

AMPHORAE FROM THE COASTAL ZONE BETWEEN ANZIO AND TORRE ASTURA
(PONTINE REGION, CENTRAL ITALY): THE GIA EXCAVATIONS AT *LE GROTTACCE*,
A LOCAL AMPHORA COLLECTION AND MATERIAL FROM SURVEYS IN THE NETTUNO AREA

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ABSTRACT: This article describes the methodology and results of three recent pottery studies that are part of the GIA's long-term Pontine Region Project ("PRP"). These studies deal with Roman amphorae from the coastal area between Anzio and Torre Astura (Lazio, Italy). The first study is an investigation at the Roman villa complex of *Le Grottacce*, where stratified debris of amphora and tile production was mapped and sampled. The second study concerns a collection of amphorae in the local museum collection, while the third study is concerned with the amphora sherds that were found during the GIA's surveys in the area from 2003 to 2005. In the final section of this article we propose perspectives for integration of the three datasets and, subsequently, their interpretation in terms of socio-economic developments in the coastal area.

KEYWORDS: Central Italy, Pontine region, Nettuno, amphorae, amphora production, *villa maritima*, pottery studies.

1. INTRODUCTION

The amphorae discussed in this paper were studied as part of the Pontine Region Project (PRP), a research programme the Groningen Institute of Archaeology (GIA) started in 1987. The Pontine Region is located in southern Lazio, c. 60 km south of Rome, and comprises the Lepine and Ausoni mountains and the Pontine plain (fig. 1). Field surveys, excavations and ceramic studies are employed to study the long-term settlement history of this region from the Bronze Age to the medieval period. An overview of Roman settlement in the Pontine Region, as could be reconstructed on the basis of the surveys of the project and extant literature on the subject, was recently published (Attema & De Haas, 2005). One of the three case studies in that article dealt with the coastal zone between present-day Anzio/Nettuno and Torre Astura.

In antiquity, Roman presence in this area was boosted by the foundation in 338 BC of the Roman colony and port of *Antium*, a settlement of Iron Age origin located in a most favourable position on the coast. Around this colony a densely settled rural landscape developed, which in the late Republican and early Imperial period saw its heyday (Attema *et al.*, forthcoming). Along the coast, luxurious *villae maritimae* were built, including the well-known villae of Nero near Anzio and Torre Astura near the mouth of the river Astura. Although these villae are usually seen as meant for leisure only (*otium*), there are also indications that these were involved in agricultural

production, fish raising and other commercial activities as well. Villae were also built further inland, especially in the area of Campana, north of *Antium*. These were presumably dedicated to agricultural production; in addition to these *villae rusticae*, smaller farmsteads continued to operate in the territory of *Antium*. A decline in the rural economy set in after the 3rd century AD, from which *Antium* and its territory would not recover.

The amphorae discussed in this paper come from the area between Anzio/Nettuno and Torre Astura. Although Roman pottery was collected, recorded and published in previous surveys by the PRP, until recently no specific studies were published on Roman ceramic wares. In-depth ceramic studies primarily focussed on pottery from the Iron Age, Archaic and post-Archaic periods, with a strong emphasis on the classification of their fabrics (Attema & Van Oortmerssen, 1997/98; Attema *et al.*, 2001/02). From 2002 on, when debris layers containing fragments of amphorae were mapped at the Roman *villa maritima* of *Le Grottacce* near Nettuno, ceramic studies on Roman materials were undertaken (Attema *et al.*, 2003). These concerned both locally manufactured and imported amphorae. Studies of Roman wares intensified when the GIA started work on the *Carta Archeologica* of the city of Nettuno. The *Carta* comprises an inventory of all archaeological sites found in the municipal territory and a study of the artefact collection present in the local museum.¹ Many sites recorded for the *Carta* are of Roman date and a large

