



# I

## Introduction

### I.1 The site

Since its inception, in 2001, the Centre for Egyptological Studies of the Russian Academy of Sciences (CES RAS) has been conducting yearly surveys and excavation campaigns at Memphis/Kom Tuman. These have not only brought to light several architectural structures and industrial installations of various periods but have also resulted in the recovery of vast amounts of artefacts and pottery material (Ivanov 2006:18; Belova and Ivanov 2016).

The Russian concession at Memphis is very large and includes the areas of Kom Tuman (Kom Aziz) and Kom Dabawi (Maps 1–2). The first two seasons at the site were devoted exclusively to surface surveying and geophysical prospecting, in order to locate an area suited for excavations (Belova et al. 2005:66–69). From 2003 to 2007, and then for another field season in 2010, work concentrated in the area of Kom Tuman, just south-east of the Palace of Apries (Square VI-VII). Although the whole sector suffered rather heavily from later disturbances, successive excavation campaigns resulted in the identification and clearance of several architectural units and a series of industrial installations. The most prominent architectural remains discovered during this part of the work consist of a series of structures built along a north to south orientation that was originally mapped by Dimick as part of the University of Pennsylvania expedition to Memphis (Dimick 1959:82, number 3, Map, fig. 2: Map 3). This structure is bordered on its eastern side by a very thick wall, which follows the same orientation. Its relationship to the central building is still unclear as the connection between the two structures was subject to massive disturbances in later (including very recent) times, but its construction revealed three successive building phases (Walls 30, 23 and 50). East of this thick wall, and partly cut by it, was a series of superimposed multi-chambered furnaces, which formed an industrial quarter that seemed to have lasted over successive phases for a considerable period of time, from the mid-fifth century BC until the mid-fourth century BC or early in the Ptolemaic period (Map 4). Another complete four-chamber furnace (Furnace 1), was discovered to the west of the large structure mapped by Dimick, built against Wall 5. It was earlier than the furnaces on the east side of Wall 30/23/50 but the relationship between the two industrial zones is unclear.<sup>1</sup>

<sup>1</sup> The furnaces were provisionally identified as bronze smelting and “pigment manufacturing” installations (Krol and Vinokurov 2006). Two charcoal samples from the furnace that was discovered first were submitted to C14 analysis. The results gave a calibrated date of 764 BC (Twenty-Second Dynasty). Four-chamber furnaces, built on a rectangular mud-brick platform, were discovered at Tanis and Tell Balamun. Those

In 2010, two additional areas were briefly investigated. The first, to the north west of the main building revealed a rounded furnace, most likely a lime-making installation (Square VI). The second (Square XI) was opened very late in the excavation season as an emergency response to site encroachment by local farmers. It produced a habitation quarter dating to the Roman period containing in situ assemblages of pottery vessels, the study of which could never be completed due to the political upheavals of 2011.<sup>2</sup>

A large part of the pottery found in association with both the furnaces and the central building, as well as during the surface survey campaigns was studied by Ashraf Senussi between 2004 and 2006. The present author has had the opportunity to examine a selection from these assemblages during the course of a study season conducted in 2008 and was present on site for a small part of the 2010 excavation season. Pottery finds were preliminarily examined and kept in the Mit Rahineh site magazine for further study. The latter was attacked and raided in early 2011 and much of the material (including the Roman assemblages from the eastern reaches of the site) was consequently lost or thoroughly destroyed.

Fieldwork could only be resumed in 2013 and continued on a yearly basis until 2016, concentrating on the thick wall (Wall 23/30/50) and the furnaces area to the east of it, which also revealed stone carving workshops belonging to the Ptolemaic period. A great deal of the pottery recovered from this sector came from a large deposit, continuing that which was partly excavated in 2010 and earlier. It covered much of the area and may have functioned as a levelling layer and/or as a simple refuse deposit after the workshop fell into disuse. Some of the pottery found below this thick deposit, could be more specifically associated with some of the floor levels of the furnaces and workshops of the production complexes. The pottery coming from all of these contexts, including the large levelling layer, was systematically collected. It could thus be comprehensively studied, allowing for qualitative as well as quantitative investigations.

from Tanis are located within the sacred precinct of the Temple of Amun. They were not initially given a very precise date but were only said to be “largement postérieur à Psousennes” on the basis of their stratigraphical situation (Fougerousse 1946:28). In the 2000s, the French excavation mission working at Tanis excavated similar kilns in the same area and the pottery found in association with them points to a date in the Persian Period or the Thirtieth Dynasty (personal observation). The four-chambered kiln from Tell Balamun was also ascribed to the Persian period (Spencer 1999:36–37, pls. 36–38).

<sup>2</sup> For more detailed reports on the CES RAS excavations at Memphis, see Belova 2012; Belova and Ivanov 2016; Belova 2018.



Finally, in the autumn of 2014, the Ministry of Antiquities was alerted to illegal digging activities to the north of the main excavation sector exposing a gate or doorway made of re-used, partly inscribed, stone blocks. A short salvage excavation campaign was called for immediately, and investigation of this area (Area IX-X) continued during the 2015 and 2016 seasons (Map 5). Because of the unplanned nature of the excavation and the heavy disturbances occasioned by the robbers, the pottery from the upper layers of this so-called “Rescue Area” was not processed in the same way as that coming from the main sector. General dates were ascribed to the collected assemblages and specific diagnostic pieces were selected for drawing and study.

