



## The corpus of potmarks from Tarkhan

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## Introduction

Between 1911 and 1913, Flinders Petrie and a small team spent two short winter seasons at the cemetery site of Tarkhan. The principal results of these investigations were published in two excavation reports commonly referred to as *Tarkhan I* (Petrie et al. 1913) and *Tarkhan II* (Petrie 1914). The reports and accompanying tomb cards provide a wealth of data on the site, particularly in relation to a significant corpus of potmarks. This paper takes the opportunity to report on the results of a recent unpublished study on the potmarks from Tarkhan (Mawdsley 2006a).

## Tarkhan

The necropolis of Tarkhan is situated on the west bank of the Nile in the Fayum region. The site is divided into two topographically separate areas commonly referred to as the 'hill' and 'valley' cemeteries (Petrie et al. 1913, pl. 69; Ellis 1996, 153). The cemeteries were in use from the Naqada IIIA2 period until the end of Dynasty 1, with sporadic re-use from the Old Kingdom through to the Roman period (Petrie and Mackay 1915, 8–38). Approximately 2165 burials dating to the Naqada IIIA2–IIIC2 period have been identified from an examination of the published registers, maps and unpublished tomb cards.

## The corpus

Tarkhan has the fourth largest number of *published* potmarks from cemetery contexts after Abydos, Saqqara and Minshat Abu Omar (van den Brink 1992, fig. 4; Kroeper 2000, 188). To date, 356 marks have been identified from the site (Mawdsley 2006a; 2006b; 2008). Of these, 282 marks were published in the excavation reports, with 189 marks illustrated in *Tarkhan I* (Petrie et al. 1913) and 93 marks illustrated in *Tarkhan II* (Petrie 1914). The remaining 74 are new marks identified from examination of the 1600 or so handwritten tomb cards for the site and international museum catalogues. Three of these new marks were incised on pottery held in the South African Cultural History Museum in Cape Town and had been previously published by Boshoff (1996).

In 1992 Edwin van den Brink produced a corpus of published Dynasty 1 potmarks from cemetery contexts in Egypt. The corpus included 246 marks from Tarkhan. Fragmentary marks, those with *šm*<sup>ϕ</sup>*w* plant designs, three giraffe marks, two marks representing parts of a falcon incised on a foreign-made vessel, and a Semerkhet domain mark, were omitted from the 1992 corpus. These marks were included in my study in order to provide a complete

account of all marks identified at the site (Mawdsley 2006a, tables 1.1–12). Apart from the marks noted above, the remaining marks were compared and the majority allocated to one of the 77 sign-groups in van den Brink's corpus (1992, 282–96; Mawdsley 2006a, tables 3.1–3.7; 2008, tables 1–7). Descriptions of the marks in this paper will follow those sign-groups. The identifiable marks in the single, two and three sign arrangements were easily allocated to at least 35 of the 77 sign-groups identified by van den Brink (1992, 282–96). Of the 356 marks identified to date, 76 are unique to the site. Some of these are listed in van den Brink's (1992) corpus as unique forms of particular marks, while others are recently identified single examples and have no published parallels.

Apart from selected marks, the corpus is not illustrated here due to restrictions of space, but will appear on the recently launched website dedicated to the study of Egyptian potmarks created by Edwin van den Brink ([www.potmark-egypt.com](http://www.potmark-egypt.com)). As much of the work relied upon data available from museum catalogues, the unpublished tomb cards and the two reports for the site, it was decided to maintain Petrie's pottery typology and Sequence Dates (hereafter SD) as published in the Tarkhan volumes for the purposes of this study.<sup>1</sup>

### Identification of pottery carriers

One major problem in any retrospective study of published potmarks is the fact that marks were often illustrated without specific reference to their original pottery carrier (van den Brink 1992, 267). This is particularly true of the Tarkhan material where only 27 vessels with marks were illustrated in the plates of both excavation reports (Petrie et al. 1913, pls. 19–20, 46–48, 51–56; Petrie 1914, pls. 29, 31). In order to facilitate a better understanding of the possible function of the marks, identifying the original pottery carriers was considered a priority of the study. The results of this part of the study are reported and tabulated as a checklist of both museum provenanced and unprovenanced marks in Mawdsley (2008), so only an overview is provided here.<sup>2</sup> The checklist provides available information on the pottery type, museum location, tomb of origin and sign-group allocation for each mark.

To date, the museum locations for 105 marks have been identified. Of this number, 56 marks have been identified on 54 complete vessels, with 3 marks identified on 2 incomplete vessels, 25 marks identified on 25 non-diagnostic fragments, and 21 marks identified on 22 wine jar fragments.<sup>3</sup> On the basis of information obtained from the excavation reports and tomb cards, a provisional identification of the pottery carriers for a further 86 marks has

<sup>1</sup> The graves listed in the registers of both excavation reports were dated by Stan Hendrickx and cover a period from Naqada IIIA2–IIIC2. This unpublished data was kindly provided to me by Stan Hendrickx after the potmark study was completed, and I have included some of these dates in this paper where appropriate. I am currently in the process of dating all of the unpublished tombs and re-examining the dating of the published graves according to the relative chronological framework proposed by Hendrickx (1989; 1996; 2006), and according to the recent inclusion of the Naqada IIIC3 phase into the Naqada III period by Köhler (2004, 300–301; see also Smythe 2008, 157–59). This work is being undertaken as part of my doctoral research on the site.

<sup>2</sup> Since publication of the checklist a further eight marks have been identified bringing the total to 356 marks for the site.

<sup>3</sup> The majority of these marks were made before the vessel was fired, but there is a small sample of post-firing and inked marks.

been made. Overall the pottery carriers for the 191 marks include 67 wine jars, 58 ovoid-shaped storage jars, 10 other storage vessels, 19 cylindrical jars, 10 bowls, 25 non-diagnostic fragments, and 2 marked fragments from a foreign-made vessel. The original carriers of the remaining 165 marks are yet to be identified, and it is probable that an unknown percentage has been lost to study.

### Number of marked vessels

For SD 77–82 there are approximately 4400 vessels recorded in the register of burials from both excavation reports (Petrie et al. 1913, pls. 32–43; Petrie 1914, pls. 60–68). Of this number, 356 (or 8%) of the vessels were marked. This figure appears low when compared with two other published Lower Egyptian sites. At Abu Roash 11% of vessels were marked, while at Minshat Abu Omar 14% of vessels were marked (van den Brink 1992, 267; Kroeper 2000, 215). The percentage ratio at Tarkhan may be misleading due to the fact that only six marks were identified in graves dated by Petrie to SD 77. When these six marks, and the corresponding 1500 vessels from SD 77 are removed from the calculation, the percentage of marked vessels for the site increases to 12%. This figure sits well with the data from Abu Roash and Minshat Abu Omar.

