate 2. Gergaf Group rim sherd from site UA 143.

The ceramic objects that were found more frequently at UA 143 were sub-rectangular 'plaques' (Manzo 2015, 234) with rounded edges, slightly narrowed in the central part, in association with burials (Plate 3). These objects, which have not been found elsewhere, had a compact fabric and often a reddish-brown slip. The underside of these objects often had mat impressions, probably because the objects were dried on a mat (Plate 4).

In addition to the ceramics from these two sites, also the

Plate 3. Sub-rectangular 'plaque' from site UA 143.

[5] The archaeological data belonging to the last phases of the Atbai Cultural Sequence come from the field activities of the Italian Archaeological Expedition to the Eastern Sudan, between 2011 and 2015. In particular, excavations and pottery analysis related to the sites UA 129, UA 143 and JAG 1 III, between 2013 and 2015, were conducted by the author, as a member of the IAEES, in the seasons 2013, 2014 and 2015.

Plate 4. Underside of the sub-rectangular 'plaque' from site UA 143.

Gergaf Group material found during the survey was representative from a typological point of view. Examples of bag-shaped ceramic containers with incised decoration were found, although none of them had the decoration of incised stripes described by Sadr (1984, 33), but different decorative engraved patterns. The most common decorative motif was incised parallel lines, in triangular motifs, often associated with deeply incised button grips (Plate 5) with grid or cruciform patterns. As regards the different types of rim variants, the rims could be flat, slightly flattened, or everted.

Plate 5. Gergaf Group rim sherd with deeply incised decoration on the boss, from site UA 143.

The ceramic typology

The idea of producing a ceramic typology for the Gergaf Group was developed during the IAEES field seasons, from 2013 to 2015, during which further knowledge about pottery production of this phase was gathered providing sufficient material to attempt a classification.

Of course, the creation of a ceramic typology is a complex process, theorized in a different way over time and influenced by the subjectivity of the person performing it. The first step concerns the clarification of what is to be subdivided, then the limits of the classification system must be defined. Theoretically, the system should be suitable for each entity or object. The type system must be exhaustive and complete, and each entity must be placed in only one type – the system must be mutually exclusive. It should be noted, however, that the classification scheme must be open to new developments; it can be implemented and complemented through future research.[6] The analysis of different approaches and a combined version of them has allowed the author to design a suitable typology system for all ceramic products, with a mixed approach utilising vessel-type, formal classification, measurement of finds, geometric classification and, finally, functional analysis (Orton *et al.* 1993, 153-156).

Defining a typology necessitates a choice of variables and attributes that are taken into account, in order to typify a category of entities, which in turn will determine the nature of the types that will ensue. Types were identified by a set of reference attributes. The hierarchical order in which these attributes are considered is as follows:

- Shape
- A measurement range for the diameter of the rim and the thickness of the walls
- The fabric, with the specific indication of the fabric where classified, or with a description of its characteristics
- Surface treatment
- The superficial colour palette
- Decoration, where present
- The manufacturing technique, although all the fragments found were either handmade or coil made. Therefore, up to now, this point has not been considered as a variable.

Fabrics

The analysis and study of the fragments belonging to the Gergaf Group enabled us to carry out a preliminary categorization of fabrics on a macroscopic basis. There are four types of recognizable fabric, based on certain criteria such as the degree of compactness, breaking strength, internal structure, study of cross section and the presence of mica or pores. Colour was only considered as a category subject to numerous variables, such as post-depositional conditions, firing and surface treatment.

Fabric 1. This is characterized by a high degree of compactness and high frequency of plant impressions on both surfaces. Mineral inclusions are between 0.5mm and 1.5mm in size and quartz aggregates are frequent. There are many pores visible in cross section, belonging to two different orders of magnitude, those rounded in shape, with dimensions ranging from 0.25mm to 0.125mm, and elongated vacuoles, up to 3mm in size. The surfaces have a brown-orange colour, with a grey core of the freshly broken fracture.

Fabric 2. This is compact, characterized by a 'dusty' surface. Mineral inclusions, which are very common, are sub-angular, with variable dimensions, up to 1mm. The cross section reveals that there are numerous small vacuoles with a round shape. Organic inclusions are not frequent. This fabric is often associated with a smoothed surface. The colour is

[6] For discussions of typologies see, in particular Adams and Adams 1991, which represents a fundamental starting point.

light brown or light orange, with a grey core of the freshly broken fracture.

Fabric 3. This fabric has a very high degree of compactness. Minerals inclusions are small and medium in size, up to 0.5mm, but are not easily distinguishable in cross section due to the compactness. A few pores, which are large, up to 2mm, are visible. Vegetal inclusions are not visible; sometimes impressions of seeds or other plant material are evident on the internal surface. This fabric is often associated with a slip or burnishing treatment, the surface colour is reddish-brown and the core of the freshly broken fracture is light grey.

Fabric 4. This fabric is characterized by a high frequency of mica and medium compactness. White minerals, probably quartz and other aggregates, and black minerals are clearly visible both on the surfaces and in cross section, they have a sub-angular shape and dimensions between 0.125mm and 0.5mm. Mineral inclusions are very evident on the light brown surface. The core of the freshly broken fracture is grey.