## I.2 The pottery

The great majority of the pottery examined for the present publication, whether coming from the main excavation site (Area VI-VII), or from the Rescue Area (Area IX-X), dates to the Late Period. It broadly ranges from the late Saite Dynasty in the mid-sixth century BC to the Thirtieth Dynasty in the third quarter of the fourth century BC. However, the bulk of it can probably be situated in the first Persian period, and in particular the second half of the fifth and the first part of the fourth century BC. Although a wide range of fabrics and shapes are evidenced, a number of specific types recur with much greater frequency and regularity. This is especially important with regard to the function of the area investigated, as the recurrence of specific shapes may point to functional specialisation, possibly over several chronological phases within the Late Period.

Sherds of the Ptolemaic period are also well represented, and several small shapes of this phase, such as small echinus bowls, were recovered in fairly good condition as surface or near-surface finds throughout the excavation area. This suggests that occupation east and south-east of the palace mound continued well into that period. On the other hand, Roman period finds dating to beyond the first century AD and into the Christian era are extremely scarce, even as surface finds. This can be explained by an absence of building and other occupational activities during that phase in this specific area of the site. Indeed, the paucity of Roman period sherds below the palace mound agrees with a description of the area by Strabo:

“There are lakes in front of the city and of the palaces, which at present are in ruins and deserted. They are situated upon an eminence, and extend as far as the lower part of the city” (Strab. 17.1.32)

The displacement of settlement at the site in the later Ptolemaic and Roman period is supported by the fact that Roman occupation levels were found in the eastern reaches of the ruin field (Square XI).

Besides the incidence of Roman sherds, many of the Late Period and early Ptolemaic assemblages were contaminated

by a limited but significant, amount of Old, Middle, New Kingdom, and Third Intermediate Period sherds, whose presence raises the important question of determining their actual origin within the local or wider environment. Were these sherds brought to Kom Tuman from other parts of the Memphis ruin field, together with soil or recycled mud-bricks used for construction purposes in the Late Period or later? Do they originate from an altogether different location and they were used as intentional temper in mud-bricks produced at Memphis or elsewhere? Or would it be possible that they stem from earlier levels of occupation located at Kom Tuman itself, which were disturbed by Late Period building activities? Answers to these questions remain speculative for the time being but they may be addressed more effectively by further excavations at the site, as well as by a better understanding of mud-brick manufacturing processes in ancient Egypt and of their transport and distribution networks.

## I.3 Methodology

Pottery analysis depends not only on the conditions of excavation and on the nature and state of preservation of the site, but also on the specific set of circumstances surrounding the studying process itself, i.e. room availability for storage of the material, number of draughtspersons involved, length of working seasons, and so forth. In the present case, the ceramic material collected before and including 2010 could not be analysed statistically. This is principally because the present author was not involved in its study from the start of the project and thus did not have access to any complete assemblages before the 2010 campaign. Further study of this material was also hampered by the loss of a great part of the ceramic (and other) finds resulting from the looting of the excavation magazine in early 2011. Although, these circumstances set certain limitations to the research, it remained the case that approximated quantitative evaluations could be undertaken on the basis of the material that was selected for study and drawing by A. Senussi at the time of the excavation.

The situation was different for the pottery unearthed from 2013 onwards in the main excavation area (Area VI-VII). In this case, every sherd that was kept by the excavators could be recorded and the assemblages could be statistically evaluated. On the other hand, the pottery coming from the rescue excavation (Area IX-X) could not be studied with the same attention because of the urgency and unplanned nature of the work. Only diagnostic pieces (in some cases only a selection of them) were preserved from the fill contexts surrounding the stone gate.

In what follows, the exposition and discussion of the pottery is arranged according to the material’s chronology, typology and technology.<sup>3</sup> A list of all of the archaeological

<sup>3</sup> On the creation of pottery typologies and their relationship to chronology see Adams 1986/1987. On archaeological classifications in general, see Adams and Adams 1991.

contexts (stratigraphical units) considered in the work can be found in Appendix 2, together with a description of their general date, characteristics, and the nature of the Ptolemaic and Late Period vessels represented therein. The context of each sherd and vessel discussed in the text is indicated next to the figure number and can be used for referring to this information. The fabric codes appearing in the catalogue are explained below whilst, for the sake of clarity, fabrics not yet ascribed to a specific group are described separately in individual catalogue entries. Because they were clearly residual, and thus of limited significance for our understanding of the identifiable occupation layers at the site, Old, Middle, and New Kingdom as well as Third Intermediate Period pottery types are not discussed at any length, and the Egyptian fabric denominations used for them broadly correspond to those of the Vienna System (Nordström and Bourriau 1993:168–182). The Late Period and Ptolemaic phases are treated in more detail as they relate to clear occupational phases at the site. Beyond that, the Roman and later periods, which are not associated with clear architectural remains and consist mostly of surface finds, are again discussed in lesser detail.

The pottery typology created for the Late and Graeco-Roman periods follows traditional, well-established methods of archaeological classification and typically progresses from the more general to the more specific. Thus, within each of the two main chronological phases identified at the site, the material is divided into an “Egyptian production” section, which also includes imports from the Oases and Upper Egypt, and an “Imports and imitations” section. The latter not only comprises coarse and fine ware imports from the Levant, the Aegean and elsewhere, but also their local imitations, made from Egyptian fabrics. This material is classified together with the imported wares, rather than with the Egyptian production principally because neither their shape, nor their function, belong to an Egyptian tradition and because the original models from which they derive are also evidenced in the same type of assemblages at the site. Even though some of these products, such as the Roman Nile silt amphorae, eventually become fully integrated into the Egyptian repertoire, they also always remain both the carriers and the manifestation of foreign influences on cultural practices and produces. Besides, while some of the Egyptian fabrics used for these vessels are easily identifiable, others are much less so, thus blurring the distinction between true imports and their imitations (see also, Marangou and Marchand 2007:261–262).

