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TECHNOLOGY, TYPOLOGY, AND EVOLUTION OF EGYPTIAN POTTERY AT KOM AL-AHMER/KOM WASIT (NEAR ALEXANDRIA)

The Egyptian pottery found at the sites of Kom al-Ahmer and Kom Wasit in the western Delta shows recurring characteristics in terms of technology and shape. The alluvial clay products can be divided into two macro-groups. The first, using technology that comes directly from ancient Egyptian Dynastic traditions, is characterised by the abundance of organic inclusions. The second, introduced at the beginning of the Hellenistic period, shows the influence of cooking and table-ware shapes from the Aegean-Mediterranean tradition, which led to a change in fabric and technology. The new technology concerns the introduction of kick-wheels that allow for a more regular modelling, facilitating the standardisation of pottery production. The new forms were produced continuously until the Roman times, until the 3rd century AD, when new forms of coarse ware were introduced.

Coarse ware – Hellenistic Period – Roman Period – kick-wheel – Western Nile Delta of Egypt

Introduction

The sites of Kom al-Ahmer and Kom Wasit are located in the western Nile Delta, about 1.5 km from each other. On the basis of topographical studies, it is assumed that they were originally part of the same urban settlement recognisable as the ancient *nomos* of *Metelis* (Eller and Kenawi 2019: 1, 4-5; Hinojosa Baliño 2019: 54-55). The two sites are currently located about 6 km west of the Rosetta Branch of the Nile. As a result of the study of sediments from core drilling at and around the two sites, it is evident that between the late Dynastic and early Byzantine periods, the two sites were bordered by large, navigable canals of the Nile (Pennington 2019: 65-66). The proximity to small and medium-sized navigable branches ensured *Metelis* a privileged link with both Middle and Upper Egypt, as well as with the Mediterranean through the ports of Alexandria and Heracleion-Thonis.

Sites and Chronology

Kom al-Ahmer and Kom Wasit's current limits are reduced compared to their original extent (**fig. 1**). The shift in dimensions was caused by two main factors: 1) the activities of the *sebakheen*, who destroyed and removed the mudbrick structures in order to reuse the silt as fertiliser; 2) current farmers who systematically erode the edges of the sites to enlarge their fields. The archaeological investigations started in 2012 covered several sectors of the two koms. Kom Wasit is the site with the earliest evidence of occupation, dating from the 26th Dynasty (BC 664–525). It was continuously inhabited until the 1st century BC, but coins and pottery continue irregularly until the 6th century AD. Given the need to understand the setting of the ancient settlement, archaeological

excavations were conducted in various areas of the kom. In the northern part, the most damaged by the *sebakheen*, 13 excavation units were opened, eight of which were located in the sacred area and the enclosure wall of a large temple (Units 1, 4–8, 12–13). In Units 2 and 3 the access structures to the temple were excavated. Unit 11 was located east of the temple and contains the remains of a tower house. At the highest part of the kom, Unit 9 was investigated, uncovering a mudbrick tower house. Finally, in the southern sector, Unit 10 was investigated to study the tholos bath already identified from a surface survey in 2008 (Kenawi 2014: 101-103; Kenawi and Larosa 2017). From a chronological point of view, these excavations made it possible to reconstruct, even if in a partial manner, the material culture of the site from the 7th century BC until the 6th century AD. In particular, the earliest materials were found in the sacred area, where the temple was used until the Hellenistic period. Pottery and coins allow us to date an occasional frequentation between the 5th and 6th centuries AD (Asolati and Crisafulli 2019: 52-53). Unit 9 yielded materials dating from the 5th to the first half of the 3rd centuries BC. As in the temple, Unit 9 also registers a late frequentation of the area. The study is on-going; however, materials such as LRA 1, LRA 4, ARSW forms Hayes 67 and 91A, and a late 4th–early 5th century AD coin are recorded in Unit 9 (Asolati and Crisafulli 2019: 52, KWC 47). The house in Unit 11 can be dated between the 4th and 3rd centuries BC - two coins from the 2nd–1st centuries BC and three coins from the late 4th–5th centuries AD were also found, but no pottery was documented for these periods. Unit 10 of the Hellenistic baths dates between the 2nd and 1st centuries BC (Asolati and Crisafulli 2019: 51; Mondin et al. 2020: 583). The area of the public bath was reused as a necropolis between the late 2nd and 3rd centuries AD (Mondin et al. 2020: 578-582).

