

The Production Area at Mersa/Wadi Gawasis: Evidence for Multiple Craft Activities

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A large production area with remains of many intense and differentiated activities was identified at Mersa/Wadi Gawasis at the base of the western slope of the southern terrace.¹ This area was characterized by many accumulations of vessel sherds, mixed with numerous clusters of bread molds and wide areas of charcoal and ash. The principal goal of the investigations was to understand more accurately the crafts performed at the site and the resources exploited. A second goal was to gain insights into the organization, duration, and logistics of the seafaring expeditions from this site through the study of the extent and functional characteristics of this area at the site.

The interpretation of this large production area is partially compromised by four important environmental factors: a) corrosion and collapse of the coral rock in the upper terrace that carried down massive rocks, sand, and archaeological materials, which then piled up on the slope area; b) wind erosion that strongly affected the down slope area in the southern lower part; c) formation of poorly understood, crusts and nodules of salt and gypsum that compacted archaeological remains at different levels in the stratigraphy; and d) the nature of the sand deposits, which are loose, evenly colored, difficult to distinguish among different strata/living surfaces.²

Excavations confirmed that this area was intensively used for production activities. Although some initial evidence suggested metallurgical activities, such as long pipe-like ceramics initially thought to be tuyères, several characteristics of the artifacts themselves and findings during the excavations did

not support this interpretation. Instead, evidence of local pottery production, as well evidence of brewing and bread-making, opened new avenues of investigation concerning manufacturing techniques, organization of the production areas, and logistical and social aspects of crafts at Mersa/Wadi Gawasis.

Stratigraphic characteristics and fire-related structures

The archaeological deposit at WG 19 is a thick and dense stratification of thin layers and features that represent alternating episodes of use of the area over a significant span of time. Concentrations of fire pits, post-holes, and dumps of discard have been found all over the area (see the general map in Fig. 1).³ The pottery evidence from the excavation area so far points to a substantial occupation during the second half of the Middle Kingdom. There is also some evidence of a Late Middle Kingdom/Thirteenth Dynasty occupation in the upper strata, and a possible occupation in the first half of the Middle Kingdom in the lowest strata.

Ceramic Finds and Chronology

Two main chronological periods have been recognized at this unit. The earlier phase, in the lowest levels (Phase 5 in Fig. 2), is ascribed to the Early Middle Kingdom, primarily based on large-sized, restricted necked jars, the “bag-shaped” jars very common in the Early Middle Kingdom.⁴ The later phase of occupation, in the highest levels (Phases 1–4 in Fig. 2), dates to the Late Middle Kingdom, Late Twelfth/Thirteenth Dynasties.

The attribution is based mainly on the massive presence of ovoid/globular jars with corrugated necks (common shapes during the late Twelfth/Thirteenth Dynasties) (Pottery types most common found at the site are shown in Fig. 3).

Pottery types characteristic of the lowest layers at this unit are: Nile C open dishes with direct or slightly everted rims that are frequently decorated with rows of rope impression, and Marl A23 closed bowls with everted rims that have a circular section. Similar pottery types date from the end of the Old Kingdom to the beginning of the Twelfth Dynasty.⁵

Pottery types found in both the lowest and highest layers are: Marl A23 ovoid-globular, medium size jars with restricted neck and slightly everted rim (typical shape of the Middle Kingdom and also frequent at the beginning of the New Kingdom)⁶; and Nile B1 open bowls or cups with direct or slightly everted rim that date from the Middle Kingdom to early New Kingdom.⁷

Pottery types characteristic of the more recent layers of this unit are: large size jars with direct short neck and flat lip that is common from the Late Middle Kingdom to the beginning of the New Kingdom;⁸ Marl C jars with an everted rounded rim that was a common type in the mid-Twelfth Dynasty – early Thirteenth Dynasty⁹; and large sized, round bottomed jars that dated from Senusret I to the Thirteenth Dynasty.¹⁰

Three different sizes of bread molds have been identified at Mersa Gawasis (Fig. 4). The predominant size is approximately 27–30 cm long, although a complete object has not been found. Its external rim diameter at the widest end is 7.0–7.5 cm, while its external diameter at the narrower end is 4.5–5.0 cm and has a very small opening that averages 10 mm in diameter. The smaller sized bread mold, a few in number and found mostly in WG 19, has an external

diameter at the narrow end rim of 3.5–3.8 cm and a tiny air hole of 0.2–0.6 cm. The length and diameter at the wide end of this type is not yet known. The larger sized bread mold, only a few in number and found in test trenches to the south of WG 19 as well as WG 24 and WG 26, have external base diameters of approximately 6.0–6.5 cm at the narrow end. The rim at the wide end has an average external diameter of 8.0–8.5 cm. The overall length of this type is at least 27–30 cm. All of these bread molds are tempered with vegetal material to make the clay body porous. Most interestingly, the interior shaft of all three types is carefully lined with a one-millimeter thick slip of fine grained clay, most likely to facilitate removal of the baked bread in order to reuse the mold.