Surface treatments

Gergaf Group pottery offers a limited repertory of surface treatments, the most common of which is a red slip. The slip is an opaque clay coating applied to the surface of the vessel before being fired (Cuomo di Caprio 2007, 307). The vessels produced by the Gergaf Group often reveal slip treatment on both the internal and external surfaces. The range of slip colours goes from brownish-red, which is the most common, to dark red. Often the coating is severely eroded due to the exposure of the ceramics to atmospheric agents or due to post-depositional processes. Equally common is the treatment of simple smoothing of the surfaces, also in this case done both inside and outside the vessel. It appears to be rare to find vessels of the Gergaf Group which have been burnished or have no surface treatment at all. The surface colour of the Gergaf Group pottery goes from reddish-brown (for the slipped samples) to brown or brown-orange vessels (for the other pottery classes that were found).

Decoration

Gergaf Group pottery is often undecorated. The range of decoration is limited to incisions or impressed motifs. In particular, bag-shaped flasks are often decorated with incised lines, parallel to each other on the walls of the vessel, or with simple geometric motifs, such as triangular patterns or crossed parallel lines. The button grips on the same class of vessels, with engraved decoration, have a grid or cruciform motif, engraved very deeply on their surface.

Wavy lines beneath the rim, with deeply engraved lines, characterize other vessels.

Impressed decoration includes small ovals or dots made with a pointed tool, sometimes together with patterns of incised lines. The depth of impressions is extremely variable. Decorations of this type are mainly located close to the edges or handles, less frequently on the walls of the vessels.

Forms, dimensions and functions

A ceramic vessel can have many different shapes and dimensions, providing information about its function. Ceramics from the Gergaf Group[7] have a wide variety of shapes. The pots do not exceed 300mm in diameter, so they are not large basins or big vessels. The most common forms are bowls, restricted and unrestricted, with or without handles. No pots which seem to be suitable for the transportation and storage of liquids were noted.

Conversely, there is a wide variety of cooking pots, open vessels with horizontal handles, for food preparation. Beakers are small vessels with a deep body; different types of beakers are present within the class. Other types are represented by small cups, small vessels with or without a foot and pots with pinched grips. Flasks are represented by closed forms, with or without handles, with the characteristic bag-shaped structure, a typical product of the Gergaf Group. Some types are atypical in shape: a strainer, a foot with a stem and a perforated disk whose function is still unclear.

Typology

Starting from the forms, the name of the class is provided by the characteristics of the vessel in relation to its shape. Each class, in addition to the descriptive name (e.g. Small Cups), indicating the shape and the main attribute, has been assigned a capital letter (e.g. A for small cups). The different types, within each class, are indicated by a number (e.g. A.1, A.2), and a small letter, if the type has variants (e.g. A.1.a, A.1.b, B.1.a, etc.). If no variants of the same type are present, the code is limited to the capital letter, to indicate the class, and the identification number for the type.[8]

Each type has been described according to the following criteria: name, diameter, wall thickness, main characteristics (shape, rims, walls), fabric, description of inclusions and their density, surfaces, colour and surface treatment, decoration, where present.

Typology codes

Small cups: A.1, A.2, A.3
Beakers: B.1, B.2, B.3
Straight walled bowls: C.1, C.2, C.3
Unrestricted bowls: D.1
Unrestricted bowls with flat rim: E.1, E.2, E.3
Restricted pots: F.1, F.2, F.3. F.4
Restricted bowls with thickened rim: G.1, G.2
Bag-shaped vessels: H.1, H.2
Bowls with vertical grips: I.1, I.2
Cooking pots: L.1, L.2
Vases: M.1
Handles/Grips : N.1, N.2, N.3, N.4, N.5, N.6, N.7
Atypical: O.1, O.2, O.3, O.4

[7] Gergaf Group pottery was collected above all in fragments. The typology was based on pottery fragments, with resulting limitations.
[8] Letters J and K were not used in order to leave the possibility of inserting other relevant classes.

Small Cups

This class (Figure 2) includes small cups with oblique walls, not very deep bodies, a diameter between 80mm and 150mm and rim thickness between 5mm and 11mm. The rim variability allows it to be divided into three types: thick-rimmed cups (A.1), flat-shaped rim cups (A.2) and rounded rim cups (A.3). There are variants within each type.

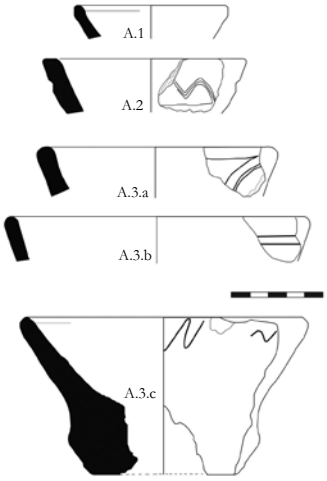

Figure 2. Small cups (scale 1:4).

A.1 Cups with a diameter of less than 100mm and a wall thickness of about 5mm. The principal feature is the thickness of the rim. The fabric is very compact, medium/high density, the mineral inclusions are small and medium sized (up to 5mm); no plant surface impressions are visible.

A.2 Cups with an average diameter of 100-120mm, deeply incised with wavy motifs on the walls of the pot. The rim is flat. The fabric is compact, medium to high density, mineral inclusions are large and medium sized (from 2-0.5mm); no surface plant impressions are visible.

A.3 Cups with a diameter of up to about 160mm and a wall thickness of about 8mm to about 10mm. This type is characterized by a rounded rim and patterned decorations of lines incised under the rim and on the body of the vessel. The base could have a ring foot, as in A.3.c. The fabric is very compact, medium to high density, the mineral inclusions are substantially large and medium sized (from 2-5mm). No vegetal impression is visible on the surface.