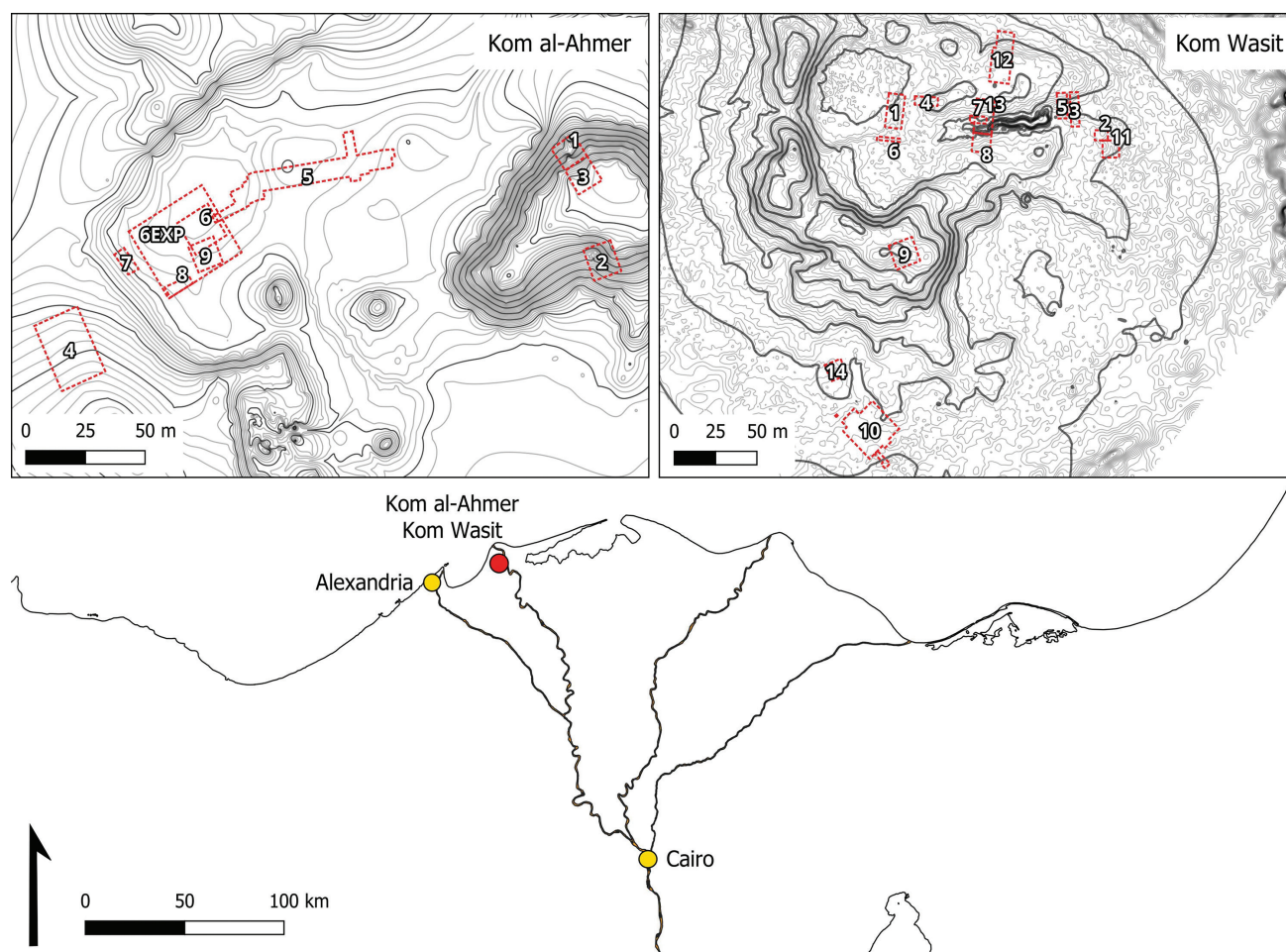


Fig. 1. Map of the sites (Giorgia Marchiori).