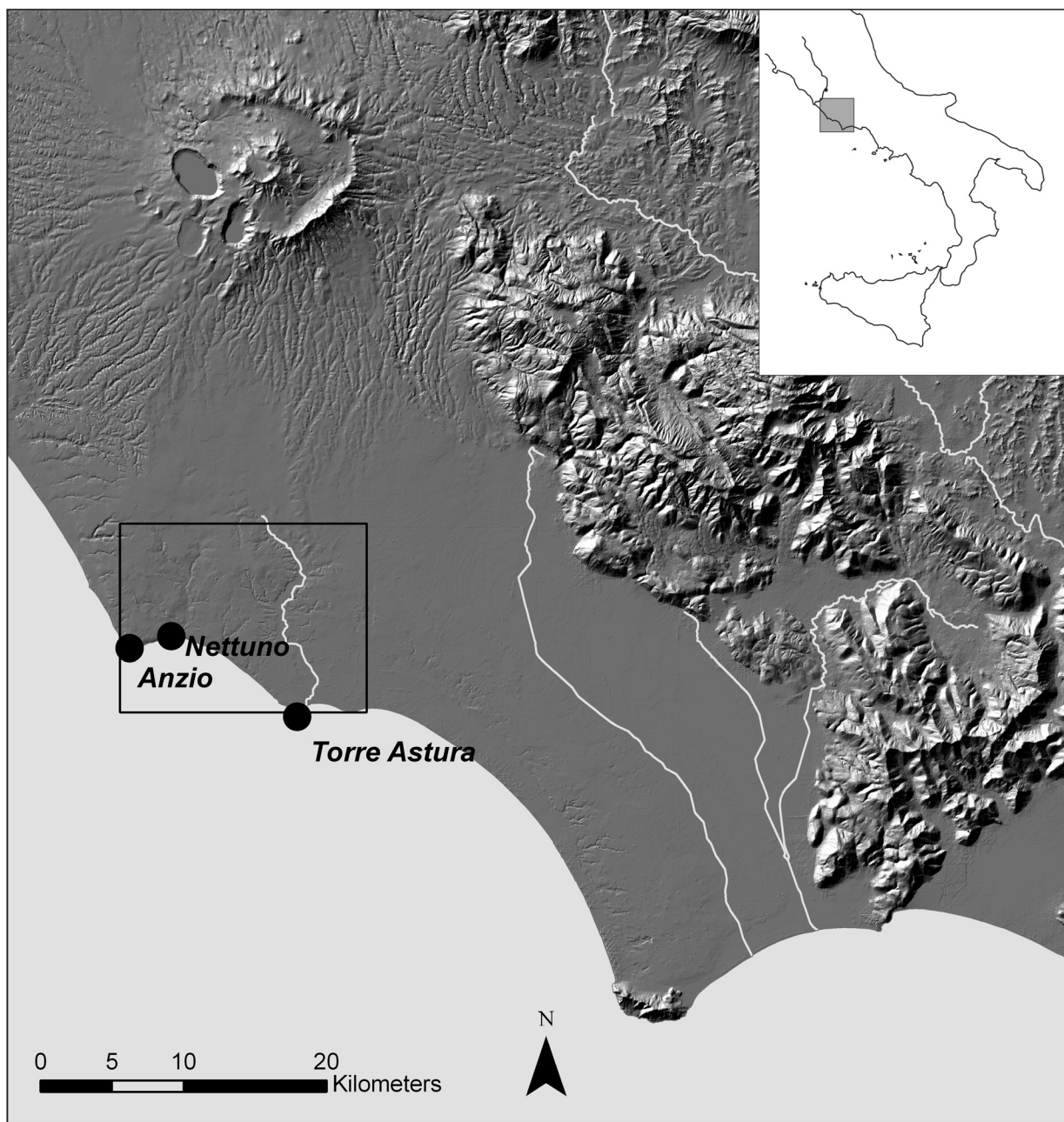


Fig. 1. Location of the study area in the Pontine Region (map T.C.A. de Haas, GIA).

part of the objects in the museum collection also dates to this period. This collection is here referred to as the Liboni collection, after the collector and present director of the local museum, Arnaldo Liboni. Both the ceramics from the surveyed sites and those in the collection contain many amphora fragments.

Amphorae from the survey come from both coastal and inland sites that range from small rural sites to large *villae rusticae* and *villae maritimae*. Except for the fragments recovered at the villa of *Le Grottacce*,

which were partly recovered through excavation, the fragments are in general small and poorly preserved, owing to repeated ploughing of the arable fields in which they lay. Their chronology ranges from the Republican to the late Imperial period.

The Liboni collection, by contrast, contains over sixty practically intact amphorae and many diagnostic parts (rims, shoulders with neck and rim, spikes).² The majority of these were recovered by fishermen from the coastal waters between the Roman villa complex

of Torre Astura and the former Roman port of *Antium*. These vessels have a thick marine incrustation. Other pieces were collected at *villae maritimae* along the coast and at large Roman villa sites located inland. The date range of the amphorae in the Liboni collection is broader and comprises the medieval period as well.

The aim of this paper is to present an overview of the amphora types in the *Le Grottaacce* samples, in the Liboni collection and in the survey materials, to establish their dating and provenience and to establish which types may be of local manufacture. Such data can be used in the reconstruction of trade connections of the Roman colony of *Antium* with other parts of the Mediterranean, of production and consumption at rural sites and at *villae maritimae* in the study area, and may also reveal valuable data on socio-economic relations between small, inland rural sites, inland *villae rusticae* and *villae maritimae*.

2. GIA RESEARCH IN THE COASTAL ZONE

In the previous section, we described the background of the GIA work in the coastal zone. In this section we discuss the three studies supplying the data in this article: the excavations at the Roman villa of *Le Grottaacce*, the study of the amphorae in the Liboni collection and the amphora data derived from our surveys in the Nettuno area.

2.1. Excavations at *Le Grottaacce*

2.1.1. *Location and previous research*

The Roman villa of *Le Grottaacce* is located directly on the coast, c. 6 km southeast of the town of Nettuno and c. 4 km northwest of Torre Astura and the mouth of the Astura river (fig. 2). The area is nowadays in use as a military base, which means that the original dune landscape is largely untouched by modern building activities. The remains of the site are located on the beach, in a large cliff section created by the sea. This means that a large part of the site has already been destroyed by marine erosion. Further inland, the site is covered by dunes.

The site of *Le Grottaacce* was described by various topographers as early as the 19th and early 20th century (see, for example, Nibby, 1837: p. 267, referring to the site as *li Grottoni*; Tomassetti, 1976: II, p. 317). The site was systematically described by Fabio Piccarreta in his *Forma Italiae* volume on the lower Astura valley (Piccarreta, 1977: 76–84. No. 15). According to

Piccarreta, the site consists of three zones: Piccarreta 15 A, a large terrace located in the south, on which the residential area was probably located; Piccarreta 15 B, in the central part of the site, is interpreted as a bath house; Piccarreta 15 C, located on the northern side of the site, comprises the remains of a workshop. To the south of the site, Piccarreta mapped the remains of a second workshop (Piccarreta, 1977: No. 14). Since Piccarreta's investigations at the site, it has been visited by local amateurs and fortunately also by the director of the local museum; the Liboni collection includes various objects that can be attributed to this villa. In the 1980s, the site was also visited by Hesnard, who collected and described amphorae from various contexts (Hesnard *et al.*, 1989).