The most commonly applied surface treatment on the cups consists of a slip, with a range of colour from brown to reddish-brown. The core of the freshly broken fracture is grey. The decoration is incised. Patterns include wavy lines or simple lines beneath the rim.

Beakers

Beakers (Figure 3) are small, but relatively deep, vessels with straight walls. The diameter ranges from 80mm to 120mm, while the thickness of the rim is between 8mm and 15mm. There are two main types (B.1 and B.2), which differ only in their average wall thickness. The less common type (B.2) has a thicker rim, which is associated with vessels of a lower

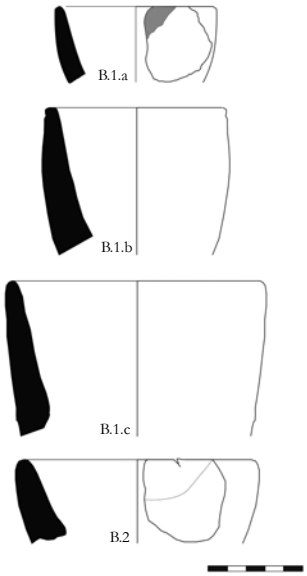

Figure 3. Beakers (scale 1:4).

height and bottom-thickened walls. The other features remain unchanged. The range of rims includes rounded and slightly thinner samples, which are variants of this type.

The fabric that characterizes this class is compact, including medium sized minerals (about 0.5mm). No vegetal impressions are present in cross section or on the surface.

Surfaces are slipped; and their colour ranges from reddish-brown to brown, the core of the freshly broken fracture is grey. There is no decoration.

Straight-walled bowls

The class of straight-walled bowls (Figure 4) has vertical walls and flat rims. It can be divided into three types.

C.1 Bowls with a diameter between 180 and 220mm and a wall thickness between 8mm and 10mm. The fabric is very compact, the mineral inclusions are medium to large in size

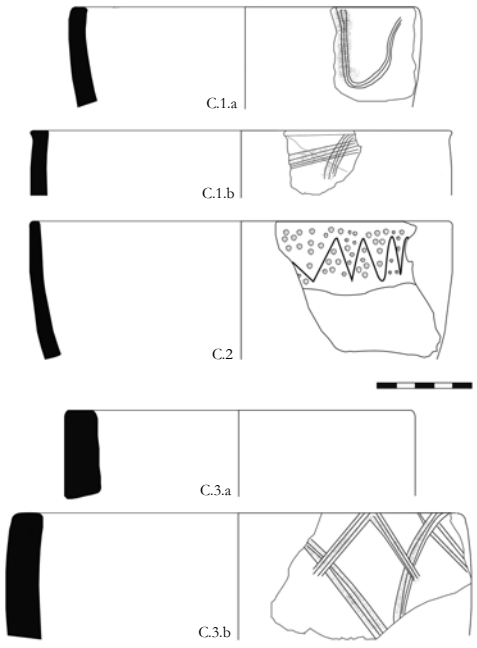

Figure 4. Straight-walled bowls (scale 1:4).

(between 1mm and 0.5mm), angular and sub-angular in shape. There are vegetal impressions on the surfaces.

Surfaces are slipped, the colour is reddish-brown on both surfaces, the core of the freshly broken fracture is grey. The decoration is characterized by combed lines, in wavy or cross patterns.

C.2 This type differs from the others in fabric. The fabric is highly refined, with average inclusions density, ranging from 0.125mm to 0.25mm and of a sub-rounded shape at low density. The surface colour is orange, the core of the freshly broken fracture is grey. Surface treatment is burnishing. The decoration is incised and impressed below the rim.

C.3 Bowls with the straight-walls and flat rim that has a greater thickness than the wall itself, about 18mm to 20mm. The fabric is very compact and includes medium-sized (0.5mm) mineral inclusions in abundance.

Surface treatment is absent or limited to surface smoothing. The colour ranges from brown to reddish-brown. Often this type of pottery has traces of oxidation. The decoration, if present, consists of incised crossed line motifs.

Unrestricted bowls

The class of unrestricted bowls (Figure 5) is very wide and includes all unrestricted pots with a wide diameter ranging from 180mm to 300mm and a wall thickness of 10mm to 23mm. Within the group there is a single type, the variants of which are differentiated by the rim types, rounded or slightly thinner, and the opening of the mouth of the vessel.

The fabric is characterized by extreme compactness, high density of sub-angular inclusions, medium and large (0.5-1mm) in size and visible vegetal impressions on both the external and internal surfaces. Surfaces are smoothed and slipped. The colour ranges from reddish-brown to dark orange. The cross sections are grey. There is no decoration.

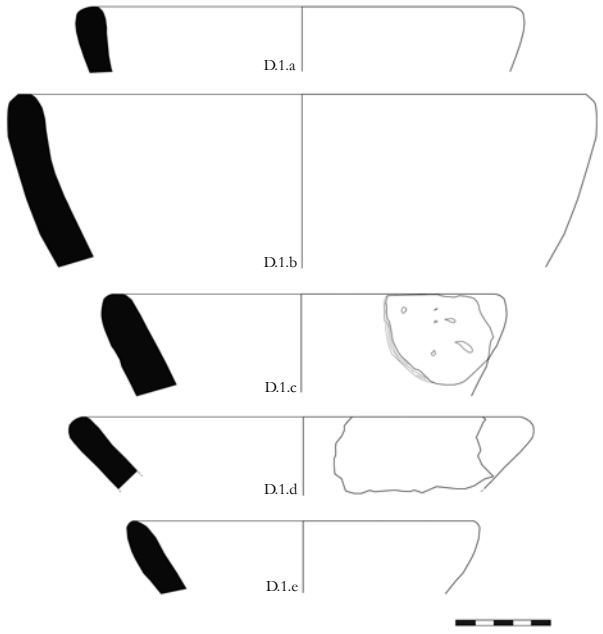

Figure 5. Unrestricted bowls (scale 1:4).