The site of Kom al-Ahmer suffered intensively from destruction by the *sebakheen*. The nine excavation units allowed the identification of structures and materials dating from the late 4th century BC to the early Islamic period. In detail, Units 5, 6, 6exp, 8 and 9 were excavated in the lowest part of the site. A residential quarter dating between the 4th and 3rd centuries BC was brought to light (Asolati et al. 2020: 46). Unit 4 was excavated in a mound of intermediate elevation. Excavations uncovered a complex stratigraphy dating from the 1st century AD to the mid-5th century AD (Mondin 2019: 65-69; Mondin 2023: 149). Unit 7 was also located at an intermediate elevation and the excavation uncovered materials dating from around the 6th century AD - these materials are being studied; however, they include LRD forms Hayes 9 and 10, ARSW forms Hayes 99 and 105. Units 1, 2 and 3 are located on the highest part of the central kom. Unit 1 unearthed a series of complex structures, such as a cistern covered by a rich, stone-slab floor, a waterproofed tank, and other unidentified structures. The coins and pottery date to the 5th and the 7th centuries AD (Mondin 2019: 69-73). Unit 2 hosted a necropolis with a monumental tomb and burials. The Islamic necropolis contained material dating to at least the 11th century. As a result of the excavation of the monumental tomb, a deposit dating between the second half of the 6th century and the 7th century was identified

(Mondin 2019: 74-79). After the 7th century, the contexts did not allow the evolution of the site's pottery types to be followed. The related late settlement has not been identified to date (Kenawi and Marchiori 2019).

The Alluvial-Clay Cooking and Table-Ware Products

The possibility of studying such a long-period stratigraphy and the continuity of the frequentation make it possible to reconstruct the evolution of the pottery from these two sites. This allowed the identification of macro-phases characterising the evolution of Egyptian pottery made of alluvial clay.

The frequentation of Kom Wasit started at least in the 7th century BC - imported materials from the Aegean were detected (Furlan, Kenawi and Wilson 2019a: 185, KWO 316). Although the majority of the materials come from non-domestic contexts, such as the temple, some coarse ware (cooking vessels, jars, and bowls) was found in domestic contexts. These early forms of coarse ware are characterised by fabrics with many voids left by organic inclusions. The thickness of the walls is irregular and even exceeds 0.5 cm. This irregularity seems to be attributable to the technology used and is common in forms of late Dynastic tradition (Wodzińska 2010: 247 n. 68, 253 n. 80, 265 n. 112, etc.). The rims are

generally everted and rounded without any particular shaping. Indistinct rounded or disc bases are common and often have visible signs of the string used to detach the object from the wheel. Examples of closed forms (pots or small vessels) with a ring-foot base can be found only in the contexts of the 4th century BC (**fig. 2a**). The bowls are sometimes carinated and the irregular base makes them unstable (**fig. 2b**).

During the early Hellenistic period, numerous ceramics from the Aegean were imported to Egypt (Hudson 2014: 253, **fig. 4.1**; Villing et al. 2015: Eg.Inv.7528; Harlaut 2018: 25-56; Furlan, Kenawi, and Wilson 2019b: 115-116). At the sites of Kom al-Ahmer and Kom Wasit, imported coarse wares are not present yet, but some cooking wares whose type directly recalls them were found. Casseroles with horizontal handles, a step-rim, a carinated body, and a rounded base are attested at Kom Wasit U9 and at Kom al-Ahmer U6 (**fig. 2c**). These local productions have similar forms to the Hellenistic products widespread in the Mediterranean (Edwards 1975: 120-126; Rotroff 2006: 307-314; Harlaut 2018: 53-54). The examples found on the Kom al-Ahmer and Kom Wasit sites were produced in alluvial clay from the Nile. These forms represent a clear break with the previous production technique. Indeed, the wall thickness was regular and reduced to less than 0.5 cm; horizontal marks produced during processing on the wheel are also visible. In addition, the presence of straw in the fabric is significantly reduced, although it does not disappear completely - straw remains present in fine productions using alluvial clay. The cooking pots show the same transformation. They change from forms with a rounded profile and rich in organic inclusions to forms with a shaped rim with a lid seat (**fig. 2d-e**). The mixture contains little organic material. The walls become regular and between 0.3 and 0.5 cm thick.