GIA archaeologists first visited the site of *Le Grottaacce* in the summer of 2000, in order to assess the potential for a renewed study of the evidence for local workshop activities. This resulted in a more detailed mapping of the site in 2001, and additional work on its south side in 2002 (see also Attema *et al.*, 2003). A large section including Piccarreta 15 C up to Piccarreta 15 B was mapped entirely, while isolated features in the area between Piccarreta 15 B and the Bronze Age site of Piccarreta 13 were mapped individually.

The GIA investigations indicated that since Piccarreta's visit, marine erosion had severely damaged the site. However, the new observations added to our knowledge of the site's layout. Piccarreta's division of the site into three functional zones – a residential area, a bath house and an industrial zone – was confirmed. In the areas between these three parts, new structures were discovered; these structures include various walls and drains. Between P15 and P13, more features were found, most notably a number of pits filled with amphora sherds ("amphora pits"); these probably correspond with Piccarreta's site 14 (fig. 3; see also Attema *et al.*, 2003: 131–133).

2.1.2. *Amphora sampling at Le Grottaacce*

The main results of these investigations have already been published (Attema *et al.*, 2003). We will here focus on the sampling of amphorae from the section at P15 C and from the various amphora pits between P15 and P13. First we shall describe the context and assemblage of the amphorae from the so-called "amphora section" at P15 C; we shall then discuss the material from the various amphora pits. The material itself is presented in Appendix 1.

During the recording of the section, samples of amphora and tile sherds were taken from various layers.

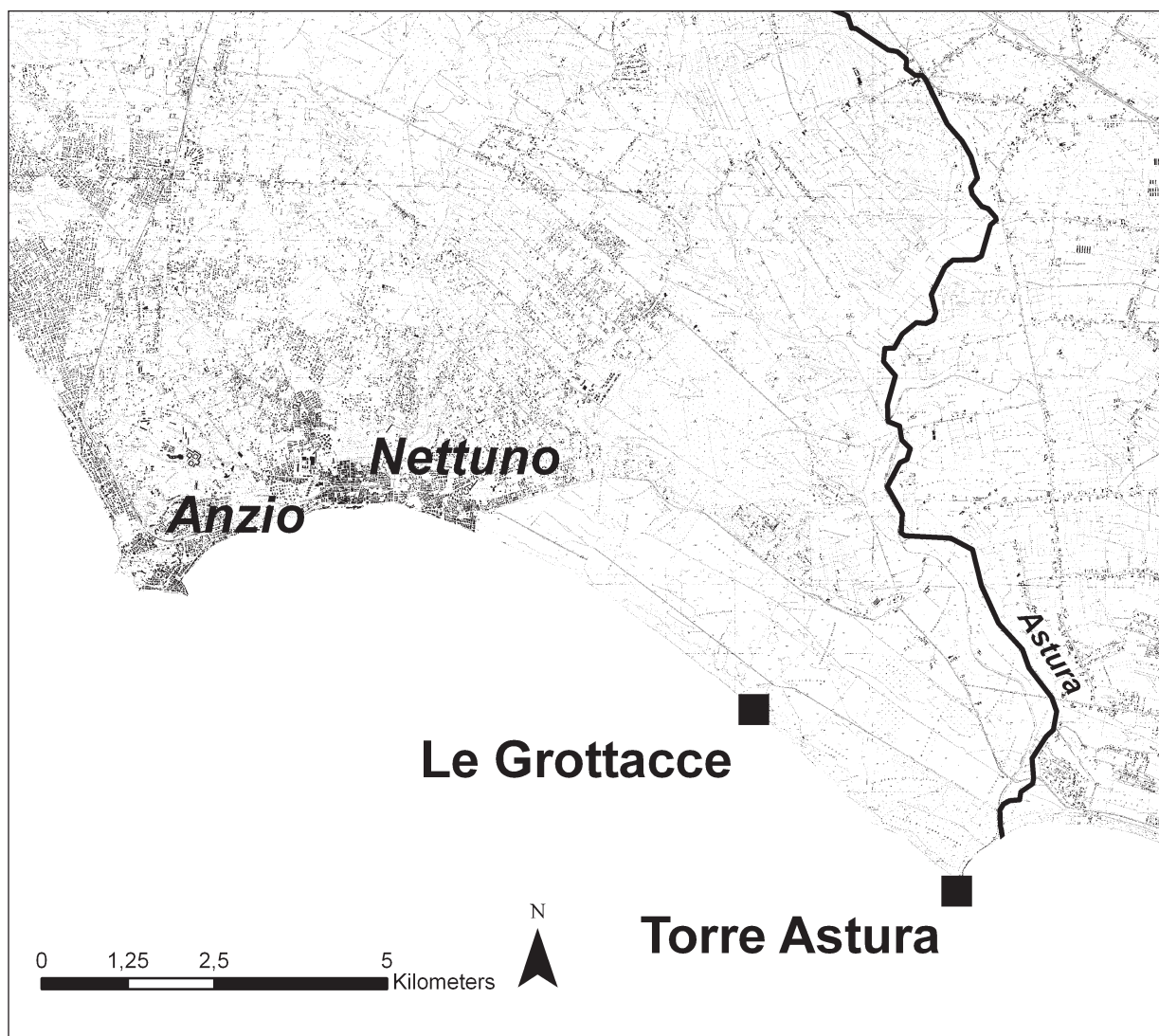


Fig. 2. The coastal area between Anzio and Torre Astura (map T.C.A. de Haas, GIA).