Bowls with flat rim

The flat rim bowl class (Figure 6) includes all unrestricted vessels, with non-vertical walls and flat or quadrangular section rims. The diameter ranges from 180mm to 300mm, while the thickness of the lips ranges from 13mm to 23mm. There are three recognizable types within the group: flat rim slightly rounded (E.1), flat rim slightly oblique (E.2), flat rim externally rounded (E.3). Within the types, there are some variants.

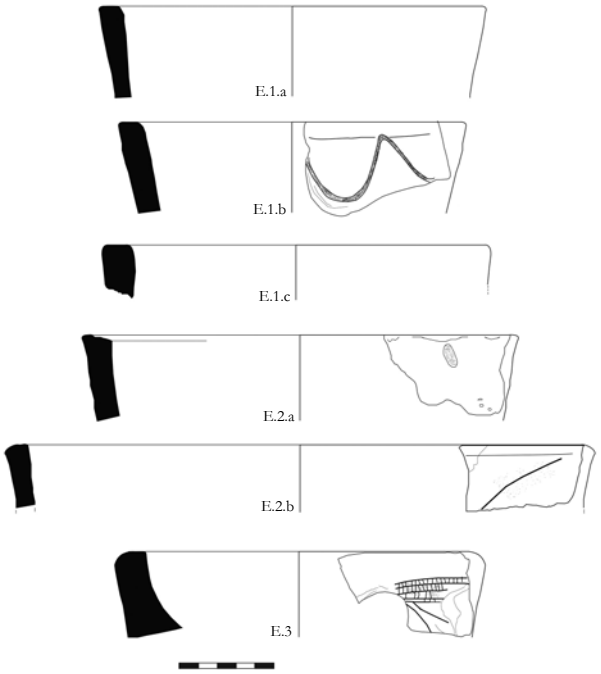

Figure 6. Bowls with flat rims (scale 1:4).

E.1 Characterised by the shape of the rim and fabric, very compact with high density of minerals; the dimensions of the inclusions reach 4mm and these have a sub-angular shape. The vessels do not have any special surface treatment, the surface colour is brown, and the cross section is grey. The decoration, if present, is incised.

E.2 The slightly oblique rim characterises Type E.2. The fabric is extremely compact and hard, the mineral density is high, the size is between 0.5mm and 0.25mm. Surfaces are burnished or slipped. The colour of the surfaces is reddish-brown or brown and the core of the freshly broken fracture is grey. The decoration, if present, is incised.

E.3 This type is known just from a single specimen. The rim is rounded in its external part, while the internal wall is curved, and the external wall is straight, like a basin. The fabric is characterized by high density of fine and medium mineral inclusions (0.25-0.5mm), and is very compact. The surface is brown and only smoothed. The decoration is incised in a grid pattern that probably shows traces of light-coloured infill.

Restricted vessels

The restricted vessel class (Figure 7) includes all restricted or globular-shaped pots and pots slightly narrowing towards the rim. Three types can be recognized within the class: F.1,

which includes all restricted pots with globular walls and rounded rims, F.2 with a slightly pointed rim, and F.3 with a top similar to a jar. Several variants are recognizable.

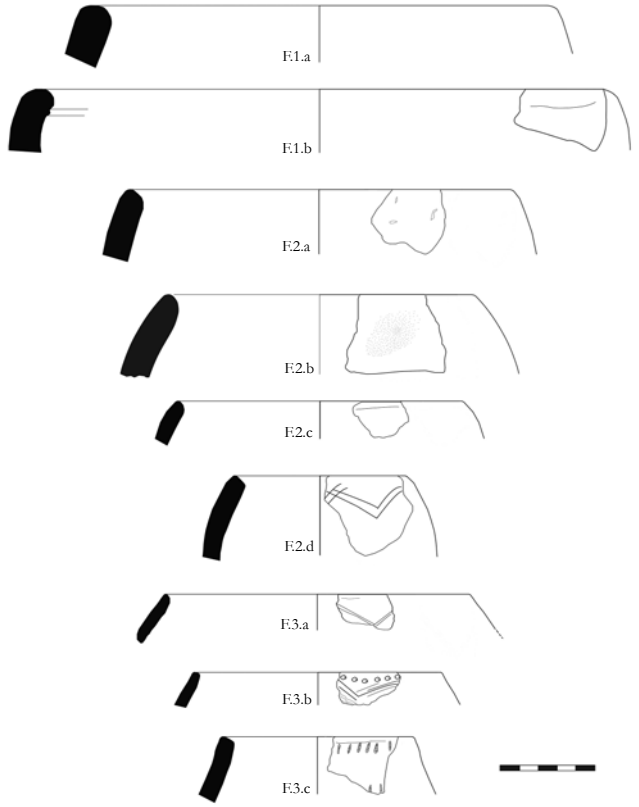

Figure 7. Restricted vessels (scale 1:4).

F.1 is characterized by globular bowls with a diameter between 230mm and 250mm and an average wall thickness of 15mm to 20mm.