Apparently, there is no chronological distinction between these types, although further analysis will confirm this observation. However, according to the preliminary typology of ancient Egyptian bread molds¹¹ and reports on ancient Egyptian bread making¹², all bread molds found at the site so far are dated to the Middle Kingdom. In particular, the objects found at Mersa Gawasis largely conformed to Jacquet-Gordon's Type C, No. 9, that were excavated at Kuban.¹³ The walls of this bread mold type flare slightly at both the wide and narrow ends, and have an air opening at the narrow end, which are standard characteristics of the objects found at Mersa Gawasis. We also noted that, although Middle Kingdom bread molds are standardized in comparison to Old Kingdom¹⁴, there is quite a bit of variation in particular features, such as the presence or absence of an air opening, dimensions, and flaring walls.

Indicators of craft activities

Archaeological evidence shows that there is considerable variation in the craft activities at Mersa Gawasis through time. Favorable circumstances of the region, such as water from the Wadi and the presence

of local sources of clay and temper, might have played a role in the selection of the area as a major place for long trading expeditions. The intensive use of the production area best explains its unique position. This area was specifically situated to take advantage of the prevailing northerly winds that were funneled down the gullies, most likely to facilitate hotter kiln fires. The evidence is starting to point to some general patterns of production activity.

It is worth highlighting here the presence of a considerable number of pottery objects other than the vessels described above. Pottery scrapers were found during the 2005/2006 season, over 70% of which were found in the WG 19 area. These tools were classified into four main shape categories: 1) triangles with rounded top (Fig. 5a); 2) blade-shaped with flat bottom and rounded top, frequently with s-shaped edges (Fig. 5b); 3) half-moon-shaped (Fig. 5c); and 4) squares (Fig. 5d).

These pottery tools were produced with the same technology as for lithic objects. They were first roughly shaped and then “retouched” to the more suitable shape. Many of them had smooth and sharpened edges from use. It is interesting to look at the distribution map of these pottery tools (Fig. 6) on which the dark grey areas represent concentrations of scrapers. Area 1 was characterized by blade shaped scrapers with traces of use. Area 2 had unfinished scrapers, while Area 3 contained a high concentration of scrapers of all shapes, both unfinished and smoothed from use. The small Area 4 yielded a blade shaped scraper with traces of use, and a couple of unfinished scrapers were found in Area 5.

Two interesting observations can be realized from this map. The first is the separation between the “tools” area and the firing area. In fact, the main concentrations of the scraper tools are in the eastern half of the area, while the main fire structures are

concentrated in the western sector. Furthermore, the tools were found spread on living surfaces in a relatively clean area. The second observation is the lack of specialization in the activity areas connected with these tools. Areas 1, 2, and 3 yielded a mixed collection of different types of scrapers, both unfinished and smoothed by use, which clearly indicates they were produced here and also used here. These pieces may have had a great variety of functions, such as playing an important role in pottery making to smooth out the clay surfaces, and domestic activities involving the preparation of food. It is possible that these scrapers were also involved in woodworking (Cheryl Ward, *pers. comm.*), but so far no archaeological evidence supports this interpretation.

Evidence for metalworking

Metallurgical activities are usually associated with tuyères, bellows (manual or mechanical devices developed to push the air through the tuyère pipe into the fire of an enclosed furnace), smelting residues such as slag, and other features depending on the phase of the metallurgical operation. No clear evidence of this kind has been found at the production area at Mersa/Wadi Gawasis. Ceramic objects used in copper smelting are expected to have the exterior clay reduced or vitrified (glassy texture) from the heat and atmosphere of the furnace fire, and sometimes encrusted with slag. Although many of the sherds analyzed were reduced, none showed signs of vitrification or slagging. Slag, the waste product of smelting ore, or pieces of crucibles or molds have never been found in the excavations. Only a relatively small number of small pieces of copper had been recovered from the site, mostly flat straps or bands with standardized widths of either 1.5 cm or 2.0 cm that were found associated with sailing ship planks.