A schematic version of the c. 116-metre-long section, drawn in 2001, is shown in figure 4 (*cf.* Attema *et al.*, 2003). From beach level up, the section shows:

1. Natural sand deposits (marked with a V).
2. Layers with protohistorical sherds (marked with a P).
3. One possibly in situ layer and various sloping rubble layers and pit fills between walls 1, 2 and 3. These layers are interpreted as the secondary remains of an initial Roman phase. As Piccarreta already observed, wall 1 – and probably also walls 2, 3 and 4 – was probably built first; the rubble was then deposited against the walls to raise the ground level.
4. A sterile aeolian layer on top of the rubble deposit

(marked with an S), indicating a short period without activity.

5. A second series of fairly regularly deposited Roman occupation layers.
6. Dune sand (marked with a T).

In 2001 samples I, IV, VIII, IX and X were all collected from the secondary rubble deposits of the first Roman phase (marked with an asterisk in fig. 4). Sample I was taken from a thick deposit of amphora sherds directly south of the large foundation wall 1 (fig 5a); sample IV stems from a similarly dense deposit of amphora and tile sherds mixed with kiln debris and burnt soil a little further to the south (fig 5b). Sample VIII was collected from a thinner layer, through which the foundation trench for wall 3 had been dug (fig 5c); samples IX

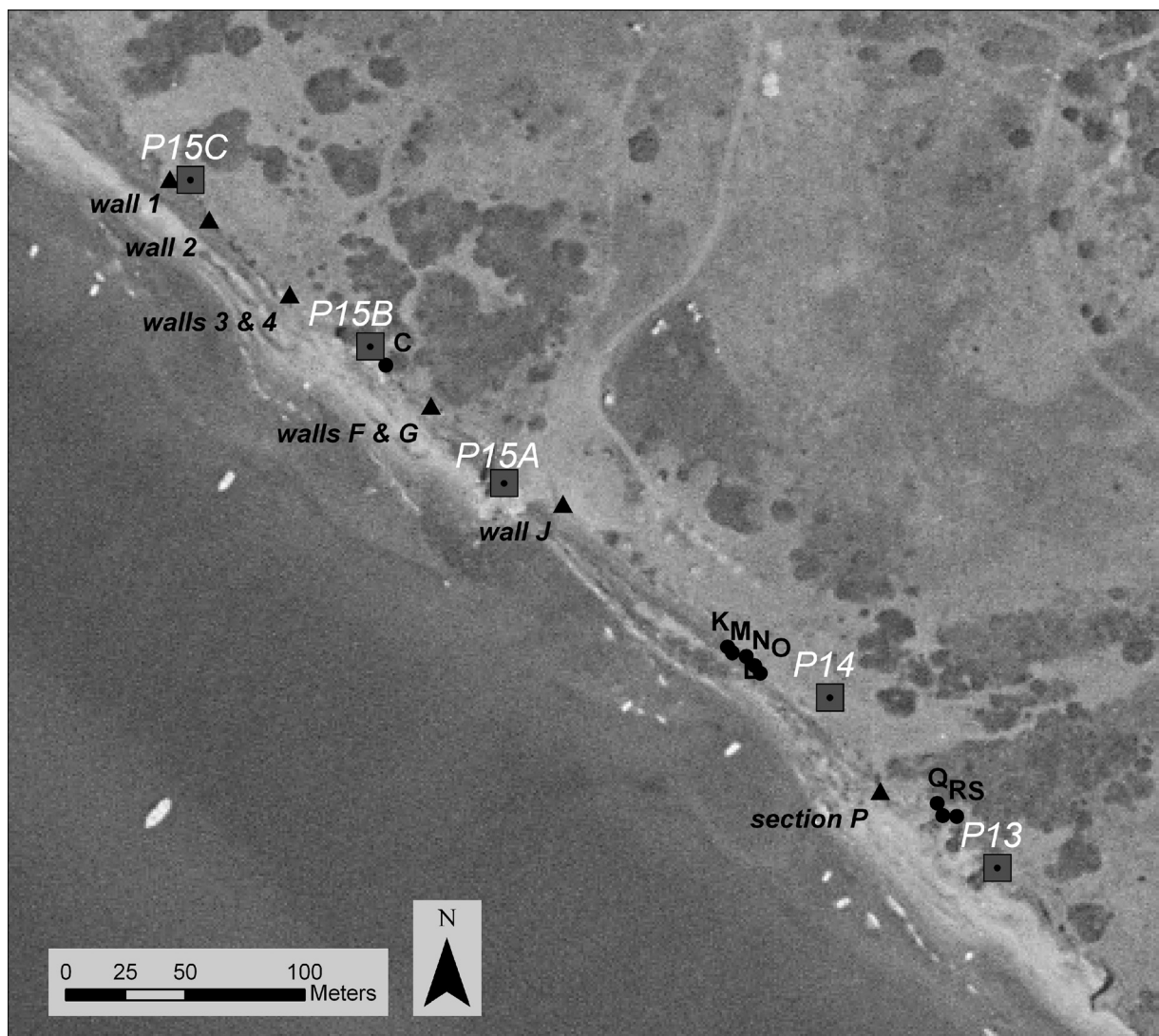


Fig. 3. Sites and features from P15 up to P13 (map T.C.A. de Haas, GIA).

and X stem from the continuation of this layer further to the south. A number of samples were also collected from the beach in this area (2001 samples P15 C and II; see Appendix 1); these samples, as well as those collected in 2000 (samples A, B, G, I, J, K, M), lack a stratigraphical context.

In 2000 already various features were recorded along the coast to the south of P15, which are characterized by dense deposits of amphora sherds in pits contained in the natural sand; given their location, these pits would relate to Piccarreta 14, a second workshop site. From one of these pits a sample was taken (2000 sample F).