The fabric of this type is extremely compact, with mineral sub-angular inclusions between 0.5mm and 1mm and high density. Surfaces are slipped, reddish-brown colour, the core of the freshly broken fracture is grey. There is no decoration.

F.2 includes globular bowls with a slightly angular rim. The diameter is between 90mm and 200mm and the average wall thickness of the rim ranges from 10mm to 17mm. The fabric is very compact, with mineral inclusions of a sub-angular shape varying from 1mm to 0.25mm. Sometimes, vegetal impressions are present. Surfaces are smoothed. The colour of the surfaces is brownish-red, the core of the freshly broken fracture is grey. Reduced firing is frequent, which gives a blackish surface, the colour is patchy. The decoration, if present, is made up of patterns with incised lines.

F.3 Small vessels with diameters between 100m and 160mm and wall thicknesses between 0.6mm and 10mm. The fabric is compact, with medium to fine inclusions (0.5-0.25mm) of sub-angular shape at medium density. The surfaces are smoothed; colour is brown, with a grey core of the freshly broken fracture. The decoration is incised or impressed, with motifs of parallel lines in geometric patterns and dots or ovals impressed.

Restricted bowls with thickened rim

This class (Figure 8) includes restricted vessels with thickened rim. Two different types can be recognized: thin-walled bowls with decoration (G.1) and larger undecorated bowls (G.2). Each type has some variants.

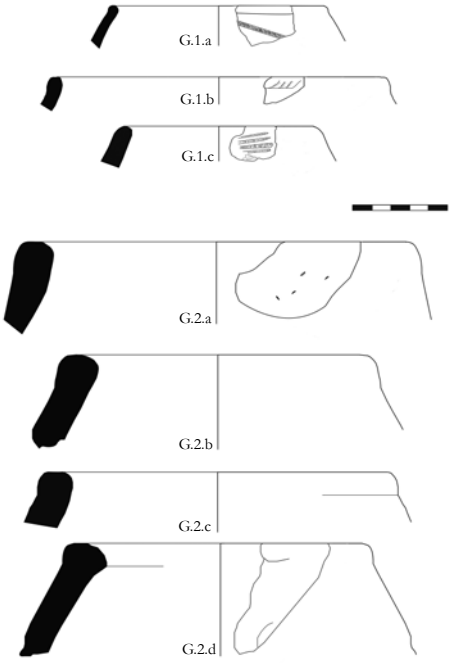

Figure 8. Restricted bowls with thickened rims (scale 1:4).

G.1 Bowls with a diameter between 100mm and 170mm, the average thickness of the rims is 8-10mm. The fabric is very compact, with high-density minerals including some of sub-angular shape and between 0.25mm and 0.5mm in size. Surface is slipped, the surfaces are reddish-brown, the core of the freshly broken fracture is grey-brown. The decoration is impressed, with linear or scratched motifs, on the walls of the vessel or incised on the thicker part of the rim.

G.2 includes bowls with a thickened rim. The diameter ranges from 150mm to 200mm, the average wall thickness is between 16mm and 22mm. The fabric is extremely compact, with high-density inclusions, medium in size between 0.5mm and 2mm. There are also large pores up to 5mm and visible vegetal or seed impressions. Surfaces are slipped, often eroded. The surface colour ranges from brown to reddish-brown, the core of the freshly broken fracture is grey. There is no decoration.

Bag-shaped vessel

The class of so-called bag-shaped vessels (Figure 9) includes restricted forms, similar to flasks, handled or not, with oblique sloping walls.

There are two main types; handled vessels (H.1) or vessels without handle (H.2).

H.1 Handled vessels can vary greatly in size, although their other main characteristics are the same. They have a variable diameter, between 120mm and 250mm, and the average wall

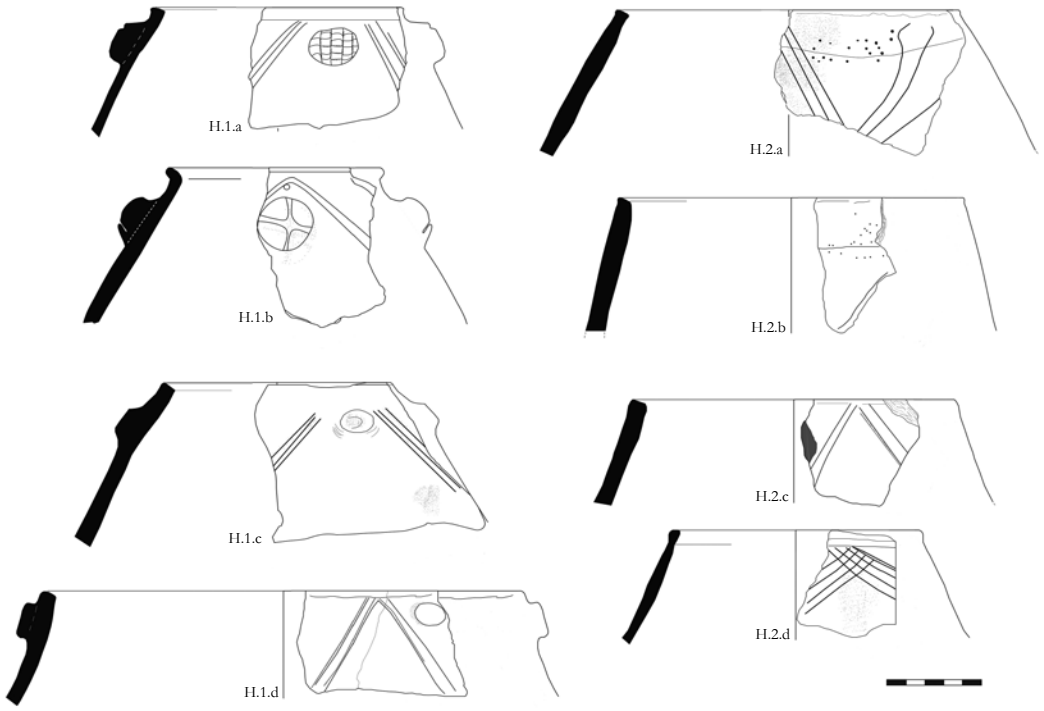

Figure 9. Bag-shaped vessels (scale 1:4).