### Number of graves with marks

To date, only 87 graves are known to have contained marked vessels. These tombs have been identified from the excavation reports, tomb cards and museum accession registers. All but 22 of the marks illustrated in *Tarkhan I* included a tomb number, while only seven marks in *Tarkhan II* had been allocated tomb numbers (Petrie et al. 1913, pls. 30, 31; Petrie 1914, pls. 20, 21). Petrie (1914, 12) commented that the majority of the marks illustrated in the second report originated from the large hill graves and mastabas 2050, 2026, 2038, 1982 and 1973 (SD 80–81). It is difficult to know how many of the marks belonged to these tombs, and neither the excavation report nor the tomb cards make this clear.<sup>4</sup>

The distribution of marks amongst the 87 graves is as follows: 51 graves contained one mark, 13 graves contained two marks, 11 graves contained three marks, nine graves contained four or more marks and Mastaba 1060 contained a total of 67 marks. This mastaba has the ninth largest concentration of marked vessels in Egypt after the Royal Tombs O, Z, Y, T, X and U at Umm el-Qa‘ab and Tombs S3504 and S3035 at Saqqara (van den Brink 1992, fig. 5). Tombs 1982, 2026 and Mastaba 2038 are known to have contained marks, but these remain unidentified. Five marks have been identified as originating from Mastaba 2050. These could be some of the marked vessels placed outside the mastaba as offerings mentioned by Petrie (1914, 5). It is possible that mastabas 2038 and 2050 once contained a large quantity of marked vessels similar in number to those deposited in Mastaba 1060.

<sup>4</sup> One wine jar from Tomb 1973 incised with mark 52 (Petrie 1914, pl. 21.52; sign-group XVII.13) has been identified in the collection of the Australian Institute of Archaeology, IA1.99. This vessel was one of the marked jars located at the north end of Tomb 1973 (Petrie 1914, 8). It was purchased from the British School of Egyptian Archaeology in 1949 by the founder of the Institute, W. J. Beasley (Mawdsley 2006b, 12–13).

In terms of the location of graves with marked vessels, the majority were situated in the hill cemeteries and contained 8 or more grave goods. Apart from Mastaba 1060 there does not appear to be an immediate correlation between the total number of grave goods and the number of marked vessels in a grave. Hill graves with a single marked vessel also included as many pots, stone vessels and other grave goods as hill graves with several marked vessels. Graves in the valley generally contained fewer marked vessels compared with graves in the hill cemeteries. This difference reflects the fact that the valley cemetery contained the greater concentration of graves dating to the Naqada IIIA2 period, which predates the more systematic application of marks to pottery seen during the Naqada IIIC1–IIIC2 periods.

### Sign composition of potmarks

In terms of the sign composition per potmark, the figures for Tarkhan (Table 1) demonstrate that for the 356 identified marks, single signs represent 41% of the marks, while the combination of two individual signs represents 24% of the total. The less frequent combinations of three or more signs represent only 6% of the total number of marks found at the site. Linear signs were omitted from the above calculation as it is difficult to decide whether multiple strokes and their variations represent a single sign or a combination of signs. The predominance of single signs in the corpus is in concordance with figures from other Lower Egyptian sites such as Kafr Hassan Dawood and Minshat Abu Omar (Kroeper 2000, 215; Tassie et al. 2008, 214).

### Broad chronological observations

It has been noted by van den Brink (1992, 271, fig. 5) that there appeared to be an increase in the application of marks on vessels during the reigns of Djer and Djet with a period of peak application during the regency of Merneith and the reign of Den. During the reigns of Anedjib and Semerkhet the frequency of application would appear to be reduced to that observed during the period of Djer and Djet. By the reign of Qa'a the practice of marking vessels seems to have almost ceased (van den Brink 1992, 271). This trend appears to be supported by the data from Tarkhan, where 59 marks were attributed to graves dated to SD 78–79, and 226 marks were attributed to graves dated to SD 80–81.<sup>5</sup>

### Observable trends relating to marked vessels

Van den Brink (1992, 267) indicated that there was a general consensus among scholars regarding the appearance of potmarks on only a few selected pottery types. The two principal carriers are tall jars with tapering bodies, often referred to as ‘wine jars,’ and ovoid-shaped

<sup>5</sup> It must be emphasized that to date only 87 tombs have been identified as containing marked vessels. Petrie (Petrie et al. 1913, 28; Petrie 1914, 12) allocated sequence dates to marks on the basis of comparisons with the marks from Abydos. As the majority of marks in *Tarkhan II* have no provenance, the above figures should be considered hypothetical. That being said, of the 87 graves with marked vessels, 56 of these can be dated to the Naqada IIIC1–IIIC2 period, roughly corresponding to SD 80–81.

jars with blunt-pointed bases. The wine jars would appear to be the principal type of pottery vessel marked (van den Brink 1992, 267). This observation is supported by the available data from Tarkhan, where there are 67 examples of marked wine jars and 58 examples of marked ovoid-shaped storage jars. The ovoid-shaped storage jars and types other than wine jars will be discussed first.

### **Ovoid-shaped storage jars**

A number of Petrie's type groups fall into this very broad category, specifically types 59, 60, 63, 64, 65, 68 (Petrie et al. 1913, pls. 50–53). These broad vessel types cover a wide chronological range at Tarkhan from Naqada IIIA2 to Naqada IIIC2. There is a wide variety amongst this large group in terms of size, rim curvature, shape of base and surface treatment (Smythe 2004, 322), along with a variety of descriptions for these vessels (Klasens 1958, 20, fig. 6; Kroeper 2000, 190–91; Köhler and Smythe 2004, 130–31; Smythe 2004, 321–22). Some ovoid-shaped jars are also referred to as beer jars (Hendrickx et al. 2002, 302; Köhler and Smythe 2004, 130; Tassie et al. 2008, 205). It is unfortunate that only eight ovoid-shaped storage jars were illustrated in the plates of both excavation reports (Petrie et al. 1913, 20, 51, 53; Petrie 1914, 29).

### **Marks on ovoid-shaped storage jars**

Of the approximately 1100 ovoid-shaped storage jars recorded in both registers, only 58 (or 5.2%) were marked. This figure is lower than that observed at Minshat Abu Omar where 16% of ovoid storage jars and conical jars were marked (Kroeper 2000, 214), and at Abu Roash where 9% of the ovoid-shaped storage vessels were marked (van den Brink 1992, 267–68). Of the 58 marked vessels identified to date, the two principal types of marked storage jars are type 59 jars with 31 examples and type 63 jars with 13 examples.