In 2001 nine such pits were recorded: one (pit C) directly south of P15 B, five around 120 metres south

of P15 A (pits K-O) and another three c. 25 metres north of P13 (pits Q-S; see fig. 3). Pits K-O may be related to site P14, where Piccarreta mapped a scatter of kiln debris, brick, tile and amphora fragments as well as several walls (Piccarreta, 1977: 76). In 2001 samples were taken from most of these pits (samples C, K, L, N, O, R and Q-S).

In 2002 pits K-O were excavated in order to see how they should be interpreted (excavation drawings were published in Attema *et al.*, 2003: figs 27a-e). These excavations showed that pits K, L, M and O were isolated small pits (in section c. 1 m wide), filled with predominantly horizontally stratified amphora sherds, while pit N was an elongated (in section c. 5 m wide) pit in which the sherds were randomly deposited (figs. 6a/b). For now, we interpret these pits as

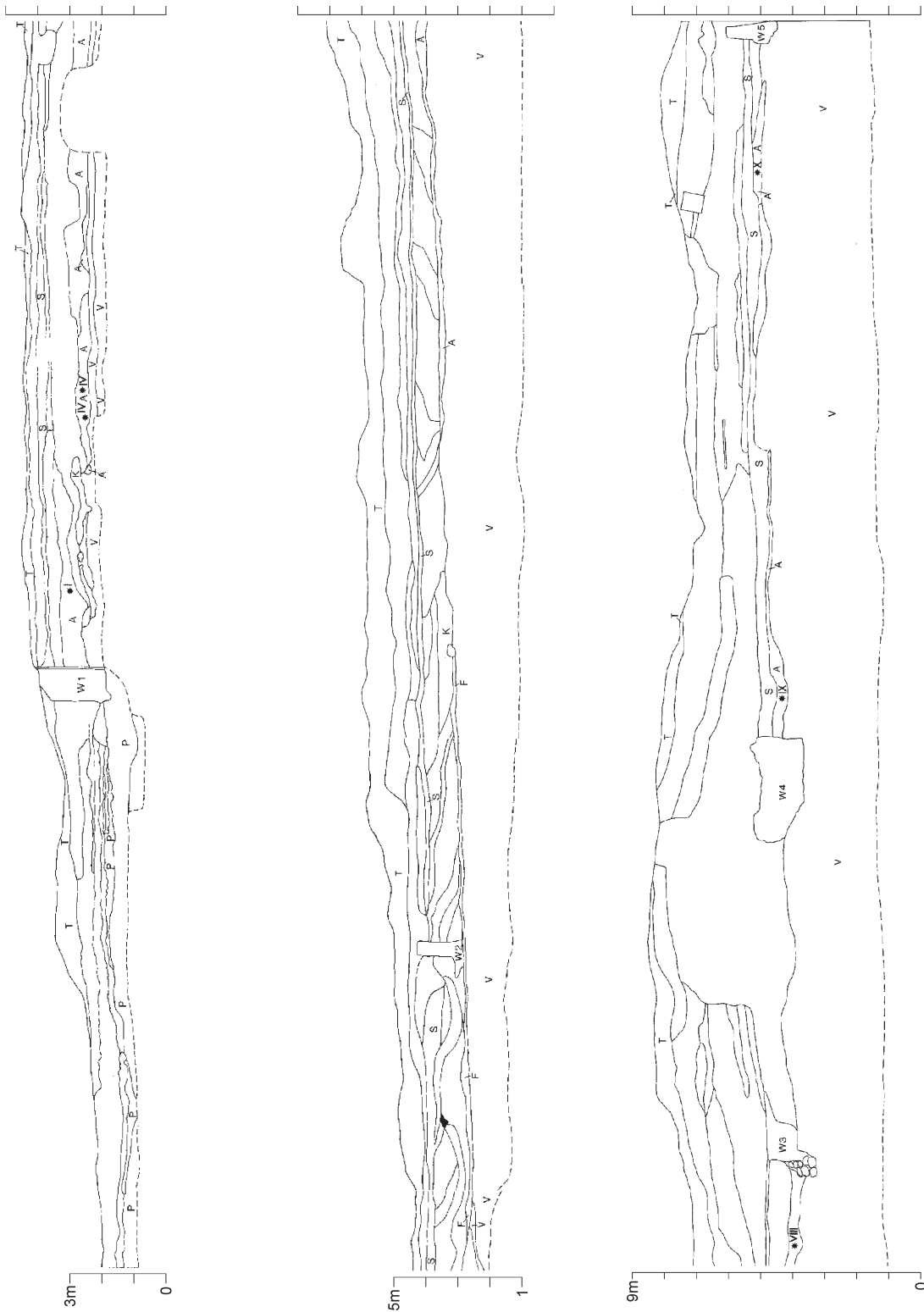


Fig. 4. Section drawing of P15 C (T = topsoil, dune sand; A = dense deposits of amphora and tile sherds; P = protohistoric sherds; K = kiln debris; V = virgin soil (containing some lithics and a few washed-in *impasto* sherds); F = probably in situ layers of the first Roman phase; W = Roman walls; S = sterile sand layer; * origin of amphora samples) (drawing GIA).



Fig. 5a-c. Photographs of strata in the “amphora section” from which samples I (a), IV (b) and VIII (c) were taken (photos T.C.A. de Haas, GIA).

refuse pits related to an amphora- and tile-producing workshop. The pits close to the Bronze Age site P13 could not be excavated because of the thick clayey deposits on top of them, but they were sampled.

2.1.3. *Typology and composition of the samples*

Our preliminary report on the investigations at P15 included a typology of the amphorae (Attema *et al.*, 2003: fig. 29); the amphorae are now fully published (see Appendix 1). After additional studies we suggest that the amphorae belong to three broad types: Graeco-Italic amphorae, Dressel 1A amphorae and a local amphora type. Within the local type we can distinguish at least two variants: one with a sharp angle on the transition from shoulder to neck (e.g. Attema *et al.*, 2003: fig. 29 type 5) and one with a more gradual transition from neck to shoulder (e.g. Attema *et al.*, 2003: fig. 29 types 3 and 4).