In addition to cooking ware, the introduction of new table ware-forms is noted. These include echinus bowls, which are attested, again, not as imports, but as a new local form. Among the earliest finds from Unit 9, there is a bowl (**fig. 2f**) with technical characteristics referring to traditional local production (disc-foot base and walls of irregular thickness), but with the rim imitating echinus bowls. The ring-foot base form of the echinus bowl spreads from the late 4th-early 3rd centuries BC and becomes predominant in 2nd-1st century BC deposits (**fig. 2g** – Mondin et al. 2020: 577; for imports to Alexandria see Harlaut 2018: 35-37, 41). Dishes with rounded rims and truncated cone walls are among the table-ware forms that were introduced in the western Delta in the Hellenistic period. These are local imitations of imported forms made mainly with red or black slip (Harlaut 2018: 32-33, 42). At Kom al-Ahmer and Kom Wasit, few dishes with red or black slip, with rouletting and/or palmette decoration, or without decoration are attested (**fig. 2h**).

Roman coarse pottery made with alluvial clay benefits from the innovation introduced during the Hellenistic period. The technical characteristics acquired continue to be applied repeatedly. Not only is the use of technology recurrent, it should be noted that a surprising continuity of Hellenistic cooking and table-ware forms can be observed in Roman times. Cooking pots with a moulded rim and lid seat were attested for a long time, at least until the late Roman

period, with a slight variation in profile. The cooking pots underwent a formal evolution, albeit minimal. This is not the case for the echinus bowls, whose presence is attested with unchanged characteristics in contexts even up to the 3rd century AD. On the other hand, the presence of these bowls in 4th-5th centuries contexts must be residual due to their limited number. The same repetitiveness of form is found in dishes with a rounded rim and truncated cone walls. As with bowls, these dishes also have a continuity of attestation up to the 3rd century AD without substantial variations. From the 1st-2nd centuries, the dishes show a variation in production with the surface treatment of burnished lines on the inner wall (**fig. 2i**). In the 4th-5th centuries, this form disappears completely.

The only clear recognisable development of cooking pots and casseroles is from around the 3rd century AD, when the introduction of ribs on the outer walls is visible. On the other hand, dishes are not replaced by similar shapes. Bowls or casseroles are probably used instead, with the latter becoming the most frequently attested open form (**fig. 2j**). Casseroles were likely used at the table, as there were numerous examples that show no traces of being exposed to fire. As for bowls, in the same period the profile of echinus bowls disappears and another type of bowl develops, with a T-shaped rim, grooves on the outer wall just below the rim, a globular body, and a ring-foot base (**fig. 2k**). These bowls seem to have been so short-lived that by the 4th-5th centuries they are not attested. Like dishes, bowls were probably replaced on the table by casseroles, which became the most attested open form from the 4th century until the arrival of the Arabs in the 7th century AD.

During the late Roman and early Byzantine periods, new types of cooking ware were introduced: cooking pots, casseroles, and lids with cut-lip rims appear (**fig. 2n**). This type is well-known along the eastern Mediterranean coasts and Egypt, where there is a production in alluvial clay that imitates them (Waksman et al. 2005: 314-315; Gayraud and Trégliat 2014: 367; Mondin 2019: 100-102). The fabric's characteristics are the same as those described for the alluvial-clay production, and the presence of organic voids makes the fabric easily distinguishable from the same type of imported pots and lids. In addition to the classic profiles found in casseroles and lids, cooking pot and casserole rims are present with variously moulded but always with cut-lip rims (**fig. 2l-m**). These forms have been identified at Kom al-Ahmer only in contexts dating from around the 5th century AD to the 7th century. Examples are absent in Islamic layers. However, the contexts from the end of the 7th century are not well defined.

A distinct bowl/basin (**fig. 3a-b**) shape appeared around the second half of the 6th century and the first half of the 7th century and was found in the same contexts as the cut-lip cooking ware. It is a bowl with a groove under the rim with smooth surfaces. This form is attested in various sizes and both plain and with vertical lines painted in white and sometimes in dark brown (Mondin 2019: 128, 133, 141). There is no trace of this bowl type in contexts with Islamic materials, but similar profiles are attested in contexts up to the 9th century (Gayraud and Vallauri 2017: 41).