A note should be added here concerning a number of artefacts, such as the Ptolemaic cooking vessels or the Late Period storage jars with ribbed bodies (LP.SJ.5). Although these also appear in the local repertoire as a result of some form of foreign influence, they are not considered here as direct imitations and they are classified together with the rest of the Egyptian material. In effect, contrarily to the amphorae and mortaria, these shapes are generally not represented by authentic imports

and may thus illustrate another kind of phenomenon of material culture assimilation that may have been driven by movement of people, trends, or ideas, rather than movement of goods.

The pottery is further divided into several categories and sub-categories that pertain primarily to the vessels’ original uses or presumed uses. Thus, the Egyptian corpus is made of closed vessels (storage jars, cooking pots, bottles, etc.), open vessels (dishes, plates, cooking bowls, etc.), coarse wares, “production” vessels, and non-containers (lids, stands, etc.) and, where appropriate, each of these functional sub-categories are divided into morphological groups and type variants. The imports and imitations are dealt with in pretty much the same manner, the main difference being that they display a much narrower functional repertoire, limited to transport jars, mortaria and fine wares.

The nomenclature employed for designating the morphological groups and types is based on a combination of capital letters and numbers, sometimes followed by lower-case letters or lower-case Roman numerals. The capital letters correspond to abbreviations for periods (Late Period or Ptolemaic), functional types (jars, plates, lids, amphorae, etc.), and provenance (Samian, Chian, Attic, etc.), the numbers indicate specific morphological groups, while lower-case Roman numerals and lower-case letters indicate morphological variants within the wider groups. Thus, L.P.O.9, stands for “Late Period, Open vessel, Group 9”. It represents a common typological group of Late Period dishes with low carination. L.P.O.9.i is the first type variant of this group, L.P.O.9.ii is the second type variant, etc. As will be seen below, Aegean, Levantine, and other imports as well as non-containers and coarse wares are not preceded by period codes. In some cases, this results from the fact that these items were more difficult to classify chronologically at the start of the work, either because they show little typological variations over time, or because they form a very specific functional group of their own (like the funnels, or the lids). In the case of imports and their imitations, the decision to base the types’ nomenclature on geography rather than period reflects the fact that this material is not inscribed within an Egyptian chronological or historical sequence, but rather refers to Aegean or Levantine ones. The meaning of each abbreviation used for the type codes is spelled out in the “List of abbreviations” above.

Each morphological group or type variant is discussed individually and is accompanied by a list of examples illustrated in the present work. Nile silt examples appear first and are followed by those made of marl and mixed clay fabrics. All fragments and vessels from the excavation that compare to a specific illustrated sherd are listed below this sherd’s entry, under the heading “internal parallel(s)”. Unless stated otherwise, internal parallels do not only refer to shape, but also to fabrics, although not always to surface treatment. A table summing up the sherd counts for each type appears at the end of each section. Instances of Nile

silt and marl and mixed clay fabrics are tallied in separate tables.

The advantage of this type of classification is that it allows for adding variants to existing types as well as creating new types, by adding a running number to the shape/functional type code. It also offers a certain degree of flexibility for ambiguous cases. If a sherd cannot be ascribed to a specific morphological type because of a poor state of preservation or any other reason, it is in most cases still possible to relate it to a broader morphological group, to a functional type, or, at least, to one of the broader open/closed categories.

Dates are ascribed firstly on the basis of the morphological and stylistic characteristics of the pottery, combined with a careful consideration of their stratigraphic context. In other words, the context, although generally reliable, is not considered as an unfailing chronological indicator. In effect, the possibility of older sherds surviving in later contexts, or even, of isolated later sherds contaminating an earlier assemblage is to be reckoned with. The likelihood of sherd contamination is especially high for a site such as Kom Tuman, where occupation spans a long period of time, with important material accumulation, and where later disturbances were significant, occasionally cutting deep into earlier levels. Thus, in cases where the context is unclear or particularly mixed, or, of course, when dealing with stray surface finds, the dating of sherds relies first and foremost on parallels from elsewhere.

For most of the local Nile silt wares, parallels were primarily sought in Lower Egypt, in the Memphis/Saqqara region and the Nile Delta, rather than at sites higher up the Nile valley or the Oases, in an effort to define geographical stylistic and/or technological characteristics. For imports (both from within and outside Egypt) on the other hand, parallels from places (or presumed places) of origin are cited in priority. This allows for testing the accuracy of supposed proveniences, as well as for synchronising the chronology of the types examined. Whenever possible, the occurrence of comparable imports at other Egyptian sites and abroad were noted so as to provide a general idea of the latter's geographical distribution and thus to view them within their wider socio-economic context.

In such cases where a ceramic type could not be readily compared to well-known and well-dated examples, the nature of the bulk of the pottery assemblage with which it was found plays the first role in ascribing a date.

#### **I.4 Fabrics**

Wherever possible, the fabric denominations used for the Egyptian pottery at Memphis/Kom Tuman follows the nomenclature introduced by scholars who have previously worked on the Late Period material of the Memphis-Saqqara region, notably, Janine Bourriau, Peter French, and David and Barbara Aston (French and Bourriau

2018:18–23; Aston and Aston 2010:2–11). They also draw to some extent on the descriptions of the “Vienna System” (Bourriau 1981:14–15; Nordström and Bourriau 1993:168–182; Bourriau 2007; Bourriau et al. 2006; Ownby 2016).