It should be noted that there is a small amount of evidence for some copper working, most likely minor

repair work of tools and objects used at Mersa/Wadi Gawasis. In particular, a piece of sandstone with clear abrasion or filing marks on one side was found in SU30. It may have been used to sharpen copper tools or to shape the edges of pieces of pottery.

Evidence for pottery manufacture

Unfortunately, specialized pottery-making activity areas, other than kilns or firing areas, are rarely recognized at archaeological sites. These are more easily recognized in contexts where “specific” structures are expected to be found based on contemporary and/or regional comparisons.¹⁵ In peripheral and “seasonal” sites such as Mersa/Wadi Gawasis, the practice of employing unsophisticated firing technology must be considered reasonable and not surprising. The criteria most frequently used to recognize potting workshops are the presence of pottery-making tools, raw materials (clays, tempers, and pigments), areas to prepare materials, and evidence of firing. The latter may include kiln features, furniture such as simple sherds used to protect the vessels during firing and to improve air circulation, and the effects of firing on the surrounding soil.¹⁶

A pottery production area is often composed of smaller, specialized activity areas devoted to the processing and storage of raw materials, modeling, drying, and firing new vessels, and storing newly-fired vessels. The specialized activity areas are proportional to the amount of production. Also, disposal areas for production waste may be located within this area. The natural environment, in terms of the availability of raw materials (clay, tempers, water, and fuel) has important implications for the ceramic production activities. The raw materials available influence the kinds of vessels that were manufactured and might have restricted both the types of products made and the manufacturing techniques used. A very provisional survey in the area revealed the presence

of some clay deposits within a few kilometer radius of the site. The close vicinity of water from the Wadi and prevailing winds may also have been major reasons for the location of the WG 19 production area. These basic pieces of evidence for pottery production are all recognized at the Mersa Gawasis production area, particularly the fire structures belonging to Group 2 and Group 3 (Table 1).

To date, one piece of evidence is incontrovertible for pottery firing, the partially fired platter found *in situ* in fire pit SU49 (Fig. 7; SU 49 belongs to Group 2 described in Table 1), most likely a firing loss. SU49 is a shallow, circular fire pit about 60 cm in diameter. It has a medium thick layer of burnt, reddened soil at its base, which provides evidence of possible repeated use. If the unfired-platter fragment was not found *in situ*, it would have been difficult to identify the fire pit as a firing place for pottery manufacture. The interpretation of all Group 2 fire pits as locations to fire platters is still speculative, but very likely. Also, the general characteristics of fire pits SU50, SU58, and SU66, all in Group 3 (see the above classification in Table 1 and Fig. 8) provide convincing evidence of pottery firing.

This is also true of SU58 and SU66 (Fire pit Group 3). The use of large sherds is common to many modern pottery manufacturing contexts all over Africa. As referred by Kramer, old, broken pottery sherds are arranged around and mixed with the covering fuel in open air fire pits “... to cover leather-hard pots arranged in preparation for a bonfire.”¹⁷ It is hard to assess what kind of pottery could be fired in this type of fire pits, but it must be noted that large pieces of bread molds were found at the bottom of SU 50 (Fig. 8).

It is likely that the different ceramic materials made at the site were bread molds, platters, open, wide dishes, and bricks. All of these have the same

general characteristics: a light tan/brown, medium-grain clay rich in coarse straw temper that fires to a light brown/orange color. Vessels produced at the site are primarily utilitarian ware with an emphasis on cooking containers. Macroscopic analysis of the fabrics indicates that it was intentionally enriched in organic matter, mostly coarse straw. This material is favored for cooking pots because the pores that are created after burning away the organic matter help crack arrests created by thermal shock during the firing.

Given the evidence pieced together to date, it is possible to provide a tentative reconstruction of how the tapered bread molds were manufactured and used in bread making. Local clays were used to make these molds and to produce the fine-grained slip used to line the interior shaft. The main body clay of the molds was tempered with plant organic materials and shaped around a tapered dowel. The exterior wall of the narrow end was slightly flared, perhaps to create a little more surface area for the mold base to stand upright, either during firing of the mold and/or during bread baking. The narrow end surface was probably solid with no air opening. The clay was dried to a leather hard state during which it had shrunk sufficiently to pull out the dowel. A fluid suspension of clay was poured into the mold up to the top of the wide end and carefully and quickly rotated to maximize even distribution of the slip as it was quickly absorbed into and adhered to the vessel wall.¹⁸ Once a one or so millimeter slip coat was created, the remainder of the clay suspension was poured out of the vessel. Very soon thereafter, the small air opening was poked through at the narrow end from inside the mold, often leaving a slight ridge around the rim of the opening. After the lined bread mold was completely dried, it was fired to a low temperature. This probably occurred in an open fire covered with local woods and bush as fuel. Notably, the same wood

used for ship parts has been identified in some of the fire pits excavated in WG 19 and wood from broken cargo boxes also could have been employed as fuel.