It has been noted by van den Brink (1992, 267, 277) that linear signs, made up of strokes and dots, were mainly applied to ovoid-shaped storage vessels, but it would appear that this trend is *not* observed on the ovoid-shaped storage jars at Tarkhan. Only 18 out of the 58 marked vessels (or 31%) were incised with linear marks comprising from one to four vertical strokes. Of the 31 examples of type 59 vessels, 11 were incised with linear marks. Linear marks appear more frequently on types 59b, 59f, 59h, 59k and 59p. Overall the low percentage of linear marks on the ovoid-shaped storage jars does not take into account the fact that the pottery carriers for over 20 linear marks are unknown. Due to the unimpressive nature of linear marks and the possibility that single linear marks may not have been easily identified, it is probable that more of the ovoid-shaped storage vessels listed in the grave registers were marked than were recorded. In terms of the meaning and function of linear marks, it is possible that they are related to simple accounting practices or localised socio-economic activities, such as food production or distribution (Bucheze 2004, 683–85; Tassie et al. 2008, 218). It is also possible that the pre-fired linear marks were applied at the place of manufacture of the vessel and may have served as either workshop or makers' marks (see Hope 1999, 126; see also Bréand this volume). Any such interpretation is, of course, dependent upon the pottery type.

The remaining marks on the ovoid-shaped storage vessels include examples of the crossed-line sign (sign-group VIII), signs that may represent a shelter (sign-group XXI.1; see Fig. 1.1), inverted Vs (sign-group XXXII; see Fig. 1.2); squares (sign-group I), *mr*-hoes (sign-group XVII) and plants (sign-group XXIII).<sup>6</sup> One unique mark appears to be the jackal god Wepwawet (Petrie et al. 1913, pl. 31.81; sign-group XXXIV. 4.1).

### Other storage jars

To date, 10 other marked storage vessels have been identified including types 81f, 85e, 85f and 88e. These may correspond to the wide group of vessels in Klasens' (1959, 43, fig. 4) Class E. Of the other storage forms, 91h has a bulbous convex-concave body and a flat base (Petrie et al. 1913, pl. 58; Klasens 1958, 20, fig. 6; see Fig. 1.3), while 91u (Petrie 1914, pl. 31) is a very small squat jar with a flat base. A type 72g rimless jar with a groove around the shoulder and a flat base is also marked (Petrie et al. 1913, pl. 53; Klasens 1959, 43, fig. 3). The most common marks appear to be linear, although a fence-like sign (sign-group XXII.6), a square (sign-group I), a crossed-line sign (sign-group VIII; see Fig. 1.3), a *mr*-hoe (sign-group XVII), and a tree-like sign (sign-group IV.1) are also represented.

### Bowls

The ten marked bowls identified to date include a range of shapes from flat open forms to deeper forms such as types 2d, 12p, 14y 17g, 17m, 27f, 27g, 33I and 37e (Petrie et al. 1913, pls. 46–48). Only four marked bowls were illustrated in *Tarkhan I* (Petrie et al. 1913, pls. 19, 46–48). There seems to be no particular pattern with regard to marks on the bowls, although there are too few examples to draw any firm conclusions. Marks include linear or curved lines (see Fig. 2.1), a *mr*-hoe (sign-group XVII) and plain square (sign-group I) signs.

One of the most interesting marks appears to be a *šm*<sup>c</sup>*w* plant-like design and is found on a type 37e bowl from Mastaba 1060 (Petrie et al. 1913, 11, 58). As the Tarkhan vessel has not yet been located it is difficult to say whether the mark was made pre- or post-firing. The bowl has been identified as an early form of the classical Old Kingdom Maidum bowl but is deeper than later examples (Hendrickx et al. 2002, 282).<sup>7</sup>

### Cylindrical jars

The 19 marked cylindrical jars include types 46b, 46h, 46d, 47b, 47m, 48l, 48s, 49d, 49l and 50e (Petrie et al. 1913, pl. 49; Petrie 1914, pl. 29). The earliest forms include those with an applied decorative band (either with or without a net pattern design) and are represented at Tarkhan by types 46b, 46d, 46f, 46h and 46k. The majority of these cylindrical jars were

<sup>6</sup> For a discussion of the distribution of the crossed-lined sign (or *croix simple*) see Bréand (2008, 37–81); for a discussion of the *mr* sign see Anselin (2007).

<sup>7</sup> Only a few examples of marked early-form Maidum bowls have been identified, and include four bowls dating to the later Naqada III period from cemetery contexts at Adaima (see Bréand this volume, fig. 6). Each bowl has a different sign incised before firing on the exterior of the bowl, with one bowl also containing a mark made post-firing. See also Hendrickx et al. 2002, 281–84.

located in tombs dated to SD 77–78, corresponding to Naqada IIIA2–IIIB, and appear to be concentrated in the valley cemetery (Petrie et al. 1913, pls. 32–41; Hendrickx 1996, 59, fig. 3). It is, however, interesting to note that seven of the marked cylindrical jars originated from tombs located in the hill cemeteries, all of which date to the Naqada IIIA2–IIIB period. Types such as 48s, 49d and 49l are generally found in graves that can be dated on the basis of pottery to the Naqada IIIB period, while type 50e is found only in graves dating to the Naqada IIIC1 period (Hendrickx 2006, 85).

Eight of the marks found on the cylindrical jars are unique to the site (Mawdsley 2008, tables 5 and 7). Two of these were made post-firing; one represents a crude long-legged bird which may be a crane on a type 46h jar (see Fig. 2.2) and the other appears to be a *k3*-like sign with a large star on a type 48l jar (see Fig. 2.3). Other previously unattested marks include two *ntr*-like signs facing each other, a line of four inverted V-signs, possibly representing a mountain range, and a mark that has the appearance of a hobble for tethering animals (Gardiner V19). The most interesting of the cylindrical jars are three that were marked in ink with the fore- and hindquarters of a giraffe. These marks were originally described as the fore- and hindquarters of a zebra (Petrie et al. 1913, 9, pl. 3.6). The remaining marks include examples of the crossed-line sign (sign-group VIII), a shelter (sign-group XXI.1) and linear signs.