Colour definitions refer to the *Munsell Soil Colour Chart Revised Washable Edition* (2000).

##### ***I.4.a Nile fabrics***

As in the New Kingdom and earlier, the alluvial fabrics from Memphis/Kom Tuman make use of the readily available deposits of the Nile. All of the fabrics described below are in fact variants of the same basic group. In effect, in a pre-industrial age, a certain degree of variation has to be expected in pottery production and clay preparation, even during the same chronological phase and within the same manufacturing centre, if not within the same workshop.

J1: This fabric is one of the most frequent of the Nile clay fabrics used for the Late Period pottery at Kom Tuman. It encompasses a considerably wide range of variation in degrees of fineness but can be broadly described as medium-fine. It fires red to brown (2.5YR 6/6, *light red*), often with a black-grey to reddish core and sometimes with purple intermediate zones. Inclusions are fairly numerous and mainly consist of sand-quartz, mica, small limestone fragments and vegetal temper; iron oxides are certainly present in the fabric but not regularly visible under a 10X magnification. Surface treatment is varied and vessels made in this fabric may be slipped (red, white to pink, or with a combination of both colours) or left plain, simply smoothed with a self-slip, made by a dilution of the same fabric as that used for making the vessel.

This fabric was used for both closed and open vessels probably throughout the late Saite and Persian periods.

J1 Hard: As suggested by its name, this variant of J1 is harder than the usual local Nile fabric of the Late Period, seemingly obtained mainly as a result of a slightly differing firing process. The core is dark red to dull grey and all vegetal and limestone inclusions are thoroughly burnt out. It is rarer than J1 at Kom Tuman and is used for a wide range of open and closed shapes of the Persian and early Ptolemaic period, such as salt cellars, jars with wide mouths, and cooking pots with thick, short rims. This same repertoire is also produced in other Nile silt fabrics.

J1 Straw-rich: This fabric is a more specific variant of the generic J1 fabric. It broadly fires red to brown (2.5YR 6/6 *light red*) with very often (but not always) a dark grey core. It differs from the usual J1 by numerous and (usually) conspicuous straw/vegetal fibres visible on the surface. It is important to note that the frequency of the straw impressions on the surface does not seem to be reflected by a greater amount of straw/vegetal fibres in the paste itself, which suggests that this fabric owed much of its distinct characteristics to a specific surface treatment

rather than to clay composition. It is often used for cooking wares, such as hemispherical bowls and handled rounded cooking vessels, as well as for medium-sized storage jars with short necks. Some of these vessels (in particular the hemispherical bowls) were often covered with a thick red slip that concealed the straw/vegetal fibres visible on the surface.

J7: This fabric is simply a finer version of the J1 fabric. Inclusions are smaller and fewer in frequency allowing for the production of thin to very thin-walled vessels, but hardness does not change significantly. Larger rounded sand quartz and especially limestone grits are much rarer than in the J1 fabric, suggesting that the clay was either better levigated or that certain intentional temper additions were omitted. In any case, the clay was prepared in a different way to that used for the J1 vessels.

This fabric is relatively rare in the Late Period but is utilised for various types of small neckless jars, small bottles, and lids. Those are nearly always covered by a good-quality red slip and burnished (usually wheel-burnished).

J1 Coarse: J1 coarse is also made of the same basic Nile clay as fabric J1 and has the same inclusions of vegetal temper, sand quartz, and limestone grits. However, in this case the proportion of vegetal temper is significantly higher than that of the other Nile silt fabrics and allows for the making of large thick-walled vessels. Sometimes, the large vessels made of J1 coarse fabrics were partly thrown on the wheel (or at least turned on a slow wheel) but the fabric was better suited for shaping the vessels by hand.

While this coarse fabric was often left uncoated, it sometimes bears a thick polished or burnished red slip, or a powdery white to pink slip, the latter especially on the interior of the vessels.

J1 Red: This fabric is in principle very similar to the usual J1, but, like the Nile D of the Vienna System, differs by the significantly larger proportion and size of the limestone inclusions that were added to the paste. The firing of the vessels made in this fabric might also have differed from that of J1. The surface colours of the fired vessels are more red than brown (10R 8/8 to 2.5 YR *red*) and breaks tend to show no darker core.

J1 Red at Kom Tuman was most commonly used in the Late Period (perhaps more specifically the Persian period) for plates and dishes with thick walls. Many were covered with a thick white slip and often burnished. However, red slips are also found in combination with J1 Red vessels.

It was occasionally used for large jars with ribbed bodies of the type that was usually made in Mixed 9 fabrics. When made in J1 Red, they were often covered with a thin, scum-like, white slip.

Micaceous J1: This fabric is also a variant of the J1 fabric of the Late Period but is much harder and finer than the latter. The proportion of the usual visible inclusions is modified by increasing the micaceous and fine sand component of the clay. Coarse sand quartz, and especially vegetal tempering are reduced, while the visible limestone grits are virtually absent. Firing tends to be even and rather high and the vases often show a homogeneous red or reddish brown break with no darker core (2.5YR 6/4 *light reddish brown* to 2.5YR 5/4 *reddish/brown*).

The fabric is most typical of the Ptolemaic period when it was used for cooking wares (both cooking pots and cooking bowls), echinus bowls, and saucer lamps. However, it seems that it already started being used (at least in an intermediary stage) in the pre-Ptolemaic fourth century, for vessels such as large bowls with thickened rims and round-mouthed jugs.