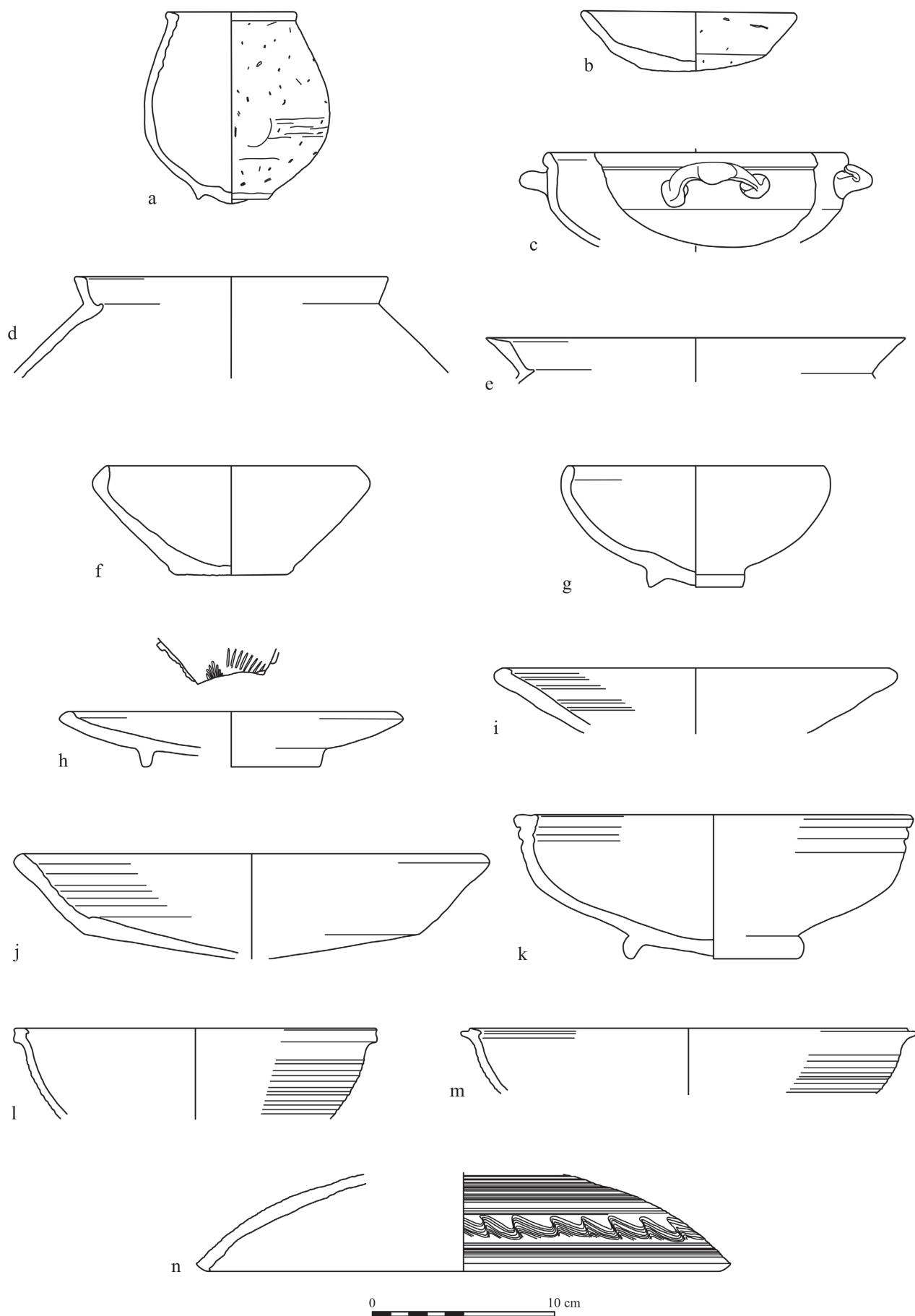


Fig. 2. a–b Late Dynastic pottery; d–h Hellenistic pottery; i–n Roman pottery.

Medium to Large-Scale Production in Alluvial Clay

What has been previously described for cooking and table wares does not apply to medium and large coarse-ware vessels. Large containers (trays, basins, dolia, jars for storing food), show a continuity of production from Dynastic times until at least the early Byzantine period. The continuity of production is recognisable in both technology and form. From a craftsmanship point of view, the main characteristic is the abundance of straw in the fabric. Even today in some areas of Egypt, in the Fayoum Oasis, at al-Nazla, (Kenawi

and Mondin 2019: 91), straw is added to the clay mixture of containers, such as jars, portable ovens and basins. Local artisans add the organic material with the dual purpose of speeding up firing times (thus saving fuel and the employment of workers) and ensuring homogeneous firing even within the thicker walls of the pots. Furthermore, these types of containers were rarely made on the wheel, and in most cases they were coil-made.