Furthermore, a mound of compact, organic-textured clay silt was found in the south–west corner of the area, and small lumps of clay were also found to the north nearby a concentration of fire pits (see the circular light grey areas bounded by dashed lines in Fig. 4). Near the mound deposit, lying on the same living surface, a small lithic workshop, including flakes, a flint core, and small flakes and debris from the same core, was found suggestive of another craft activity in this area. It is possible that the clay could have been used to make the molds and/or other types of ceramics. Petrographic and chemical analysis of this clay body should be carried out to determine its inclusions and elemental composition, then compared to the clay deposits discovered nearby the site.

Evidence for brewing and bread making

Archaeological evidence for bread making and brewing at the production area are mainly supported by the characteristics of some fire pits and associated pottery, the bread molds, and the presence of concentrations of crop seeds. Samuel observes that “Excavations at Middle Kingdom Abu Ghalib uncovered ovens, elongated conical molds and platters in close association ... Larsen discusses the possible baking methods used at this installation, proposing that only bread in molds was intended for beer and thus was only partially baked, while the platters were lids for covering the oven”.¹⁹

The association between different pottery types and the groups of fire pits identified in Table 1 show that all pottery types associated with brewing and bread making are found in this production area. The pottery types included in the graph of Figure 9 (on the Y axis) are: (A) Platters; (B) Large size wide mouthed jars; (C) Medium size bottles; (D) Medium

size unrestricted bowls; (E) Small unrestricted bowls; (F), Unidentified; and (G) Bread molds. The percentage of Type (B) (large size wide mouth jars) is always very high (about the 40% of pottery in Group 2 and Group 4 fire pits). The high peak corresponding to Group 3 is due to the presence of many sherds that originally lined the base of the fire pits in this group.

Group 2 fire pits are mainly characterized by a predominance of large size wide mouthed jars (B), some unidentified bowls (A) and platters (F), and a quantity of medium size bottles (C) and small unrestricted bowls. Fire pits of Group 4 have a predominance of bread molds (G) and large size wide mouth jars (B), while platters and medium size unrestricted bowls are also frequent. Minor quantities of platters and medium size unrestricted bowls characterize Group 3 fire pits, along with the few, big pieces of bread molds found at their base (Fig. 8).

The evidence provided in Figure 9 seems to indicate different functions of the groups of fire pits, although not all of them can be safely interpreted at this time. The wide mouthed jars are spread all over the area and might have been used for storing many kinds of goods or materials. It is also very likely that they were used as vats for the infusion of the beer ingredient and to brew beer. The association of jars with many bread molds in the Group 4 fire pits seems to be the most indicative of bread making and brewing. The assemblage from Group 2 seems to be less indicative of specific activities. Finally, the Group 3 fire pits, based on their construction characteristics, were absolutely excluded from any activities related to producing food or beer.

The fire pits in Group 4 (Table 1) are very large (160–190 cm long) and roughly circular or square. SU75 is particularly interesting because it consists of a line of “bricks” and a big fragment of platter aligned down the center of this fire pit. This line of materials,

concreted with salt that impeded observations, had at least four bricks. The eastern half of the structure included a semicircular fire pit that extended around the line of brick and was filled with ash, charcoal, and some pottery. The western half seemed to have a different use, since there was no evidence of fire. The bottom layer was soft sand rich in straw, burned seeds (wheat grains?), and tiny pieces of charcoal. All of this evidence suggests that the central line of bricks could have been a stand for a superstructure.

It is worth noting here some ancient evidence with a strong similarity to the structures at Mersa/Wadi Gawasis. The Predynastic brewery at the site Hk24a at Hierakonpolis incorporated a number of coarse ceramic vats in two parallel rows, set within a mud platform.²⁰ It was probably originally covered with an *ad hoc* superstructure to contain heat so the infusion of ingredients in the vat was maintained at a warm temperature. The SU75 structure at the production area may be interpreted as a similar structure (possibly associated with others still unexcavated) where the vat itself (the western half of the fire pit) was kept at a warm temperature next to the “heat chamber” (the eastern half) and probably covered by a superstructure supported by the line of bricks in the middle. Of course this interpretation is still speculative, but, together with evidence from the pottery types distribution, it offers an interpretation through existing evidence that otherwise remains largely unexplained.