In the Ptolemaic period, vases made of this fabric are either left uncoated, or covered with a thin micaceous, matte red slip. In the earlier fourth century, they are often covered with a matte red slip and painted with pink-white bands and wavy lines.

#### ***1.4.b Mixed clay fabrics***

Mixed clay fabrics are conspicuously difficult to identify. It is quite possible that they were more common than usually recognised and that, for various periods of Egyptian history, many of the fabrics described as marls were in fact mixed and did contain a certain amount of Nile clays.

So far, two distinctive and recurrent mixed clay fabrics were singled out in the Late Period pottery production at Kom Tuman. One is a fine-ware fabric and the other is used for large storage vessels.

Mixed fabric 8: This fabric was identified as being made of a mix of both alluvial and marl-based clays on the basis of the hues of its break, its structure, and the nature of its inclusions. It is finely porous and fires to a homogeneous reddish beige to pinkish beige colour (2.5 YR7/4 *light reddish brown* to 5YR 7/4 *pink*). The break may occasionally show a faint darker core (10YR 8/4 *very pale brown*). Inclusions comprise small black grits, fine sand quartz, some mica, and finely chopped vegetal temper (the latter are not very abundant but undoubtedly present). The proportion of voids in the break (either left by burnt out vegetal temper or limestone) varies from piece to piece but the structure of the fabric is never very dense and hard.

This fabric was used to produce a variety of fine ware vessels, such as dishes with overhang rim and low carination, salt cellars, or Bes jars. It was also used for a group of thin-walled open shapes with very specific surface treatment and decoration that seem to imitate, or were

inspired by, East Greek vessels. These are covered with a self-slip or a light-coloured thin slip and are very well smoothed. As a rule, they are decorated with lustrous red painted horizontal bands. It is unclear how the lustre of the paint was obtained. Some pieces suggest that the paint was burnished after application, but others have the appearance of a glazed paint, like that found on East Greek pottery.

It probably corresponds to the mixed clay fabric L7 at Saqqara (Aston and Aston 2010:8).

Mixed fabric 9: This is a slightly porous, medium fine fabric with a hackly break dominated by a scatter of fine limestone, mica, grey rounded pebbles and small rounded and sub-angular, brown and opaque sand quartz. The tiny air voids are perhaps the result of decomposed limestone. The colour of the break is brown to red-brown (5YR 5/4 *reddish brown* to 7.5YR 5/4 *brown*) with no core or with an ill-defined grey-brown one (5YR 6/4 *light reddish brown* to 7.5YR 6/4 *light brown*), and the surface is pale reddish brown, akin to that of some Nile silt fabrics. It is left uncoated.

This fabric is used seemingly exclusively for a series of short necked jars with piriform ridged bodies (LP.SJ.5).

#### 1.4.c Marl fabrics

Many of the Late Period to early Ptolemaic marl clay fabrics at Kom Tuman have a very similar appearance, although they may reveal quite different compositional features if submitted to petrography and/or chemical analyses. However, one thing that often differs sharply, even within one single group of the marl clay fabrics is the colour of the paste, which is less dependent on inclusions or nature of the fabric than on firing conditions inside the kiln.

K5: This fabric is the typical Upper Egyptian marl of the Late Period. It is medium-fine and is generally encountered in association with convoluted rim storage jars (LP.SJ.4). It usually does not contain any vegetal temper, but much fine sand, occasional limestone, and ochre. The surface colour is pinkish white (7.5YR 8/2 *pinkish white*) to pink (7.5YR 8/3 *pink*).

K5 Fine: A fine version of K5, this is a homogeneous, fine fabric, with a slightly porous pink break, usually without core. If a core is present, it is of a very faint darker/greyer hue and does not show well-defined edges. Surfaces are either cream-coloured or light pinkish buff and usually well-smoothed (7.5YR 8/2 *pinkish white* to 10YR 8/2 *very pale brown*). Inclusions are small so not easily visible, but include small dark grits, tiny limestone powder or chips, and occasional vegetal temper. The last two are usually fully decomposed after firing and result in the fine porosity of the fabric.

Surface treatment varies considerably and seems to depend very much on the shape that was produced.

This fabric was commonly used for thin-walled, small, open and closed vases, including Bes jars, as well as for larger necked jars with well-finished surfaces.

K2: This fabric is similar in colour and general appearance to K5 Fine but is used exclusively to produce thin-walled small vessels. It is also denser than the K5 Fine fabric, with even less visible inclusions and surfaces always fired to a light cream-white colour (10R 8/2 *pinkish white*). In general, this fabric was left unslipped but surfaces were always carefully smoothed and nicely finished.

Marl K2 was used for the production of small open and closed containers with very thin walls.

Green Fine Marl: This fabric is very fine, hard, and dense and is especially characterised by its firing colour, which is most usually green throughout, more rarely of a paler cream-green hue (shades in the range of GLEY 1 8/1 (*light greenish grey*)). The break is homogeneous, without core, and with very few and very small air holes. Visible inclusions consist of small-sized, rounded black grits, though other minerals are occasionally present (such as sand-quartz or iron oxides). Surfaces are extremely well finished and seem to be always covered by a very well-smoothed or slightly burnished self-slip.