Trays are among the forms that fall into this category and are the most repetitive finds at both Kom al-Ahmer and Kom Wasit (**fig. 3e**). These are very simply shaped containers

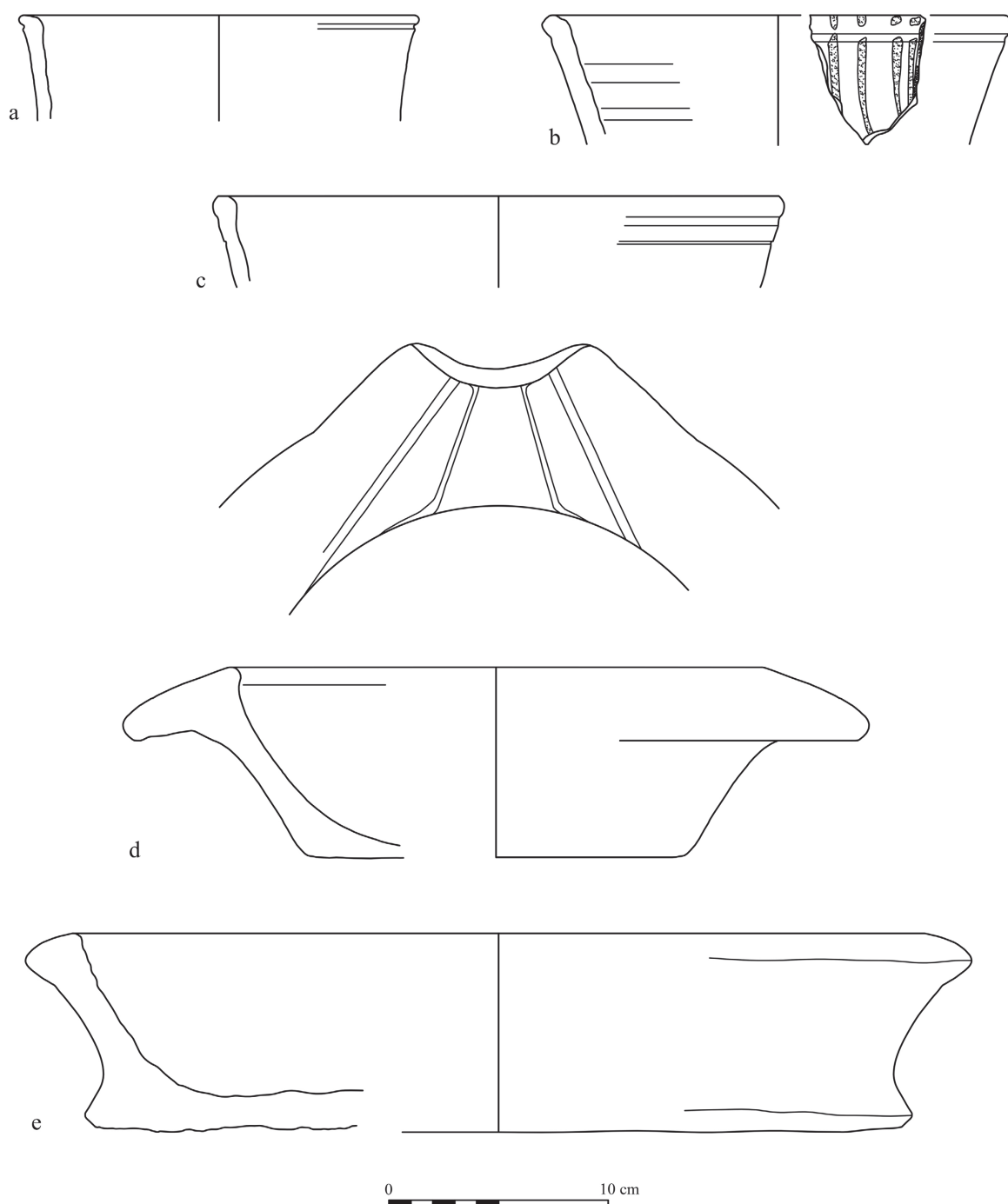


Fig. 3. Roman pottery.

with an out-turned rim, conical walls and a very irregular disc base. The rim has a diameter of between 45 and 30 cm, the base between 37 and 27 cm, and the height between 9 and 7 cm. The thickness of the walls ranges from 1.5 to 4 cm, while the hand-moulded, flat base can be less than 1 cm thick. Large trays are attested in contexts that dates between the Hellenistic to the late Roman periods. We know from comparisons that they were also attested in Dynastic times (Aston 1990: 177, n. 1631). All the examples found at Kom al-Ahmer and Kom Wasit were coil-made, and they did not undergo any formal or technological evolution.