Organic tempers of the bread molds found unfired provide some interesting clues as well. Examination of bread mold sections with a small magnifying glass showed organics, such as wheat chaff, that was discarded during the process of making bread and/or beer. A similar material was found in large quantities scattered in SUs 71 and 75, where large concentrations of bread molds were found. More careful examination using a field microscope strongly indicates that the

organics processed in this area were emmer wheat and barley.

The second finding was that several bread molds of the large size had two, possibly three, layers of slip. This suggests that some of the molds were reused and possibly slipped again after use. The slip covered the entire inner surface of the pipe extending, in some cases, up to and over the exterior wall rim at the wide end. It probably acted like a non-stick surface to prevent the bread dough from adhering to the mold wall and to make it easier to slide out after baking. Since the baked bread was shaped as tapered sticks, they could have stuck to the porous outer clay without the slip. Possible evidence that the bread may have eventually stuck to the mold even with the slip is that most of the wide ends of the bread molds were broken. Only about ten percent of all the intact ends analyzed were from the wide end. Without experimental work to reconstruct the process of making bread in these types of molds, it is unknown whether or not the mold was regularly reused until one loaf stuck to the mold wall or only used once. If the latter, considerably more work must have gone into making the bread mold than an individual loaf of bread.

A few notes on the platters found at the site are also appropriate here. Large pieces of circular platters about 30–40 cm in diameter and with a very thick, deeply grooved rim have been found scattered over the area. They are roughly made locally, most probably with the same clay body used for the bread molds. Remnants of these vessels are common throughout all Pharaonic periods with little apparent change. The use of these platters as platforms for making bread can be seen in the tomb reliefs of Antefiqer at Thebes.²¹ Platters have never been systematically studied. As cited in Samuel, “The main reason that platters have been associated with ancient bread making is the parallel with modern-day Egyptian vessels used for making *‘ish shams*, or sun bread ...”

Samuel’s description continues by describing how modern villagers bake bread. Of particular interest is that Samuel describes the dough being placed on unfired platters and both the platter and bread bake together in the oven. This evidence, if reliable, can partly modify the interpretation of the fireplace SU49 described above and included as evidence for pottery production. A small series of ovens made of half pieces of these platters were found on the hill slope above the production area (only one was found complete).²² These ovens were interpreted as bread ovens, but the use of the half platters in the walls of these structures may be interpreted as a reuse of broken platters.

Conclusions

It is difficult, at this time, to infer about the extent of the production area and the level of specialization of the production activities. Environmental factors over time and repeated phases of intense use and abandonment in Ancient times caused the structures to be covered and quickly filled with sand, sherds, and debris. Open spaces around the fire pits also contained secondary trash deposits. These environmental and human reasons resulted in frequent mixing of the various activities that took place in the area and partial mixing of materials deposited in different phases. Fortunately, only the higher stratigraphic levels were heavily compromised by these factors. The lowest levels were better preserved, which made this study possible.

The evidence presented strongly suggests that this area was devoted to basic subsistence activities associated with an entire period of a seafaring expedition. These activities included producing various objects of terracotta, food production, minor tool repair or manufacture, and other activities for the camp. No important or prestigious products were produced or worked here. This “extemporary” character of the production activities also seems to

be confirmed by the total absence of elite products and any evidence of goods that could be linked to the expedition cargos. In contrast, direct and substantial evidence for administrative activities was found on the upper slope near the caves.²³

The evidence for pottery manufacture used in bread making and beer brewing is particularly compelling. The presence of wasted and fragments of unfired vessels indicate that pottery was produced at the site on a small scale. Types produced were simple, deep bowls, platters, bread molds, and probably large size jars, all used to prepare food and drink. Most of these utilitarian pottery types, except the bread molds, were formed using a slow wheel and then fired, as suggested above, in open-air bonfires. Open firing must have been found to be a satisfactory economic solution for non-industrial pottery production, since it did not require the investment needed to construct and maintain a kiln and was sufficient to provide useful, low-fired wares for cooking and storage at the camp. Notably, the majority of pottery found at this “outpost”, such as Marl ware big sized storage jars and open bowls, was imported from workshops connected with the central organization of the expeditions. Some of this pottery traveled with the trade goods to the final destination across the Red Sea, while some of it was used, broken, and re-used in various ways in the local craft activities at Mersa/Wadi Gawasis.