As it is mainly defined by its post-firing colouring, it is possible that this Green Fine Marl is in fact a variant of the K2 fabric. In any case, it is certainly rare and unfortunately no vessel made of it is preserved as a complete profile. However, from the sherd material, it seems that it was mostly used for small jars with straight necks and flattened rims as well as for larger straight-sided vessels.

Straw marl: This is a relatively coarse light pink coloured marl fabric that was mostly used for the production of large-sized vessels. Breaks present a porous structure generally with a striking greenish core (GLEY 1 8/1 *light greenish grey*); surfaces are whitish cream. Inclusions consist of rather abundant vegetal temper, rounded sand quartz grains, red and black iron oxides, and occasional limestone (most of those are decomposed).

This fabric was typically used for imitations of Levantine imports (both torpedo jars and mortaria) and for local versions of Aegean amphora shapes both in the Late and Ptolemaic periods. It is also found in a type of deep, wide-mouthed jar with squared rim.

The great majority of the vases produced in this fabric were neither slipped, nor decorated.

It may correspond to fabric K6 at Saqqara (Aston and Aston 2010:6; French and Bourriau 2018:20–21).

#### 1.4.d Imported fabrics

The imported fabrics from Kom Tuman are very diverse. Most of them are described individually in the individual catalogue entries. Those that are listed below are only the most common ones, and come from the Aegean, the Levant, and Italy. The groupings were made on the basis of observation of fabric appearance and texture made in the field. Like for the Nile silt and marl clay Egyptian fabrics, an effort was made to link these groups to fabric types already described in existing relevant publications.

Imported fabrics are ascribed specific origins or presumed origins on the basis of shape, technological characteristics, and, when present, stamps.

##### Aegean Fabrics

**Clazomenian:** This is a medium fine, red-brown fabric (5YR 5/6 *yellowish red*) characterised by abundant medium-fine, often translucent, angular and sub-angular sand-quartz inclusions, fine mica and very fine sand. Among the Aegean imports, this fabric is distinguished by a generally wide black or dark grey core reminiscent of that of Nile silt vessels. The surface fires light reddish brown to light red (2.5YR 6/4 *light reddish brown* to 2.5YR 6/8 *light red*). It can be associated with the Clazomenian amphorae fabric, identified, among others, at Buto in sixth century BC contexts (Bourriau 2003:231).

**Chian:** This is the typical fabric of Chian amphorae which occurs in many Egyptian sites, from the Saite to the Ptolemaic period. At Kom Tuman, this fabric may be divided into at least two subgroups (possibly three), each of which seems to relate to specific chronological and morphological criteria.

The most common variant (Chian1) is a medium-fine, hard fabric, firing to a pale red-brown colour. Inclusions are abundant and consist primarily of red-brown and black particles, sand-quartz and a variable quantity of limestone (between 0.1–1.0 cm), as well as very few micas. There are also (rarely) coarse red-brown particles, perhaps iron oxides. These inclusions are often apparent on the surface and make it relatively gritty to the touch. The fracture varies from brown (7.5YR 5/4 *brown*) to red-brown (5YR 5/4 *reddish brown*) or yellowish red to reddish yellow (5YR 5/6 *yellowish red* to 5YR 6/6 *reddish yellow* and 5YR 6/8 *yellowish red*) throughout or presents a faint grey core (10YR 7/1 *light grey*). The surface is of the same tinge as the break or slightly lighter. The same fabric occurs at Buto (Bourriau 2003:230), especially in the Cache Phase (550–500 BC) and earlier (see also Bourriau and French 2007:119), as well as at Saqqara.

The second variant (Chian2) is closely related to Chian1 and is in many respects very similar to it, but it is finer,

denser, and harder. It is redder in colour (2.5YR 5/6 *red*, 2.5YR 6/6 *light red*, to 5YR 7/4 *pink*), often with no core but a paler brown-beige external zone towards the surface (7.5YR 7/6 *yellowish red*). The fracture shows fine limestone inclusions interspaced by a few larger ones (0.1 cm in diameter), few rounded sand quartz, still fewer grey grits, and micaceous particles. The surface fires buff to light beige-grey (10YR 8/2 *very pale brown* to 2.5YR 8/2 *pinkish white*). Fabric Chian2 seems to correspond to a later variant of the Chian amphora production (Bourriau and French 2007:120).

**Samian 1 (probably Samian):** This is a fine, dense, beige to pink fabric (2.5YR 7/6 *light red* to 2.5 YR 7/8 *light red*), firing to a buff surface (5YR 7/4 *pink* to 7.5YR 7/4 *pink*). It is finely porous with small inclusions, consisting primarily of mica and evenly distributed white grits and the occasional crumbly, red ochre or grog. The break is smooth and usually homogeneous in colour, light red (2.5YR 6/8 *light red*) to reddish yellow (5YR 6/6 *reddish yellow* to 5YR 7/6 *reddish yellow*), to beige (5YR 8/4 *pink* to 5YR 7/4 *pink*).

**Lesbian:** Lesbian amphorae are not frequent at Memphis but they are made of a distinctive, consistent, and easily recognisable fabric that deserves being described here. It is a medium-fine and hard, dark grey to black fabric (10 YR 4/1 *grey* to 10 YR 5/1 *dark grey*), with no core or a light grey one (7.5 YR 6/1 *grey*). It is rich in angular mineral inclusions: sand quartz grains, fine sand, and especially mica. It also occasionally contains limestone bits.