Obviously, there is a large degree of variation in

the shape of individual rim, neck and base fragments. Graeco-Italic rims vary from thick triangular to strongly overhanging triangular, but some of them may also stem from Dressel 1A amphorae, which have rims ranging from thick triangular to straight, thickened. In some cases these thickened rim fragments, however, may belong to the local amphora type. Within the local type there is less variation in the rim (all thickened on the outside) and handle (short, rounded band handles), but there is a lot of variation in the shape of the knob and the angle of the base-body transition. Elongated band handles and cylindrical spikes, finally, may belong to both Graeco-Italic and Dressel 1A amphorae. In the following discussion we shall refer to these three amphora types (Graeco-Italic, Dressel 1A and the “local type”), not to the various subforms as identified in our previous article.

Table 1 lists the numbers of fragments of each of these three types per context. As previously noted, the samples are small and only include diagnostic frag-



Fig. 5a-c (vervolg).

ments (bases, handles, rims) and thus do not allow any statistical analysis. If we look at the composition of the various samples, however, we may note some interesting variations (see also Appendix 1).

The samples from the strata at P15 include 38 catalogued fragments, of which 24 can be attributed to the local type, one to the Graeco-Italic type and three to Dressel 1A amphorae. A further six fragments may be Dressel 1A or local type, one fragment Dressel 1A or Graeco-Italic; three fragments could not be assigned to a type. On the basis of these samples, there is no evidence for typological differences between the various layers. This would indeed be expected because we consider the different strata to be secondary deposits (see above).

The composition of the samples from the beach at P15 (with no stratigraphical context) does not differ markedly from the samples with a stratigraphical context: in total they contain 18 diagnostic amphora fragments, of which four of Dressel 1A or Graeco-Italic type and one base ring of an unknown vessel type (possibly of an open vessel); the remainder (13 fragments) can be attributed to the local amphora type.

Thus, at P15 C the local type predominates, but a few Dressel 1A and/or Graeco-Italic fragments do occur.

If we look at the samples from the amphora pits south of P15, there are some in our view conspicuous differences from the material from P15 C. From the cluster of pits K-O, we have a total of 42 diagnostic sherds, of which 23 can be attributed to Graeco-Italic amphorae, 14 to the local type, one to Dressel 1A type and four to Graeco-Italic or Dressel 1A type.³ There are thus significantly more Graeco-Italic amphorae in pits K-O than at P15 C. Seven fragments from the second cluster of pits (Q-S) belong to the local type, two fragments to Graeco-Italic and two to Dressel 1A amphorae.

In conclusion, we may note that the amphora fragments from *Le Grottaacce* mostly stem from local-type amphorae, while a considerable number of Graeco-Italic fragments are present; the number of sherds that can with certainty be identified as Dressel 1A is modest. Furthermore, in the samples from P15 C the local type is dominant by far, which indicates that this must have been the main type produced here. In the cluster of amphora pits K-O, the Graeco-Italic type



Fig. 5a-c (vervolg).

is dominant, but a large number of local-type sherds were also present. If we can indeed interpret these pits as discard pits belonging to the second amphora workshop described by Piccarreta as site 14 there seems to have been a difference in output between the two workshops. In both, however, Dressel 1A amphorae were probably also produced.

Although local-type, Graeco-Italic and possibly Dressel 1A sherds were found in the second cluster of amphora pits (Q-S), there is no clear evidence to relate the latter to a workshop: their location (in clayey soil,

possibly near a former stream) may point to a different function (for example, to improve drainage conditions).

2.1.4. Le Grottace: *functional and chronological evidence*

From the combined evidence from Piccarreta's and our own work, the following conclusions about the chronology of the site can be drawn.

Finds in the sandy levels below the Roman remains



Fig. 6a/b. Photographs of amphora pits L (a) and N (b) during excavation (photos T.C.A. de Haas, GIA).

show that the area was already frequented in pre- and protohistoric times: Blanc recorded Upper Palaeolithic lithic industry in the area (Blanc, 1937). Piccarreta mentions the presence of strata with local handmade ceramics (*impasto*) similar to that of Bronze Age site P13 (Alessandri, 2007: 103. where P13 is referred to as “Pelliccione”) below the northern part of the villa; GIA excavations of this stratum in 2001 confirmed this observation, dating this phase to the Late Bronze

Age (Attema *et al.*, 2003: 125/126).

The first phase of Roman occupation is represented by the remains of the amphora- and tile-production workshop located at P15 C. These remains are contained in secondarily deposited layers of debris, on which the *essiccatoio* described by Piccarreta was later built. The layers contain tuff and limestone fragments, kiln debris and tile and amphora sherds. The amphora sherds date this phase to the late 2nd or early 1st century

Table 1. Number of sherds per amphora type from the various contexts.

	<i>Local type</i>	<i>Graeco-Italic</i>	<i>Dressel IA</i>	<i>Graeco-Italic/Dressel IA</i>	<i>Dressel IA/(Local type?)</i>	<i>?</i>	<i>tile</i>	<i>TOTAL</i>
P15C, with stratigraphic context	24	1	3	1	6	3	0	38
P15C, no stratigraphic context	13	0	0	4	0	1	3	21
Pits C, K-O	15	23	1	4	1	0	0	44
Pits Q-S	7	2	0	2	0	0	1	12
TOTAL	59	26	4	11	7	4	4	115



Fig. 6a/b (vervolg).