It is worth noting here a final activity that might have occurred at this site, the preparation of gypsum plaster. Some of the fire pits and associated trash dumps contained both large and small gypsum nodules. The soft texture of these nodules strongly indicates that they were purposely fired there and were not in a natural state upon excavation. The craftsperson who worked at the production area or other craftspersons may have fired gypsum to coat materials and objects, such as the cargo boxes found at WG32 near the entrances to the upslope caves.²⁴

The different locations and types of activities at the site start to provide clues about both the organization of labor linked to the expeditions, as well as the stages of production performed in this area. For example, the lithic tools and pottery scrapers could have been made by craftspersons proficient in working lithics, but who could also work with other materials “on demand”. Pottery objects, containers, molded terracotta bricks, and bread molds may have been formed by different craftspersons in other areas of the site, but fired here.

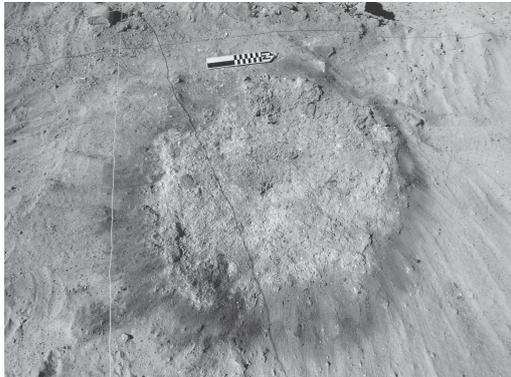
Furthermore, the association of diverse activities in the same general area should not be surprising. Reliefs in the Tomb of Ti, a high status official during the Fifth Dynasty, show scenes connected with the preparation of offerings for the tomb on the western wall of the storeroom. In these scenes, a number of people are engaged in pottery making, brewing beer, and making bread under the supervision of the responsible officials. According to Malek *et al.*²⁵, pottery making is included in this scene because it provides containers required for baking and brewing, and although the scenes are arranged in several registers, the overall impression is of production uniformity. In other words, pottery making, brewing, and bread making could be considered different stages of a whole labor process.

The fundamental role of bread and beer in ancient Egyptian society involved many dimensions, including nutrition at the most fundamental level, well as internal trade, rations, and ritual practices.²⁶ Baking methods, types of bread, and use of the bread molds are only a few of the things not yet fully understood. Although it seems certain that bread and beer were produced in the production area, there is lack of evidence for an important step of the process of both bread- and beer-making, the milling. No saddle querns, mortars, or grinding stones have been found to date in this area. Grinding stones of various

dimensions, however, have been found upslope in and at the entrance of Cave 1 in WG 28, together with high quality pottery and in apparent association with several other symbols of status.²⁷ These contextual relationships might suggest that strictly controlled access to granary resources and to some stages of food preparation was maintained at Mersa/Wadi Gawasis.

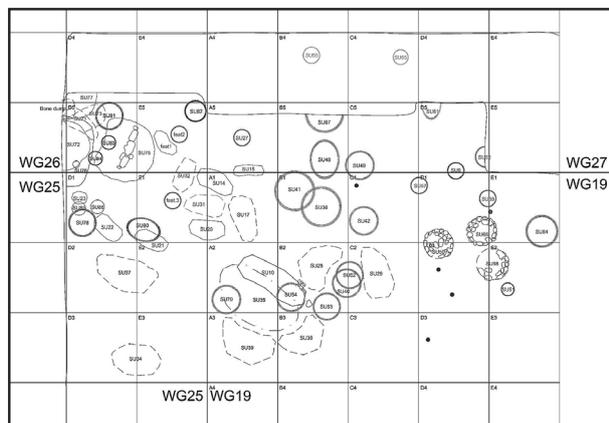
This chapter is a first step towards a “contextual” analysis based on comparing a variety of ceramic evidence

and organization of space. This perspective involved multiple scales of analysis, from the detailed study of pottery patterns in the individual fire pit structures and the associated residues and refuse deposits, to a broader examination of the pottery distribution throughout the site. Future work should yield further details about these craft activities, their organization, and their fundamental necessity to the seafaring expeditions that sailed from Mersa/Wadi Gawasis.