thickness is about 4-8mm. The variants within the type were defined on the basis of the differences in the type of rim, which may be everted, slightly thickened, diagonal, and the types of grip, which may or may not be incised. The fabric is very compact with sub-rounded and high density mineral inclusions of various sizes, between 0.5mm and 0.125mm; mica is present. Surfaces are smoothed; the surface colour is brownish-red, with a grey core of the freshly broken fracture. The decoration is always incised: deeply on the handles, in grid or cruciform patterns, the walls are decorated with incised parallel lines in a triangular geometric pattern, whose vertex points towards the rim.

H.2 Vessels without handles have a diameter between 130mm and 190mm and an average wall thickness of 9mm and 11mm. The fabric is quite compact and similar to the first type, with very dense mineral inclusions whose sizes range between 0.5mm and 0.125mm. Surfaces are rarely slipped. The surface colour varies from brown to reddish-brown. The decoration is incised with motifs of lines that sometimes cross, with or without a decoration of impressed dots.

Bowls with grips

This class groups all the vessels (Figure 10) that have an ovoid or round section and straight walls. The diameters are between 80mm and 120mm, the average thickness of the rims is about 8mm. There are two types within the class: the first includes unrestricted handled pots (I.1), the second includes the smallest handled pots (I.2).

I.1 The vessels have small pinched grips just below the rim. The variants within the group were identified on the basis of the shape of the rim. The fabric is very compact, with medium to high density of mineral inclusions, sub-angular in shape and whose sizes range between 1mm and 0.25mm.

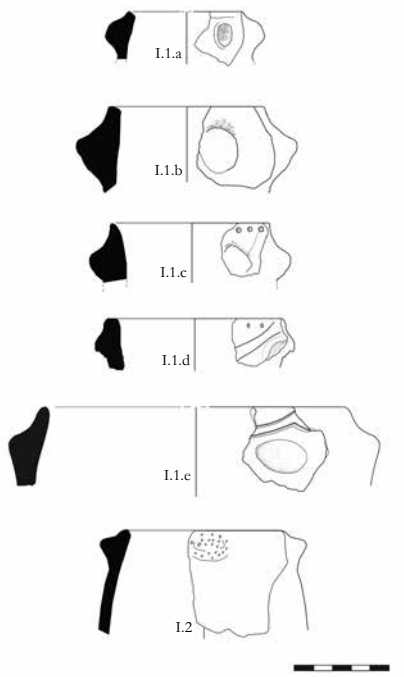

Figure 10. Bowls with grips (scale 1:4).

The surfaces are slipped, reddish-brown or grey colour, depending on the firing conditions. The core of the freshly broken fracture is always grey. Typical decoration consists of incised or impressed lines, sometimes both techniques being combined. The decoration is concentrated on the walls or on the area just below the rim.

I.2 Handled pots with curved and thinner walls. The diameter is about 80mm and the wall thickness is 6mm. The pinched grips are directly below the rim. The fabric is friable, with sub-angular mineral inclusions and vegetal inclusions, 1mm to 0.25mm in size. Surface is slipped, the external surface colour is orange, the core of the freshly broken fracture and

the internal surface are grey. The decoration consists of a series of impressed dots on the handles.

Unrestricted handled bowls

This ceramic class (Figure 11) includes pottery probably used for cooking food. These are unrestricted vessels, with horizontal handles and smocked spots on the external surface, caused by fire.

There are two main types: the first with horizontal handles placed perpendicularly on the straight walls (L.1), the second type with diagonally positioned handles, on the globular walls (L.2).

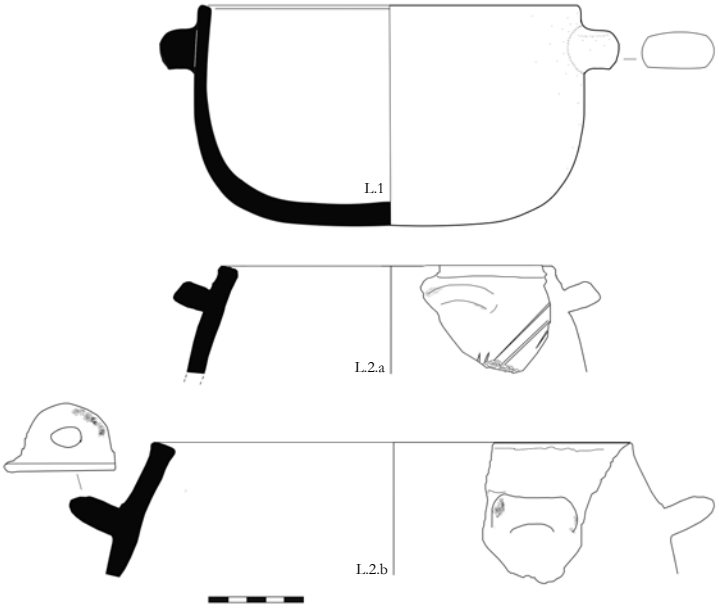

Figure 11. Unrestricted handled bowls (scale 1:4).