BC. Piccarreta dates a stretch of wall in *opus incertum* at P15 B to the 1st century BC (Piccarreta, 1977: 77); this wall may be contemporaneous with this first phase. The same goes for wall J directly to the south of P15 A (Attema *et al.*, 2003: 133).

The second Roman phase of the site is represented by the large building at P15 C with *incertum* foundations and *opus reticulatum* walls. The walls on top of the large terrace at P15 A are similarly constructed in *opus reticulatum*, which means the residential area may have been erected at the same time, around the end of the Republican period. The bathhouse, with its remains in *opus incertum*, may have been erected somewhat earlier.

The chronology of the site in the Imperial period is less clear: superimposed floor levels at P15 B show that this part of the villa was restored at least once, and the use of different building techniques (*opus mixtum* and *opus latericium* at P15 B, *opus vittatum* at P15 A) perhaps indicates even more phases. Brick stamps point to continued occupation into the 2nd and 3rd cen-

turies. It is clear, however, that in the early Imperial period the villa formed a large complex with from south to north a large residential area, a peristyle or portico and several buildings, including a bathhouse. The building interpreted by Piccarreta as an *essiccatoio* may indicate that industrial activities at P15 C continued into the Imperial period, but for now we have no clear evidence for these activities.

2.2. Amphorae in the Liboni collection

2.2.1. Background of the collection

The second dataset that we here report on concerns the amphorae present in the Liboni collection. The collection as a whole is currently being studied more fully by participants in the PRP within the context of the *Carta archeologica*. It includes a large number of (almost) complete amphorae confiscated from local collectors and fishermen as well as material found by the museum director himself. This means that unfor-

Table 2. Amphora types in the Liboni collection.

Amphora type	Dating	Number found	Provenance	Principal Contents
Tipo Py 4A	450 to 250 BC	1	Southern Etruria	Wine
Tipo MGS IV (Greco-Italiche antiche)	4 th to start 3 rd c. BC	1	Magna Grecia, Sicily	Wine
Tipo MGS V (Greco-Italiche antiche)	mid 4 th to mid 3 rd c. BC	1	Magna Grecia, Sicily	Wine, olives, grapes
Tipo MGS VI (Greco-Italiche antiche)	end 4 th - 2 nd c. BC	1	Magna Grecia, Sicily	Wine
Forma H (Maña C)	4 th - 2 nd c. BC	1	North Africa	Wine
Dressel 1 (Tipo 1A)	mid 2 nd to end 1 st c. AD	2	Italian central Tyrrhenian area	Wine
Dressel 1 (Tipo 1B)	mid 2 nd to end 1 st c. AD	3	Italian central Tyrrhenian area	Wine
Dressel 1	mid 2 nd to end 1 st c. AD	4	Italian central Tyrrhenian area	Wine
Halterm 70	mid 1 st c. BC to mid 2 nd c. AD	1	Baetica	Defrutum
Agora F65/66	mid 1 st c. BC to 4 th c. AD	1	Asia Minor	-
Dressel 2-4	mid 1 st c. BC to end 1 st c. AD	5	Italian central Tyrrhenian area	Wine
Tardo Rodie (Camulodunum 184)	end 1 st c. BC to start 2 nd c. AD	2	Rhodes	Wine
Anfore di Forlimpopoli	end 1 st c. BC to mid 3 rd c. AD	3	North-eastern Italy	Wine
Dressel 21-22	1 st c. AD	1	Campania	Fruit (apples, cherries, plums)
No.66 (cigar-shaped amphora)	1 st c. AD	1	Unknown, probably desert environment (Palestina?)	-
Beltrán IIB	start 1 st to mid 2 nd c. AD	1	Baetica	Fish sauce
Gallica 4 (Pélichet 47)	mid 1 st to mid 3 rd c. AD	9	Southern France	Wine
Tripolitania II	mid 1 st to end 4 th c. AD	1	Libya	Olive oil, fish sauce
Africana I (Africana piccola)	mid 2 nd to start 5 th c. AD	2	Tunisia	Olive oil
Beirut 3	end 1 st to mid 2 nd c. AD	1	Beirut	wine
Africana II (Africana grande)	end 2 nd to start 5 th c. AD	7	Tunisia	Olive oil, fish conserves
Dressel 23	3 rd to end 4 th c. AD	1	Baetica	Olive oil, olives
Almagro 51 C (Keay XXIII/Lusitana IV)	3 rd to mid 5 th c. AD	1	Lusitania	Fish sauce
Anfore cilindriche di medie dimensioni (Keay XXV, 1-3)	start 4 th to mid 5 th c. AD	4	Tunisia	Olive oil, fish conserves
Keay LII	4 th to 7 th c. AD	5	Calabria, Sicily	Wine
Spatia (Keay XXV, 2/XXVI)	4 th to 7 th c. AD	1	Tunisia	Olive oil, olives, fish conserves, wine
Anfore cilindriche di grandi dimensioni	mid 5 th to mid 7 th c. AD	2	Tunisia	Olive oil

tunately we can reconstruct the original find context of only a small part of the collection; several amphorae were recovered from the site of Torre Astura. Most amphorae, however, probably come from shipwrecks in the area.⁴

2.2.2. Amphorae in the Liboni collection

The amphorae in the Liboni collection were studied in 2006. In total, more than 80 amphorae were drawn, described and photographed (see Appendix 2; an additional 66 amphorae were studied in 2007). About 50

of these are still more or less intact, c. 30 are only fragmentary.