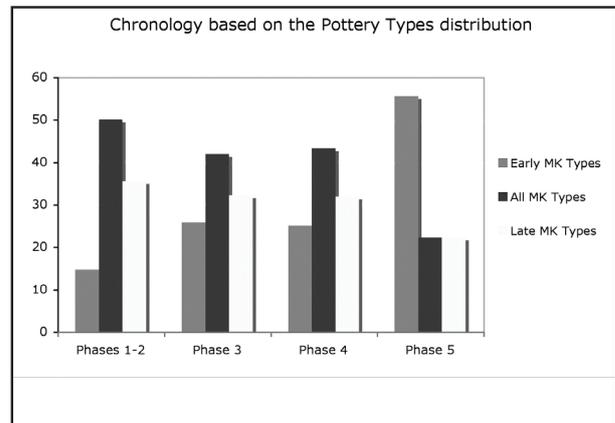
<p>Group 1. Small fire pits, roughly circular, shallow depressions. Frequently associated with food remains, small amounts of little chunks of charcoal, and a few potsherds. Average dimensions are: 25-30 cm diameter, 4-5 cm depth. Fire pits of this type are: SU51, SU55, SU57, SU59, SU61, SU62, SU65, SU83, and SU84.</p>	
<p>Group 2. Medium-sized, shallow, circular fire pits. Animal bones were found associated with one structure (SU81). A large fragment of an unfired platter was found <i>in situ</i> in SU49. Average dimensions are: 55-70 cm diameter, approximately 10-20 cm depth. Fire pits of this type are: SU42, SU49, SU52, SU53, SU54, SU64, SU67, SU70, SU78, SU81, SU82, Feature 2, and Feature 3.</p>	
<p>Group 3. Medium-sized, circular, and shallow fire pits lined with large pottery sherds. No association with food remains. Average dimensions are: 70 cm diameter, 25 cm depth. Fire pits of this type are: SU50, SU58, and SU66.</p>	

<p>Group 4. Large, shallow fire pits that are roughly ovoid or sub-quadrangular in shape with rounded edges. No clear association with food remains. Two seem to have protective barriers at their edge: concentrations of sherds, and lines of brick and platter pieces. Average dimensions are: 180 cm length, 160 cm width, and 20 cm depth. Fire pits of this type are: SU72, SU75, SU76, and SU77.</p>	
<p>Group 5. Medium and small, but deep fire pits that are roughly ovoid in shape. No noticeable association with food remains. Dimensions are greatly variable: 80–180 cm length: 40–100 cm width, and 35–50 cm depth. Fire pits of this type are: SU80 and SU81.</p>	

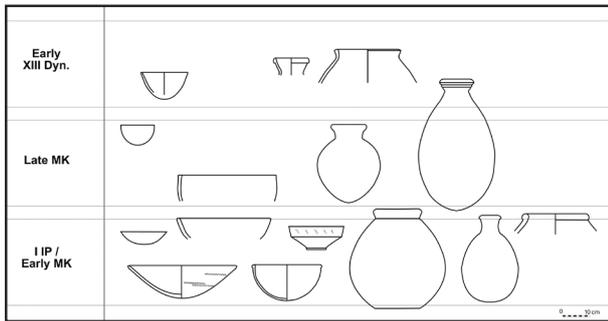
Table 1. Classification of the fire structures.



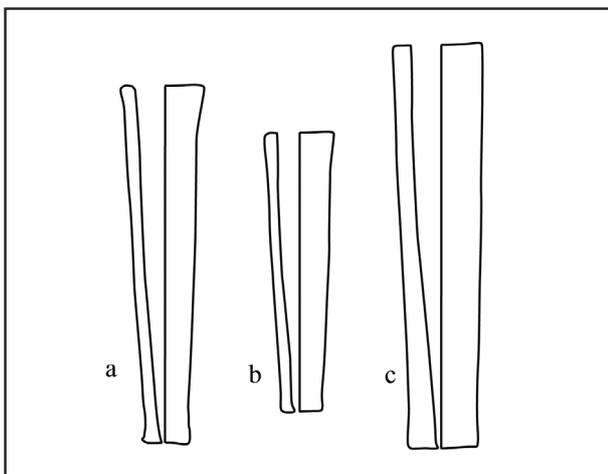
(Fig. 1) Production Area, General Map.