L.1 All large pots, with straight walls and horizontal handles with a round section. The diameter varies from 180mm to 200mm, the thickness of the rim/wall is 8-10mm. The fabric is very compact, with dense mineral inclusions, sub-angular in shape and whose size ranges between 0.5 and 1mm. Surfaces are smoothed, the colour is light brown, the core of the freshly broken fracture is grey. There is no decoration.

L.2 Globular-shaped vessels, some with traces of fire. The handles are positioned diagonally on the walls. The diameter ranges from 170mm to 250mm and the thickness of the rim is between 9mm and 12mm. The fabric is very compact, with a high density of mineral inclusions, angular and sub-angular; there are no vegetal inclusions. The size of the inclusions is about 0.5-0.25mm. Surfaces are slipped. The colour ranges from orange to reddish-orange. The core of the freshly broken fracture is grey. The decoration, where present, consists of simple incised lines on the walls of the vessel.

Vertical-walled vessels

This class includes pots (Figure 12) for which the profile cannot be fully reconstructed, but have vertical walls and slightly folded rims. The diameter, which varies greatly, can range from 80mm to 230mm and the average wall thickness is between 8mm and 10mm. These vessels have variants, determined by the size and type of rims. The fabric is always very compact with medium or high density of inclusions.

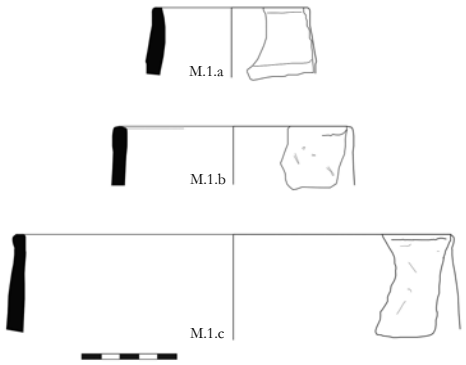

Figure 12. Vertical-walled vessels (scale 1:4).

Among the mineral inclusions there is mica and pores are visible in cross section. Vegetal impressions can be found on the surface as well as in cross section. The surfaces are burnished, sometimes also characterized by slip on the external surface. There is no decoration.

Handles-grips

This class includes all types of handles or grips that for the moment cannot be related to the previous classes (Figure 13).

Differences in fabric or surface treatments are not examined for this category. The types are based on shape, and they may occur in different ceramic classes.

N.1 Pinched horizontal handles, triangular cross section. Impressed decoration.

N.2 Button grips, rounded cross section. Incised decoration forming cruciform or grid patterns.

N.3 Button grips, rounded cross section, slightly elongated. No decoration.

N.4 Vertical handles, ovoid cross section.

N.5 Horizontal 'ear'-shaped handle. No decoration.

N.6 Elongated handles, ovoid cross section. Impressed decoration.

N.7 Vertical pinched grips, central hole, 'nose'-shaped.

Atypical forms

This class includes (Figure 14) all shapes and types that cannot be placed in other categories. For these objects we have just one example for each type.

O.1 A strainer or filter, probably associated with a liquid container of 20mm in diameter and 10mm thick. The fabric is very compact with medium-sized mineral inclusions (about 0.5mm), sub-angular in shape. There is no decoration. Surfaces are slipped. The colour of the surface is brownish-red with a grey core of the freshly broken fracture.

O.2 A perforated, irregularly-shaped ceramic disk. The diameter is 90mm, with a wall thickness of about 35mm.