### Large storage vessels or wine jars

There are 96 large storage vessels or ‘wine jars’ listed in the published registers for both the valley and hill cemeteries, of which 67 vessels (or 69%) are marked. These vessels are represented by two types referred to as type 75 and type 76 (Petrie et al. 1913, pls. 54–56).<sup>8</sup> The wide variety of shapes in Petrie’s type 75 seen at Tarkhan include an ovoid body tapering to a flat base (75b, 75c, 75e, 75j, 75k, 75m) and an ovoid body tapering to a flat base with three to four pushed up, vestigial wavy handles at the shoulder corresponding to Type IIb of van den Brink’s (1996, 144) study of *serekb*-incised pottery storage jars. These types are found in graves dated to SD 77–81 (Petrie et al. 1913, pls. 54–55). To date, 17 examples of marked type 75 vessels have been identified.

A variety of type 76 jars are also found at Tarkhan. The various shapes include tall elongated jars that have three bands of rope decoration around the shoulder, waist and base of the pot (van den Brink 1996, 148). This form corresponds to Petrie’s type 76b (Petrie et al. 1913, pl. 56), to Type IVa of van den Brink’s (1996, 148) study on *serekb*-incised pottery storage jars, and to wine-type 3 in Kroeper’s (2000, 192, 195) study of marked vessels at Minshat Abu Omar. Other forms include jars without bands or jars with up to three plain bands of decoration applied to the body. These forms at Tarkhan correspond to types 76c–76e, 76g, 76j, 76l and 76m (Petrie et al. 1913, pl. 56), to Type IV b–d (van den Brink 1996, 148) and to wine-type 0–4 (Kroeper 2000, 192, fig. 3). These types are found in graves dated to SD 78–82 (Petrie et al. 1913, pl. 56). Currently, 23 examples of marked type 76 vessels have been

<sup>8</sup> More detailed analysis of the wine jars from Tarkhan is required, in particular the application of pottery indexing following the work undertaken by Köhler and Smythe (2004) and Smythe (2008, 154–57) on the wine jars from Helwan.



identified. A further five examples of marked wine jars of unknown type and 22 marked fragments of wine jars (representing 21 vessels) have also been identified. One marked type 74g vessel is also included in this category of large storage or wine jars.

In terms of provenance, 46 jars can be directly associated with 26 graves. Fifteen of these graves contained a single marked wine jar, while 11 graves contained two or more marked jars. The remaining 21 marked wine jars have no tomb provenance (Mawdsley 2008, tables 1–6).

### Marks on wine jars

Of the 67 marks on wine jars, 35 are single signs, 28 contained two signs, and 4 are comprised of three or more individual signs. Single signs account for 52% of the marks on wine jars, while the combination of two individual signs accounts for 41%, and the three or more individual sign combinations for 6%, of the total number.

A very broad range of signs and sign combinations are represented on the wine jars including crossed-lines (sign-group VIII), *mr*-hoes (sign-group XVII), double and triple triangles (sign-group XIII; see Fig. 3.1), circles, squares (sign-group 1), plants, shelters (sign-group XXI.1) and even what appears to be a stylised crocodile (see Fig. 3.2). Also included in this list are marks that have the appearance of certain hieroglyphs, such as *ntr*, *k3*, *hṭp* and *šn* (see Fig. 3.3), along with emblems associated with Upper Egypt and Lower Egypt such as the *šmꜣw* and the *t3 mḥw* plants, and *serekb*-like marks (Mawdsley 2006b; 2008, tables 1–6; see Fig. 4). It is interesting to note that linear marks used as single signs do not appear to be applied to the wine jars. A number of the marks are unique to the site or represent rare examples found infrequently at other published sites, such as five incised circles on a type 76c jar (see Fig. 5) and a man holding a *mr*-hoe adjacent to a *t3 mḥw* plant on a type 76d vessel (Petrie et al. 1913, pl. 56). Space precludes a detailed discussion of all the signs here, so I will focus on three groups of signs described as harpoons, mace or *ḥd*-like signs, and three triangles, as they are considered to be unique or rare within the repertoire of Dynasty 1 potmarks.<sup>9</sup>

### Harpoons

A unique group of pre-fired single harpoon-like marks appears to be found exclusively on Tarkhan wine jars (sign-group LXII; Gardiner T 20). A variation of this mark in the form of a double harpoon is attested at Abusir (Bonnet 1928, pl. 30.31–32).<sup>10</sup> There are currently 14 examples of the single harpoon mark. Petrie published 12 (1914, pl. 20.15–26) and two were previously unpublished (Mawdsley 2006a, tables 10–11).<sup>11</sup> Of the 14 examples, 12 were

<sup>9</sup> A more detailed discussion of the marks on wine jars can be found in an unpublished version of this paper prepared as a pre-paper for the Origins 3 Potmark Workshop, London 2008 at [www.potmark-egypt.com/Articles.asp](http://www.potmark-egypt.com/Articles.asp); see also Mawdsley (2006b).

<sup>10</sup> My thanks go to Edwin van den Brink for alerting me to the location of this double harpoon mark. Bonnet's (1928) mark 30.32 is closer in design to the marks at Tarkhan than mark 30.31. I would suggest that 30.31 is a form of van den Brink's (1992, 289) sign group XI.

<sup>11</sup> Previously unpublished marks are Royal Museums of Art and History, Brussels, E.4493 (illustrated here in Fig. 6); Petrie Museum, London, UC28629.

found on 12 fragments of type 76 wine jars in the collection of the Petrie Museum, London. A further mark was incised on a complete type 76m jar held in the collection of the Royal Museums of Art and History, Brussels (see Fig. 6), and one mark is currently unlocated.

With regard to provenance, the complete marked type 76m wine jar from Brussels was discovered in Tomb 2053 placed on a mat over the coffin (Petrie 1914, 6). According to Petrie (1914, 6), this tomb was located in the north corridor of the large mastaba 2050 along with two other graves numbered 2051 and 2054. All three graves were covered by raised brickwork (Petrie 1914, pl. 18). Material from both Mastaba 2050 and Tomb 2053 have been carbon dated to the Naqada IIIC2 period (Hendrickx 1999, 79–80), roughly corresponding to SD 81. Identification of provenance for the remaining marks is more difficult. Three wine jar fragments held in the Petrie Museum were marked in pencil with the number 2050, and I venture to suggest that the remaining marks originated from wine jars once deposited as offerings either outside or within the complex of this large mastaba (Petrie 1914, 5).

Due to the size and the palace-façade decorative style of Mastaba 2050 it is presumed that the owner was an elite regional official. If the majority of the marked vessels originated from this tomb, then the harpoon sign may have been one of some significance to the tomb owner. It could be argued that the mark once identified products from a Fayum-based estate administered by the owner of Mastaba 2050 on behalf of the Tarkhan urban centre. The placement of the harpoon-marked vessel in the subsidiary Tomb 2053 could have signified some close personal or professional association with the owner of Mastaba 2050.