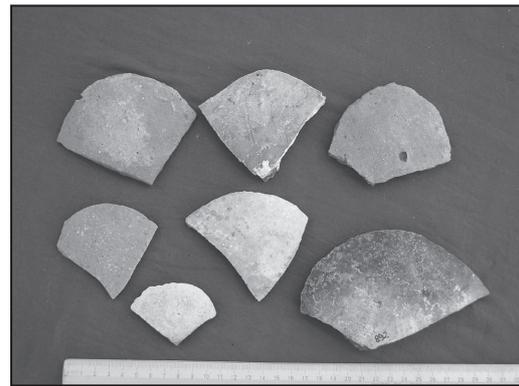
(Fig. 2) Graph showing the distribution of pottery types in the stratigraphy.



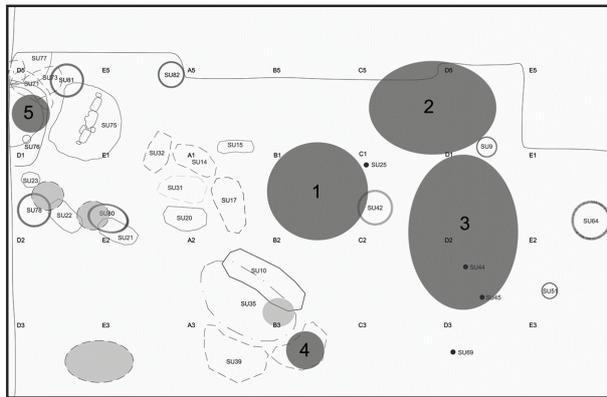
(Fig. 3) Pottery types common at the production area.



(Fig. 4) Bread molds.



(Fig. 5 a, b, c, d) Pottery scrapers.



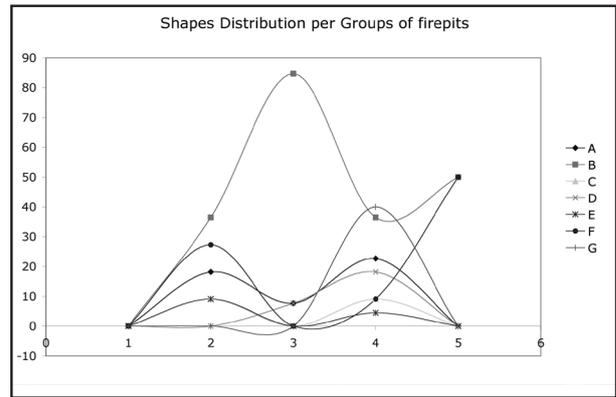
(Fig. 6) Distribution map of the pottery scrapers.



(Fig. 7) SU 49 with the edge of the platter in situ, visible in the profile (Fire pits Group 2).



(Fig. 8) SU 50 with bread molds pieces at its bottom (Fire pits Group 3).



(Fig. 9) Graph showing the frequency percentage of pottery types in the fire pit groups.

Notes

- 1 The excavation was conducted under the supervision of Cinzia Perlingieri and S. Terry Childs. Description of the project and Technical Reports are in: K.A. Bard and R. Fattovich, 'Mersa Gawasis: A Pharonic Coastal Site on the Red Sea', *ARCE Bulletin* 184 (2004), 30-31; K.A. Bard and R. Fattovich, *Archaeological Investigations at Mersa Gawasis, Egypt, 2003-2004*, *Context* (BU), 18 (1) (2005), 15-16.
- 2 The detailed technical report of the excavation by C. Perlingieri and S.T. Childs is in K.A. Bard and R. Fattovich, *Mersa/Wadi Gawasis 2005-2006*. Technical Report. <<http://www.archeozone.it>>.
- 3 See the detailed technical report of the excavation by C. Perlingieri and S.T. Childs in Bard & Fattovich, *Mersa/Wadi Gawasis 2005-2006*.
- 4 See the complete 'bag-shaped' jars in D. Arnold, 'The Pottery', in D. Arnold (ed.), *The Pyramid of Senwosret I, The South Cemeteries of Lisht*, vol. I, The Metropolitan Museum of Art Expedition, vol. XXII (New York, 1988), 106-146; see also B. Bader, *Tell el-Dab'a XIII, Typologie und Chronologie der Mergel C-Ton Keramik* (Vienna, 2001), 160-163.
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- 10 Kelley, *The Pottery cit.*; Arnold, *MDAIK* 38, 25-65; I. Shaw and E. Bloxam, 'Survey and Excavation at the Ancient Pharaonic Gneiss Quarrying site of Gebel Al-Asr, Lower Nubia,' *Sudan & Nubia* 3 (1999), 13-20; D. Arnold, *The South Cemeteries of Lisht I: The Pyramid of Senusret I* (New York 1993).
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