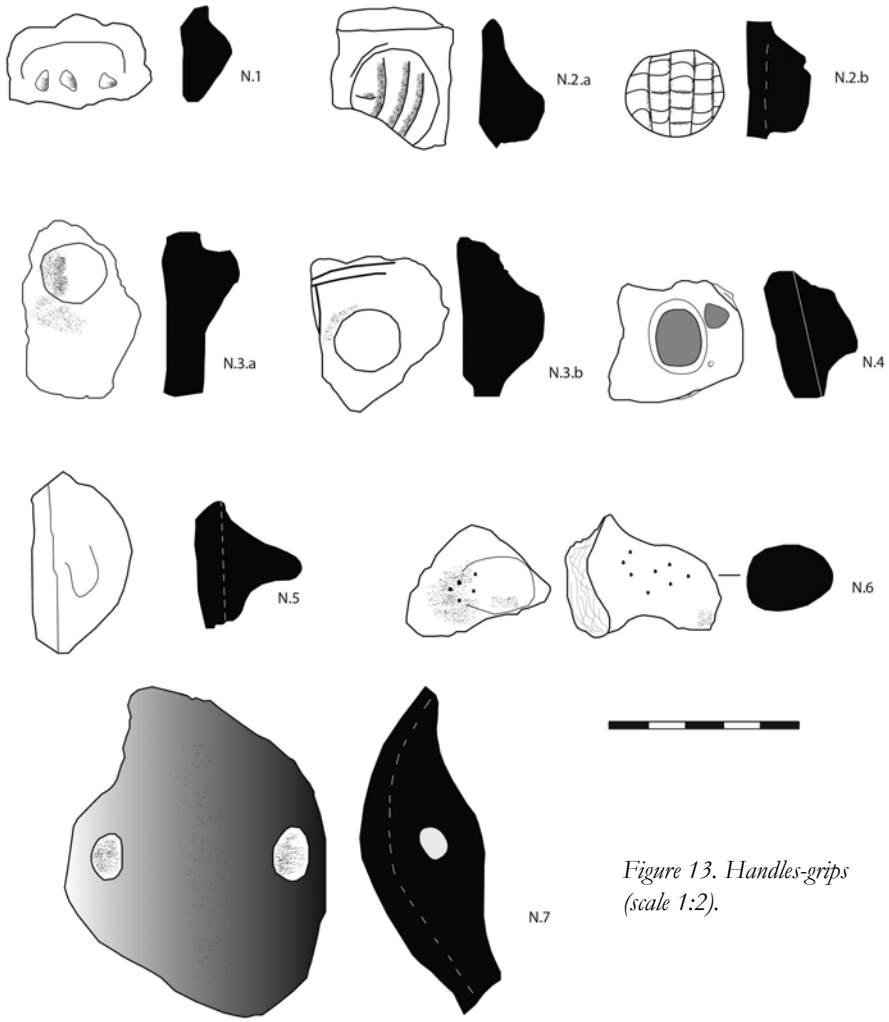

Figure 13. Handles-grips (scale 1:2).

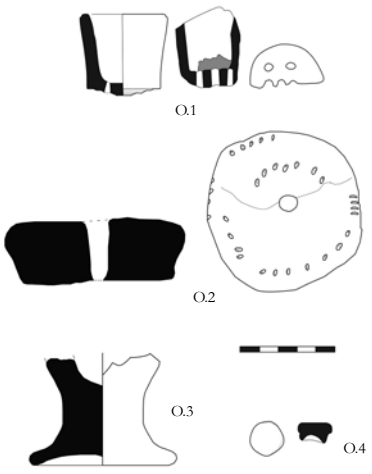

Figure 14. Atypical forms (scale 1:4).

The fabric is extremely compact and hard, and includes only mineral inclusions, of medium size and high density. The surface is slipped, the colour is brownish-red. The decoration is impressed.

O.3 A ring foot, perhaps the foot of a goblet. The body is missing. The diameter of the base is about 70mm, the wall thickness of about 11mm, and is preserved to a height of about 54mm.

The fabric is extremely hard and compact, including mid-sized (0.5mm), mineral angular inclusions. Surface is slipped, which gives the surfaces a brownish-red colour. There is no decoration.

O.4 A lid with a diameter of 20mm and wall thickness of approximately 11mm. The fabric is compact, with medium density of mineral inclusions. The surface is slipped and the external colour is brown.

Final remarks

In an archaeological context, it is not always easy to analyse the functions of a vessel. The relationship between morphology, use and technology of a vessel can be investigated through various sources: ethnographic, archaeological and production technology. Accordingly, it can be suggested, for example, that cooking pots have a wide mouth, those used for long-distance transportation tend to be larger than those for local transportation and that pottery used for cooking is larger than that used for food delivery.

When it is not possible to make an ethnographic comparison, the function can be hypothesized on the basis of the shape and size, as well as, wherever possible, on the context of the discovery (Rice 2006, 210-211). The relationship between form and function, or between morphology and the functional role of the object, has to respond to the needs for which it was created. In some cases, the shapes immediately reveal the function of the artefact. However, sometimes it is possible that shape may not be indicative of function and in those cases it is common practice to utilise more generic categories (Rice 2006, 212). Weight, thickness and size are fundamental attributes, the variations of which correspond to the different requirements of transportability, for example, in the case of smaller and lighter vessels, or thermal shock resistance in the case of cooking vessels. In particular for the study of nomadic cultures, pottery can reveal the lifestyle of the people who had produced it. A ceramic artefact is the result of decisions made regarding its shape and its use, and these do not necessarily have the same influence on the final product.

In the case of the Gergaf Group, some intriguing remarks emerge from the study of the pottery assemblage. For example, the presence of strainers or small colanders may suggest that people of the Gergaf Group were engaged in milk production and processing, so typical of a population who practise breeding. Milk processing allows nomadic people to trade and exchange goods with farmers (Sadr 1991, 13-24).

In addition, the small average dimension of the Gergaf Group pots seems to answer to the needs of mobile people. Nomads usually prefer to have pots smaller and lighter, in order to make their transport easier (Bradley 1992, 32-33). Likewise, the necessity for portability of vessels has probably influenced the increasing occurrence of grips and handles, previously very rare in the ceramic products of the region, together with the presence of holes on the pot walls, for hanging them. The absence of large pots suitable for the storage of liquids suggests that for that purpose skin containers, such as *qirba*, lighter and less fragile than ceramic pots, were used. This type of container can be readily carried, making the mobile lifestyle of the Gergaf Group people easier. Vessels with a very low average thickness of the walls can also be considered as typical of nomadic production. This characteristic, in fact, makes the production of pottery faster, together with the addition of vegetal temper in the fabric. Unfortunately at present we do not have specific information about pottery production of this population because of the lack, until now, of recorded production workshops of the Gergaf Group.

All of this information seem to confirm that Gergaf Group people practised a mobile lifestyle, but with a large use of pottery in their daily routine. Thus, this ceramic production seems to fit well into the framework of an economy based on breeding, mobility and probably on the exchange and interaction with agriculturalists. The study of the Gergaf pottery is still ongoing, and the typology will undoubtedly be expanded with new shapes and variants. Further research will certainly expand our knowledge about this hitherto overlooked culture of Eastern Sudan.

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