### Mace or *hd*-like signs

Another unique or infrequently-applied group of marks appearing at Tarkhan contain mace or *hd*-like signs (sign-group XXXVII; Gardiner T3). While the *hd*-like mark as a single sign is represented at a number of sites such as Abydos, Tell el-Farkha and Minshat Abu Omar, there are only eight examples of this mark in a two sign combination, and one example of a three sign combination, published to date (Petrie 1900, pl. 53; 1901, pl. 55c; Emery 1938, pl. 41; van den Brink 1992, 294; Kroeper 2000, 209; Mawdsley 2006a, 82; Jucha 2008, 145). Where data is available, it is interesting to note that many of the single and combination marks appear to have been incised on wine jars, particularly at Tarkhan and Minshat Abu Omar (Kroeper 2000, 208–209). The *hd* sign also appears to have a strong association with named *serekh* marks, two of which were found incised on wine jars in Tarkhan Tombs 414 and 1702 (Petrie et al. 1913, pl. 31.68; Petrie 1914, pl. 20.1; van den Brink 2001, 39). This sign is also attested on an estate mark dated to the reign of Den (Petrie 1901, pl. 18.144).

At Tarkhan, the *hd*-like sign is combined with what appears to be another implement, possibly a dagger or knife (sign-group XXXVII.6.2). This combination is attested twice and appears to be unique to the site. One mark was found on a type 76m vessel from Mastaba 1060 (SD80) and the other on a type 76c vessel from Tomb 157 (SD79) (Petrie et al. 1913, pls. 63–64).<sup>12</sup> Another two marks combine the mace or *hd*-like sign with a square, a combination not attested in van den Brink's (1992) corpus (see Fig. 7). Both of these marks were incised

<sup>12</sup> Both tombs have been dated on the basis of pottery to the Naqada IIIC2 period by Stan Hendrickx.

on type 76l vessels and found in Tombs 126 and 90 dated to SD 81 (Petrie et al. 1913, pl. 66). While it is not unique to Tarkhan, it is certainly a rare combination, appearing four times at Abydos, incised on three vessels from the tomb of Merneith and on one vessel from the tomb of Semerkhet (Petrie 1900, pl. 55; Helck 1990, 39). It has also been found at Minshat Abu Omar incised on two wine-type 2 jars (Kroeper 2000, 195, 208). The combination of the square or rectangle and the *hd*-like sign may refer to *pr-hd*, the ‘White House’ or treasury (Gardiner O2). The earliest identified reference to the treasury as the *pr-hd* is attested on a seal impression from the tomb of Merneith at Abydos (Petrie 1900, pl. 12.36). One major problem with the above association is that few of the hieroglyphs identifying estate and domain names found on seal impressions can be identified as incised marks on pottery vessels at Tarkhan. In addition, it must be emphasized that it is almost impossible to know whether such a combination conveyed the same (or similar) meaning when incised on pottery (see Regulski 2008, 985–97).

### Triangles

This group includes three marks composed of three joined triangles and a second individual sign (sign-group XIII). The three joined triangles are combined with a stroke (sign-group XIII.4.1; UC17192), a *p*-like sign (sign-group XIII.21.1; UC17191; see Fig. 3.1) and a circle. All of the combinations appear to be unique to the site and were incised upon type 75b vessels. Two were identified as originating from Tomb 42 dated to SD 78 (Petrie et al. 1913, pl. 61).<sup>13</sup> The triangle and circle combination was a new mark (UC17193) without any identified tomb context and was not included in van den Brink’s (1992) corpus. On the excavation card for Tomb 42 three large jars are roughly illustrated and it was noted that large jars in rope nets full of scented fat were placed at the south end of the tomb (Petrie et al. 1913, 9). Given this information, it is possible that the recently identified marked vessel may also have originated from Tomb 42.<sup>14</sup>

There are only nine different stylistic examples of the rare three triangle mark published to date (van den Brink 1992, 290; Kroeper 2000, 209–210; Mawdsley 2006a, table 3.3). Tarkhan has four examples, three of which are unique to the site, as mentioned above, while the fourth is one of five examples combined with a stellar-like sign (sign-group XIII.12.4; Kroeper 2000, 210). This mark was discovered in Tomb 1060, but the original carrier has not yet been located. It is possible that the three triangle and secondary sign combination was a mark incised exclusively on wine jars. This suggestion is based upon the fact that the three unique examples from Tarkhan were incised on type 75b jars, and a further three examples from Minshat Abu Omar were incised upon wine-type 1, 3 and 4 jars (Kroeper 2000, 209–210).

<sup>13</sup> Tomb dated to the Naqada IIIB period by Stan Hendrickx.

<sup>14</sup> Further to this, all three jars are made from Nile silt with the following ware codes: UC17192, ware code 21324; UC17191, ware code 21324; UC17193, ware code 213+40, based on descriptions kindly provided by Jane Smythe. For the ware codes, see Köhler (2005, 47–48).

## Discussion

There are still a number of crucial issues relating to the function of marked vessels that need to be addressed, particularly in relation to their administrative use during Dynasty 1. (Mawdsley forthcoming). The number of published marks from cemetery contexts far exceeds those from settlement contexts, and this has tended to influence the functional interpretation of the marks. A link between marked vessels, in particular wine jars, and a centralized administrative network (possibly restricted to funerary practices) was proposed by van den Brink (1992, 274). My current opinion on the matter differs, and I would suggest that rather than being restricted to the realms of funerary administration, it is possible that many of the marks reflect a pre-mortuary administrative function related to the origin or destination of the original contents of the jar in its first stage of use. I think that the majority of the marked wine jars fall into this category. Marked vessels such as bowls, storage jars and bread moulds also served a pre-mortuary function related to simple accounting, domestic activities or food production, but I think that the primary function of these marked vessels should be considered separately from that of marked wine jars (see, for example, Buchez 2004; Bréand 2005).

In support of the above suggestion, the small number of tombs with marked vessels at Tarkhan would tend to indicate that the primary and original function of the majority of these vessels was not funerary. Of the 206 published tombs at Tarkhan dating to the Naqada III C2 period (Hendrickx 2006, 90), only 48 are known to have contained marked vessels. If marked vessels were produced primarily for the funerary market one would expect to see a greater number of these vessels in graves across the cemetery, particularly during the Naqada III C2 period when the practice of marking vessels reached its peak.