As with cooking and table ware, new forms such as mortars were introduced in Roman times. At Kom al-Ahmer, several examples are made of alluvial clay and with formal characteristics that imitate Italian products (**fig. 3d**). Smaller mortaria show medium-refined fabrics, such as those described for cooking and table ware. On the contrary, the medium-sized mortars were made with the same characteristics of the larger Egyptian containers. Hence, the fabric contains numerous organic inclusions which, post-firing, leave elongated voids. All mortars found in the Roman and late Roman contexts of Kom al-Ahmer were made on the wheel. To date, among the materials documented with this type of coarse fabric, only mortars were a form introduced to imitate imports. The other medium and large vases, rich in straw and organic fabric, all come from traditional Egyptian pottery.

Final remarks

From this brief presentation of the coarse ware made with alluvial clay from the Kom al-Ahmer and Kom Wasit contexts, it appears that the local alluvial clay production of cooking and table ware did not evolve significantly. The most important moments in the Egyptian pottery evolution were essentially two: the Hellenistic and late Roman periods. During the Hellenistic period, new cooking and table wares were introduced, mainly from Greece. Imports were the vehicle for important technological innovations. The clay mixture began to be more refined and the presence of straw in the clay was significantly reduced. The second, and most important, technological improvement was related to the introduction of a new type of wheel. In fact, we know that from the 27th Dynasty (525–404 BC) the kick-wheel (**fig. 4**) was introduced and began to be popular in Egypt (Klotz 2013: 169). The arrival of pottery showing evidence of the use of this new technology in Kom al-Ahmer and Kom Wasit seems to date from the late 4th to early 3rd centuries BC. The use of the kick-wheel is recognisable by the lines of the wheel on the inner walls of the pots and the thickness of the walls becoming regular and thinner. It is probable that kick-wheel and clay refining were introduced at the same time. Indeed, fast-wheel processing required more plastic clay than slow-wheel or coil-made modelling.

At the end of the Hellenistic period, there was a significant decrease in imports. With the exception of a Phocaean cooking-ware rim and a few fragments of Eastern Sigillata A,



Fig. 4. God Khnum at the kick-wheel – Esna temple, Roman period (Middle Egypt).

in the deposits of the 1st and 2nd centuries AD we have a reduction in imports, especially of amphorae. By the 3rd century AD, the sites of Kom al-Ahmer and Kom Wasit were again recipients of new imported ceramics, especially amphorae, from the Aegean area (Cretan amphorae, Kapitän 1 and 2, LRA 3, Samos Cistern Type group, etc.), the southern coast of Turkey (Agora G 199, Agora M 54, etc.), and North Africa (Tripolitanian amphorae, spatheia, ARSW, etc.). The arrival of new forms was also an impulse for the development of local production. From the 3rd century onwards, we have the production of the bowls already mentioned (**fig. 2k**), and there begins to be more variety in the profiles of cooking pots. Casseroles with bi-cone bodies make their appearance and become the predominant open form at least until the 7th century (**fig. 2j**). These casseroles, in the late Roman-early Byzantine period, show the constant Egyptian tendency to repeat shapes over the centuries. The resumption of imports and the introduction of new forms in local production therefore took place from the 3rd century AD. It seems no coincidence that these changes were linked to the great reforms that took place in this century. First that of Gallienus and then that of Diocletian marked major changes in the area of coinage, the army and the organisation of the provinces (Mazzarino 1973: 543–596). Certainly, these changes involved Egypt, which supplied the entire empire with agricultural products.

From the 5th century AD imports become almost exclusively Levantine. LRA 1 and 4 become ever-present materials in Kom al-Ahmer and Kom Wasit contexts. Undoubtedly as a result of these new trade relations, the production began in Egypt of cut-lip cooking ware (fig. 21-n). The origin of the bowl/basin (fig. 3a-b) with a plain rim, underlying groove on the outer surface, and sometimes painted is uncertain.

It does not seem to take its design from Mediterranean pottery; however, it is a sign of a cultural and artistic vitality attested also in the alluvial-clay productions.

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