**North Aegean 1:** One main North Aegean fabric group was identified on the basis of our material, but not all North Aegean-type shapes can be ascribed to it. As will be seen in more detail below, this is not surprising as amphorae of North Aegean types were produced at a large number of different centres and workshops throughout the region, both on the mainland and on various islands. The main fabric encountered here is that used for many of the early fourth century BC amphorae. It is very fine and dense, with few white angular grits and few limestone inclusions. It is not very micaceous, if at all. The surface is rather smooth to the touch and fires pink to buff (5YR 8/4 *pink* to 7.5 YR 8/4 *pink*) and the break is redder (2.5 YR 6/8 *light red*) without a core.

**Brindisi 1:** This fabric was identified as Brindisian thanks to stamped handles. It is a fine, hard and dense yellowish beige fabric (2.5Y 8/2 *pale yellow* to 2.5Y 8/4 *pale yellow*) with a homogeneous core, becoming slightly lighter toward the external surface and firing beige to yellow (7.5YR 8/4 *pink* to 7.5YR 7/6 *reddish yellow*). The break is smooth as well as the surface which is unslipped but carefully smoothed (probably with a self-slip). Inclusions are rare and very small. They consist essentially of white grits, few micas, and tiny rounded red-brown particles.

Levant and Cyprus

Levantine 1 (Le1): This fabric represents the largest group of Levantine amphorae imports at Kom Tuman (essentially Persian period, but probably already starting in the sixth century BC). It may vary slightly as far as the structure of the matrix is concerned (from dense and laminated to porous in the break), but it forms a very consistent group as far as inclusions are concerned. The latter are made up of conspicuous medium to large ochre and grog (which under a 10x magnifying glass may look similar but are well distinguishable with a 30x magnification), limestone (sometimes as large as 6 mm long), tiny grey grits, and occasional mica. Surface colour ranges from pinkish beige to pale yellow (5YR 8/2 *pinkish white* to 2.5Y 8/2 *pale yellow*) or is pink to reddish yellow (7.5YR 7/4 *pink* to 7.5YR 7/6 *reddish yellow*). This large group probably originates from Phoenicia.

Levantine 4 (Le4): This is a hard and dense marly fabric, probably of Phoenician origin. It is exemplified by jars of similar type to those made of Fabric Le1. It has a smooth yellowish pink to cream-coloured uncoated surface (5YR 8/2 *pinkish white* to 7.5YR 8/4 *pink*). The break shows slightly darker intermediate bands and a light grey core (5YR 7/1 *light grey*) with many well-sorted small white limestone, small ochres, and red-brown crumbly particles. All inclusions are small-sized (less than 1.0 mm). One example shows larger remains of charcoal in the break.

Levantine White: This fabric was used to produce thick-walled transport jars. It is a dense fabric, showing sometimes a slightly layered structure in the break. Inclusions comprise small grey and black pebbles and few small red and black iron oxides. However, the main characteristic of this fabric is its white colour both on the surface and the break (approximately 10YR 8/1 *white* to 10YR 8/2 *very pale brown* to 7.5YR 8/1 *white*).<sup>4</sup>

It is perhaps related to the white fabric that was reported for a series of torpedo jars of fourth century and Hellenistic date found in Level 2 of Tell Keisan (Nodet 1980:121; Briend 1980:105).

Levantine Grey: This is a rare but distinctive fabric used for Levantine jars, including those of the narrow-bodied type (TP.8). It is a dense and heavy fabric firing to a greyish pink surface (7.5YR 7/3 *pink* to 7.5YR 7/4 *pink*). The break is smooth and is either bipartite, ranging from light grey (10YR 7/1 *light grey*) to grey (10YR 6/1 *grey*) inside and pink (5YR 8/3 *pink*) to reddish yellow outside (5YR 7/6 *reddish yellow*), or has a grey core. It is rich in mainly small and well-sorted mineral inclusions of angular white grits (perhaps crushed shells), fine sand, and rounded to sub-rounded grey to black pebbles. The surface is smooth. It

<sup>4</sup> It should not be confused with the “*torpédos à pâte blanche grossière*” from Tebtynis and elsewhere in Egypt (Marangou and Marchand 2007:255), which instead correspond to locally made torpedo jars in the “Straw marl” fabric that is described above.

may correspond to Fabric IP.3 at Tell el-Herr (Defernez 2012:38).

Levantine 5 (Le5): Although entered into the Levantine group, this fabric is probably Cypriote. It is the one that is most commonly associated with the mortaria of the Late Period. Its fired surface is green to very pale brown (10YR 8/3 *very pale brown*) and gritty. It has no core or a faint light green one (GLEY 1 8/1 *light greenish grey*). Inclusions consist primarily of well-sorted and abundant ochre and sand quartz.

Attic Fine Ware: The dominant fabric used for Attic glazed vessels is made of a dense, very fine, kaolinic material that fires pink or dark pink (2.5 YR 8/4 *pink* to 2.5 YR 7/6 *light red*). The break is smooth and often slightly darker with no core (10R 7/6 *light red* to 2.5YR 6/8 *light red*). Inclusions of silt-size sand are uncommon and barely visible under a magnifying glass.

Another fabric used for Black-glazed wares is of very similar structure and appearance to the kaolinitic fabric just described but is of yellowish rather than pink hues (10YR 8/3 *very pale brown* to 10YR 8/6 *yellow*) It is also used for Greek fine wares. It is presumed Attic although it could come from other centres of the Greek mainland.

## 1.5 Manufacturing techniques and regional styles

Besides fabrics, a few technological characteristics and decorative styles that are recurrent to Kom Tuman are worth mentioning in a preliminary note. Some of the decorative styles in particular seem to be unique to the site and are seemingly not encountered elsewhere. They are described under the heading of ‘Regional styles’.