It would appear more likely that marked vessels, particularly wine jars, were deposited in tombs for a variety of reasons, such as their rarity, prestige value, or an association with a particularly significant activity, event or place (Mawdsley 2006a, 47–48; Tassie et al. 2008, 222). An example of this form of re-use may be seen in the discovery of a vessel marked with a *šm*<sup>w</sup> plant in non-elite Tarkhan hill tomb 5 dated to SD 79 or Naqada IIIB (Petrie et al. 1913, pl. 63). As the *šm*<sup>w</sup> plant has royal associations (Helck 1990, 146–47), the presence of this wine jar in the tomb suggests that the non-elite made funerary use of marked vessels after those vessels ceased to have any administrative function or value. It is also interesting to note that the presence of marked vessels in graves at Tarkhan does not seem to be linked to elite status. A different picture emerges from Kafr Hassan Dawood and Minshat Abu Omar where marked vessels appear to have been largely restricted to elite or wealthy graves (Tassie et al. 2008, 207, 217, fig. 3). This difference may reflect the fact that the cemetery at Tarkhan serviced a larger urban population where access to a wide and varied range of goods for both domestic and funerary purposes may not have been restricted to certain social classes. That being said, the small number of marked vessels at the site is problematic and may indicate that some other form of restriction was placed upon the use of these vessels.

In addition, the tomb cards indicate that a number of marked vessels contained substances described by the recorder as fat, mud or ash. Marked wine jars often appeared to contain ash or mud and examples of such vessels are mentioned in the descriptions of Tomb 54 and Mastaba 1060 (Petrie et al. 1913, 10, 12). It would appear that the substances were used as substitutes for the original contents of the jar, and this fact provides further evidence that the

primary and original function of marked wine jars, in particular, was not funerary.<sup>15</sup> It could be argued that the presence of mud or other substances is not unique to marked wine jars and may reflect activities related to ritual practice; however, if treatment and use within the burial was similar for all wine jars, then exactly what purpose was served by marking some jars and not others?

In terms of the meaning of the marks, it has been suggested that they more than likely indicate the place of origin of the vessel (Kroeper 2000, 216; Tassie et al. 2008, 215). A strong case has been argued for the association of the square and fish combination mark (sign-group 1.30.53) with a place or production centre(s) in the (East) Delta region (Kroeper 2000, 188, 208–209; Tassie et al. 2008, 215–217). The unique harpoon marks found at Tarkhan could also have identified an estate or production centre, but as the mark does not appear to have the distributive range seen with the square/fish combination it remains difficult to interpret. While the marks appear to be restricted to the cemetery of Tarkhan, and possibly Abusir, the non-mortuary distribution of such marked vessels may have been somewhat more extensive.

While place of origin is a logical explanation, the large number of different marks would tend to suggest a more complex situation. Does every mark really represent an estate or production centre? Our knowledge of the function and operation of estates, domains and distribution centres is a developing one, and if we were to assume that every sign and sign-combination represented individual production centres/estates, then the number of these centres would be extensive. At Tarkhan there are at least 35 out of the 77 sign-groups from van den Brink's (1992) corpus plus an additional 76 unique marks represented on pottery vessels. I think we should consider the possibility that marks were also incised on pottery at the place of manufacture in order to represent the ultimate destination of the vessel. With this in mind, I would suggest that some of the pre-incised marks may have been used as a tool to facilitate the distribution of commodities to specific building projects or to institutions, such as the palace, royal tomb, royal mortuary complex, temples, cultic structures, and centres of regional administration.<sup>16</sup> Such an arrangement pre-supposes a complex administrative network and suggests that some products may in fact have been pre-ordered and delivered to an exact destination for a specific purpose. The commodities contained within these marked vessels may have been used as payment to the priests, elite and non-elite personnel associated with royal, religious and regional projects and institutions, as well as to support the religious activities of the court and the daily requirements of the king, royal family and regional elite.

One example of a location-related mark seems restricted to Abydos, Saqqara and Tarkhan, and is similar in design to the hieroglyph *hṯp* (Gardiner R 4; sign-group XVIII). These marks are illustrated with a dome atop a rectangular structure and their significance lies in the fact that the sign appears to be different at each site. The two examples from Tarkhan display a rounded dome and were incised on wine jars, while the provenance of both is uncertain, it is probable that they were associated with one or more of the large tombs or mastabas located in the hills (Petrie 1914, 12). There are also two forms found in the tomb of Djer, two in

<sup>15</sup> When the issue of a pre-mortuary function for marked wine jars was raised during the Potmark Workshop at the *Egypt at its Origins 3* colloquium in London (2008), Stan Hendrickx indicated that the marked wine jars from Tarkhan held in the collection of the Royal Museums of Art and History, Brussels, showed evidence of wear consistent with pre-interment use. Clearly, a more detailed examination of marked wine jars is required.

<sup>16</sup> Such marks could be referred to as location-related or location-specific marks.

the tomb of Merneith, one in each of the tombs of Den and Qa'a, and in Tomb 3504 at Saqqara (Helck 1990, 68–69). The marks found at Abydos and Saqqara contained lines or dots within the rectangle, while the Tarkhan marks are without elaboration. The different patterns may have been used to identify locations so that products from one or more estates could be delivered either directly to specific tombs or to palaces or administrative centres connected to these sites. This example raises the issue that it may be necessary to consider the deposition of marked vessels in the elite mastaba and royal tombs separately from the deposition of marked vessels in non-elite tombs. It is possible that some vessels, particularly wine jars, were sent directly to the royal and elite tombs from estates and represent the first and only use of these jars; however, the example of an ash-filled wine jar from elite Mastaba 1060 at Tarkhan suggests that perhaps a mix of used and non-used vessels were deposited in these tombs.<sup>17</sup> While the above suggestion contradicts my argument regarding a pre-mortuary function for marked vessels, it must be acknowledged that my interpretation may not apply to all situations. This contradiction also serves to highlight the complexity of the problem and the need to examine all plausible explanations.

If the marks convey information relevant within an administrative context, how was all this arranged and controlled, and how do the marks reflect this arrangement? Such questions are not easily answered, but I would argue that the manufacture and distribution of marked vessels, in particular wine jars, was controlled by the state and regional administration, and that the commodities originated from royal estates and domains or their regional equivalents (Mawdsley 2006a, 45).<sup>18</sup> It is difficult to say whether this network of production and distribution was considered as a form of taxation (see Wilkinson 1999, 126). It is possible that we could be looking at several different types of operations here. The first concentrated on production and distribution for taxation purposes, with some marks such as the square/fish combination used as a visual means of identifying the source of supply. The second concentrated on product re-distribution, with some marks identifying destination and thus facilitating delivery. Both processes were designed to support the operation of the royal court and regional administration.

The distinction (if any) between the operations may have related to how the product was used and by whom. Goods produced for taxation purposes may have supplied the mortuary needs of the royal and elite tombs, or else were perhaps used as offerings at significant royal events, while the products destined for re-distribution were used to support the daily economic operation of the administration at both a royal and regional level. In this context, the marks provided the visual means that enabled the system to track the collection and distribution of goods. It is possible that the process of pottery production and marking occurred at both estates and at distribution centres, with each responsible for the delivery of the pre-

<sup>17</sup> It is interesting to note that even in the Abydos Royal Tombs there is evidence of vessel re-use. Examples of this can be seen with the identification of two different organic residues in a marked vessel from the tomb of Djer suggestive of pre-interment use (Serpico and White 1996, 138–39), and in the presence of pre-used vessels in the tomb of Qa'a (Engel 1997, 24).

<sup>18</sup> A similar view is also held by those engaged in the study of the potmarks at Kafr Hassan Dawood, but differs when considering the role played by the state in the control and application of the marks, preferring to see any standardization as the result of economic interaction between the national (or royal) and local elites (Tassie et al. 2008, 216, 222).

ordered products; however, the practicalities involved in any such operation are unclear and require more in-depth research. While the above scenario is highly speculative and represents but one possible interpretation, it cannot be denied that the level of complexity required to manage the taxation, distribution or re-distribution of products suggests a highly organized, if not multi-layered network, with an ability to communicate effectively in order to maintain production, identify and control access to commodities, and to satisfy supply.

In terms of the arrangement of the system, it has been proposed that the frequency of certain sign groups at sites may be an indication of the existence of large administrative centres located in the regions of Abydos and Memphis, and of smaller centres throughout Egypt (van den Brink 1992, 275; see also Tassie et al. 2008, 214). With regard to Tarkhan, apart from the harpoon sign, the only other mark that dominates the corpus is the square. There are at least 35 examples of squares and square combinations, but as this group represents the largest set of marks in the Dynasty 1 corpus the number at the site is not surprising (van den Brink 1992, 282). A number of marks, such as the *h<sub>1</sub>tp*-like sign and a sign that combines a square, triangle and T (sign-group 1.58.42), appear to be concentrated at the major cemeteries of Abydos, Tarkhan and Saqqara. The square-triangle-T combination is attested six times at Tarkhan, three of which are associated with Mastaba 1060 (Petrie et al. 1913, pls. 30–31; 1914, 12). Examples of this combination are found in the tombs of Den, Merneith, Anedjib, Semerkhet and Qa'a at Abydos (Petrie 1900, pl. 52; Helck 1990, 26–27). The mark has also been found on vessels in the tomb of Hemaka and in Tombs 3506 and 3111 at Saqqara, with further examples found at Abu Roash and Helwan (Emery 1938, pl. 40; Montet 1946, 159; Helck 1990, 27; Smythe 2008, 183, fig. 32). The example from Helwan was incised upon a wine jar (Smythe 2008, 173) and it is likely that the marks from Tomb 1060 were also incised on wine jars.

While the *h<sub>1</sub>tp*-like sign and the square-triangle-T combination are but two examples, the potmark evidence would appear to indicate that Tarkhan maintained strong administrative relationships with both Abydos and Memphis, and these economic and political interconnections require further research. The location of the cemetery of Tarkhan would suggest that the primary urban centre was ideally placed in an advantageous and strategic position near the Nile with the potential for exercising some control over the flow of goods to settlements, cemeteries, religious and royal structures in both the Delta and southern Egypt. It seems likely that the urban centre would have also played a major role in the regional production, collection and distribution of commodities, and in the management of those activities. Considering the number of potmarks from the cemetery, the urban centre of Tarkhan was undoubtedly one of the most significant non-royal administrative centres in Egypt during this period.

## Conclusion

Generally the trends observed by van den Brink (1992) for published Dynasty 1 marks are followed at a regional level at Tarkhan. The exception to this relates to the number of linear marks on ovoid-shaped storage vessels found at the site. It is difficult to say whether this exception is significant or not and what the functional implications of this exception might

be. It is possible that any variations merely reflect a random process of selection of particular pottery vessels as grave goods based upon personal preference or other socio-economic decisions made by family members of the deceased.

While the primary function of the majority of the pre-incised marked vessels was administrative or domestic/food production related, it cannot be discounted that post-fired scratched and inked marks may have been applied for funerary or other purposes, such as artistic expression as in the case of the three giraffe marks applied in ink to three cylindrical jars from Tarkhan, or simple graffiti (see Bréand 2005).

The process of identifying the original carriers of the Tarkhan marks is a continuing and important project. The collective data generated from this work, and current work undertaken at sites throughout Egypt, may facilitate a better understanding of any denotative system in operation. At this point in time it is still difficult to say how standardised the system of marking actually was given the large number of signs and sign combinations. There are still many problems and issues to be resolved, particularly in relation to clarifying some of the practicalities associated with determining the function of these marks. What appears clear is that the study of potmarks demonstrates that an extensive and sophisticated network of product distribution existed at both a regional and state-wide level during Dynasty 1. With this in mind, I strongly believe that—far from being enigmatic—potmarks should now be considered as important sources of information for understanding how the system of administration during Dynasty 1 may have operated. While much work remains to be done, it is hoped that my study has provided data that will contribute to a greater understanding of both the meaning and function of Egyptian potmarks.

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Composition of mark	Number of marks	% of total marks
Single sign	148	41.5
Two individual signs	87	24.4
Three individual signs	18	5.0
Four individual signs	2	0.5
Five individual signs	1	0.3
<i>šm<sup>c</sup>w</i> plant signs	4	1.1
Semerkhet Domain mark	1	0.3
Linear	67	18.8
Incomplete	17	4.8
Not illustrated	7	2.0
Marks on foreign vessel	2	0.5
Giraffe marks	3	0.8
<b>Total</b>	<b>356</b>	<b>100.0</b>