### 1.5.a Manufacturing techniques

The thin walls of the Egyptian-made fine wares at Kom Tuman, in particular those made of marl and mixed clay fabrics, were often achieved by shaving horizontally the leather dry body of the vessel. This technique is well documented for the Assyrian and Persian pottery of Mesopotamia, but it is also visible on East Greek closed vessels with thin walls (for example Beazley, Payne, and Price 1931:76, section IID, pl. I:19, 21).

### 1.5.b Regional styles

The result of the analysis of the ceramic material from Kom Tuman has helped in identifying a number of regionalisms, suggesting that the residents of the site in the fifth and fourth century BC were consuming (if not producing) a restricted number of very specific wares, which are seemingly not represented in Egypt outside of the Memphite area. These are distinguished by technological characteristics, such as fabrics, firing, and surface treatment. They are normally



found in association with a range of shapes, many of which are also encountered for other, more widespread productions. The majority of the shapes consist of open and closed serving vessels (plates, dishes, jugs, and jars) hinting at a tableware function. For the time being, they comprise one type of marl fine ware (see below) and three coarser, Nile silt fabric wares. The first three belong to the fifth century BC, but the fourth dates from the mid-fourth century BC to the early Ptolemaic period. They can be described as follow:

#### 1. Red burnished painted bands

This production belongs to the fine-ware category. It is made of a fine, homogeneous, light beige mixed clay fabric (Mixed 8), with a burnished self-slip and a red-painted burnished decoration of plain horizontal bands and lines. It was used for thin-walled closed shapes (LP.FW.J.3.ii, LP.FW.J.6) and open forms, such as bowls with direct rims (LP.O.14), carinated “Persian” bowls (LP.O.17), and a high-footed chalice (LP.O.25.i). As will be discussed in more detail below, all those shapes, point to a foreign Persian, Assyrian or East Greek influence.

This style has not been formally reported from other Egyptian sites, but it may compare to a type of surface treatment found at Saqqara in the Late Period, for example, on a marl fabric jar with carinated shoulder (Rzeuska 2009:188–189, fig. 13:SQ 2018 K 09–1), corresponding to our type LP.FW.J.11. In addition, the neck of a rare Persian-style jug, which also finds a parallel in our material (LP.FW.J.8.iii), was treated in the same way, although the red slip on the vessel’s lower part was seemingly not burnished (Aston and Aston 2010:96, no. 258, pls. 29, 57). This latter vessel is made of Aston’s Mixed fabric L7, probably corresponding to our Mixed 8 fabric.

#### 2. Thick slip

This technological group is characterised by the thick light-coloured slip that covers the entire vessel’s surface. The colour of the slip varies from pure white to pink depending on how aqueous the slip or the vessel’s surface was at the time of application. In some cases, the slip may be deep red instead of light-coloured and it is often burnished. All shapes are open vessels of various sizes but with consistently thick walls. Most are plates or shallow dishes (LP.O.1.i, LP.O.1.ii, LP.O.3.ii, LP.O.4), but some rarer examples are deeper (LP.O.10.1, LP.O.11.iv). This type of slip was always applied over Nile fabrics, often in combination with the limestone-rich J1 Red.

#### 3. Red and white slip combination

This production’s surface treatment combines red and white slips on the same vessels. Both open and closed shapes have been identified and they are made of both

a Nile silt and a light brown mixed clay fabric (Mixed 8), neither of which were exclusive to the red and white slip combination scheme. The two closed shapes are jars with a short neck, carinated shoulder and handles on the side (LP.SJ.8 and LP.FW.J.11). They are related to each other, the second being a small version of the first. The open shapes are small and large dishes and plates with low carination (LP.O.3.i-ii, LP.O.4), large bowls with straight sides (LP.O.7.vi), small hemispherical bowls (LP.O.12), and bowls with direct rims (LP.O.14, LP.O.15.i). On the bowls, one slip colour is applied on the exterior and another on the interior of the vessels, while the jars are slipped in one colour on their lower part and another on their upper part.

Red and white slip combinations are not common at other sites, or, in any case, are not prominent enough to have been reported and categorised. The only vessels that are seemingly comparable are two jars or jugs from the Late Period tombs in the area of the mastaba of Akhetetep at Saqqara (Lecuyot et al. 2013:261, q1.P33 (S.P.639), pl. L, q1.P34 (S.P.640), pl. M, photos 431–432). Both are made of a Nile silt fabric. They are not described as having two different slip colours, but rather as being partially slipped. In addition, a few fragments of Nile silt open shapes of the Late Period at Buto bear a bichrome slip comparable to that of the open shapes mentioned above (personal observation).

#### 4. White paint over red slip

This production is confined to the Micaceous J1 fabric, typical of the Ptolemaic phase, and to the J1 Hard fabric. It is defined by a white or pink painted decoration over a red matte slip. The principal shape produced in this style is a one-handled, round mouthed jug (PTL.J.2), but various bowl types (PTL.O.1, PTL.O.2), and crateroids (PTL.O.6.i, PTL.O.6.ii) were also decorated in the same manner. The decoration mostly consists of a combination of horizontal plain and wavy bands, a scheme that is frequently encountered in dark paint over a light background on the common ware at Athens in the Hellenistic period, mostly from the second century BC onwards (Rotroff 2006: 55–56). Unlike the other productions identified as specific to Kom Tuman, which all fall within the fifth century BC, this one was dated no earlier than the second half of the fourth century BC.