Table 1: Sign composition of potmarks

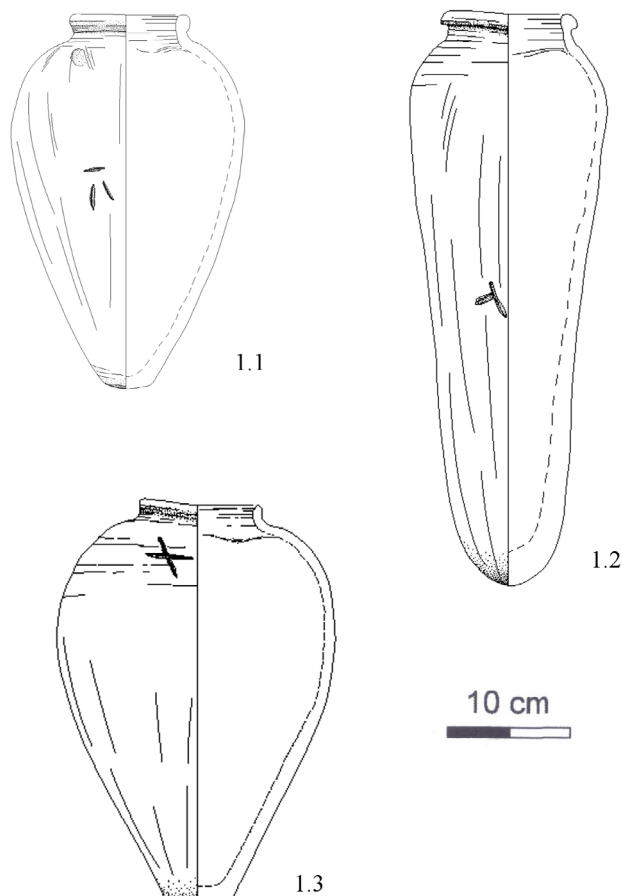


Fig. 1: Potmarks on storage jars. 1.1: UC17282; 1.2: UC17186; 1.3: UC17343. (Courtesy of the Petrie Museum of Egyptian Archaeology, University College London). Drawn by Jane Smythe.

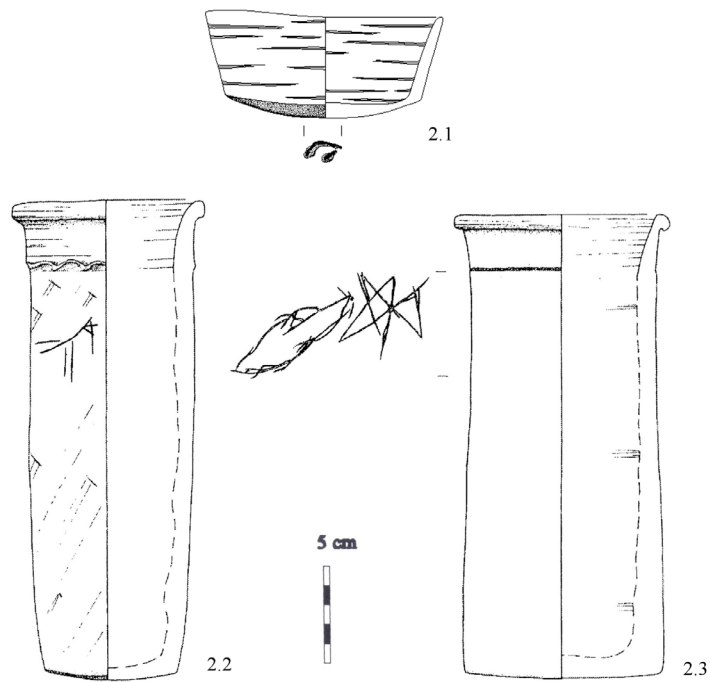


Fig.2: Potmarks on bowl and cylindrical jars. 2.1: UC16092; 2.2: UC17312; 2.3: UC17326. (Courtesy of the Petrie Museum of Egyptian Archaeology, University College London). Drawn by Jane Smythe.

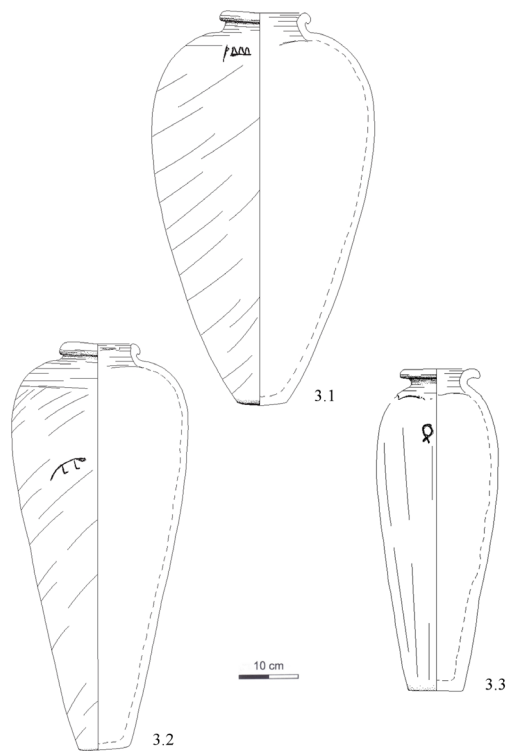


Fig. 3: Potmarks on wine jars 3.1: UC17191; 3.2: UC13403; 3.3 UC17175. (Courtesy of the Petrie Museum of Egyptian Archaeology, University College London). Drawn by Jane Smythe.

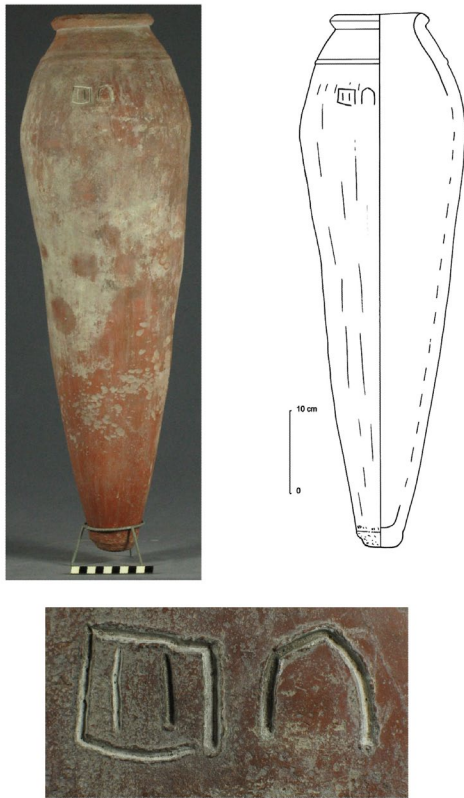


Fig. 4: *Serekh*-like potmark on a wine jar. (Courtesy of the Australian Institute of Archaeology, Melbourne. IA1.2111) Photos by H. Huggins and drawn by C. J. Davey. Potmark not to scale.



Fig. 5: Five circle potmark on a wine jar. (Courtesy of the Royal Museums of Art and History, Brussels. E.8710). Potmark not to scale.



10 cm



Fig. 6: Harpoon-like potmark on a wine jar. (Courtesy of the Royal Museums of Art and History, Brussels. E.4493). Potmark not to scale.



10 cm



Fig. 7: Square and *h**d*-like potmark on a wine jar. (Courtesy of the Royal Museums of Art and History, Brussels. E.8711). Potmark not to scale.