In table 2 we have listed parallels and dates for 54 amphorae in the Liboni collection that could be typologically classified. Dressel 1. Dressel 2-4. Gallica 4 (Pélichet 47), Keay LII and Africana II (Africana grande) variants make up the bulk of the collection (see also fig. 7). The amphora types represent a time span of approximately 1100 years (fig. 8). The earliest amphorae in the collection, dated between 450 and 100 BC, represent different production areas: they include *Tipo Py 4A* (from southern Etruria), the con-

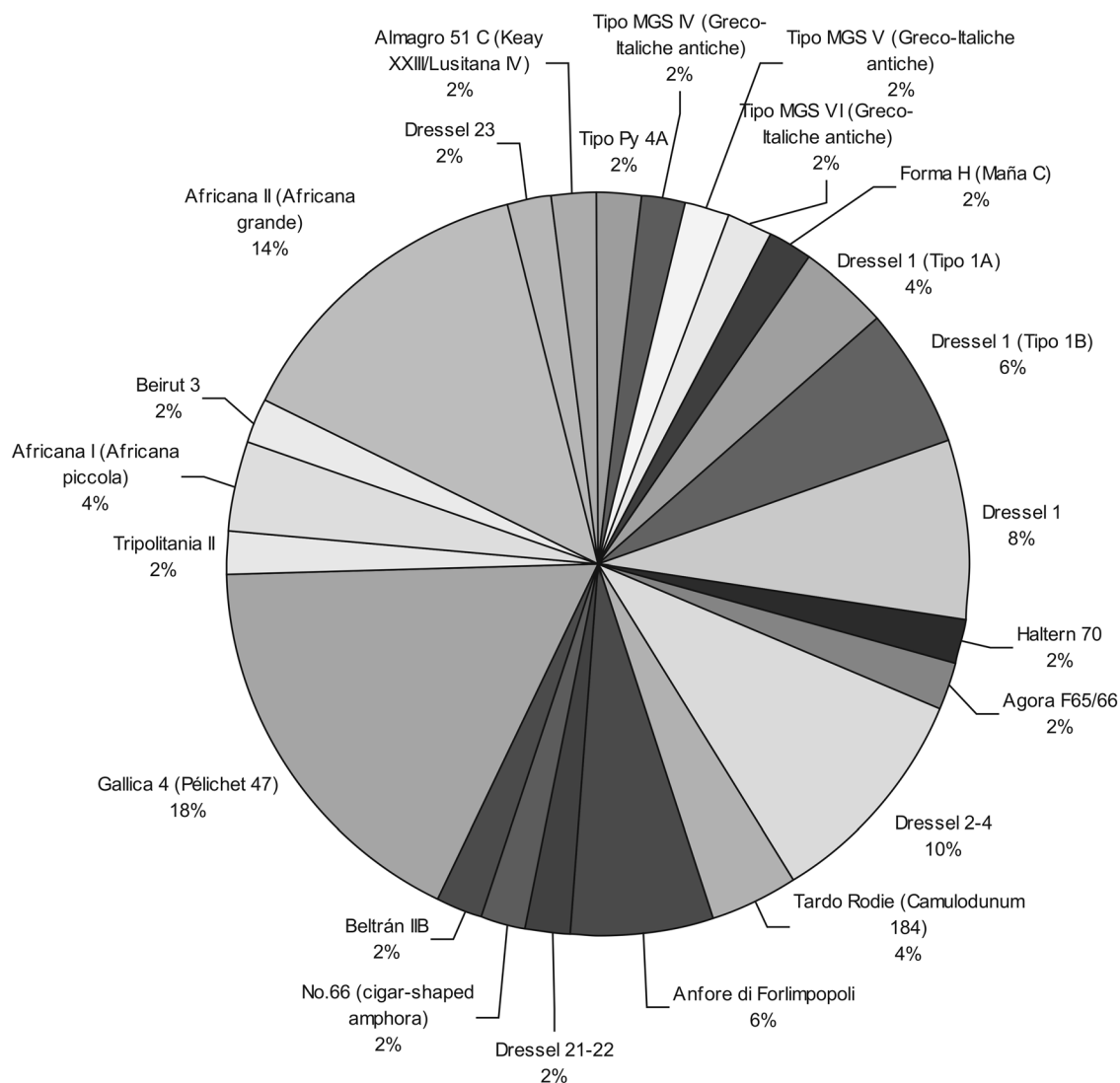


Fig. 7. Ratios of typologically classified amphorae in the Liboni collection (H. Pape, GIA).

secutive types *MGS IV-VI* or Graeco-Italic amphorae (from central and southern Italy) and the *Forma H/Maña C* (from northern Africa). First century BC amphorae include Dressel 1A and B types (from central Italy), with the 'Greco-Roman' Dressel 2-4 from Italy and the Baetican Haltern 70 as its successors. Various types that emerge at the start of the first century AD are also present (Dressel 21-22, Beltrán IIB, *Tardo Rodie* and the smaller *Anfore di Folimpopoli*). Most of these were only used for a relatively short period (about 50 years), with the *Anfore di Folimpopoli* as an exception (250 years).

In the second half of the first century AD, various new types arise: these include the medium-sized amphorae from Gaul (Gallica 4) and the large African

amphorae (Tripolitania I-III, Africana I-II, cylindrical amphorae). The Gallica 4 was the most frequently encountered amphora in Gaul and northwestern Europe until AD 250, and the Africana II was used for bulk transport between North Africa and Rome from 200 to 400 (Peacock & Williams, 1991: 51-53). These amphorae all have a fairly long lifespan: Tripolitania II, for example, had a lifespan of around 350 years, while the small Keay LII and Spatia amphorae lasted for 300 years.

Obviously, most of the amphorae in the collection were used for carrying the three most commonly transported commodities: wine, olive oil or fish sauce. The predominant amphora types (Dressel 1A/B, Dressel 2-4, Gallica 4/Pélichet 47, Keay LII) are gen-

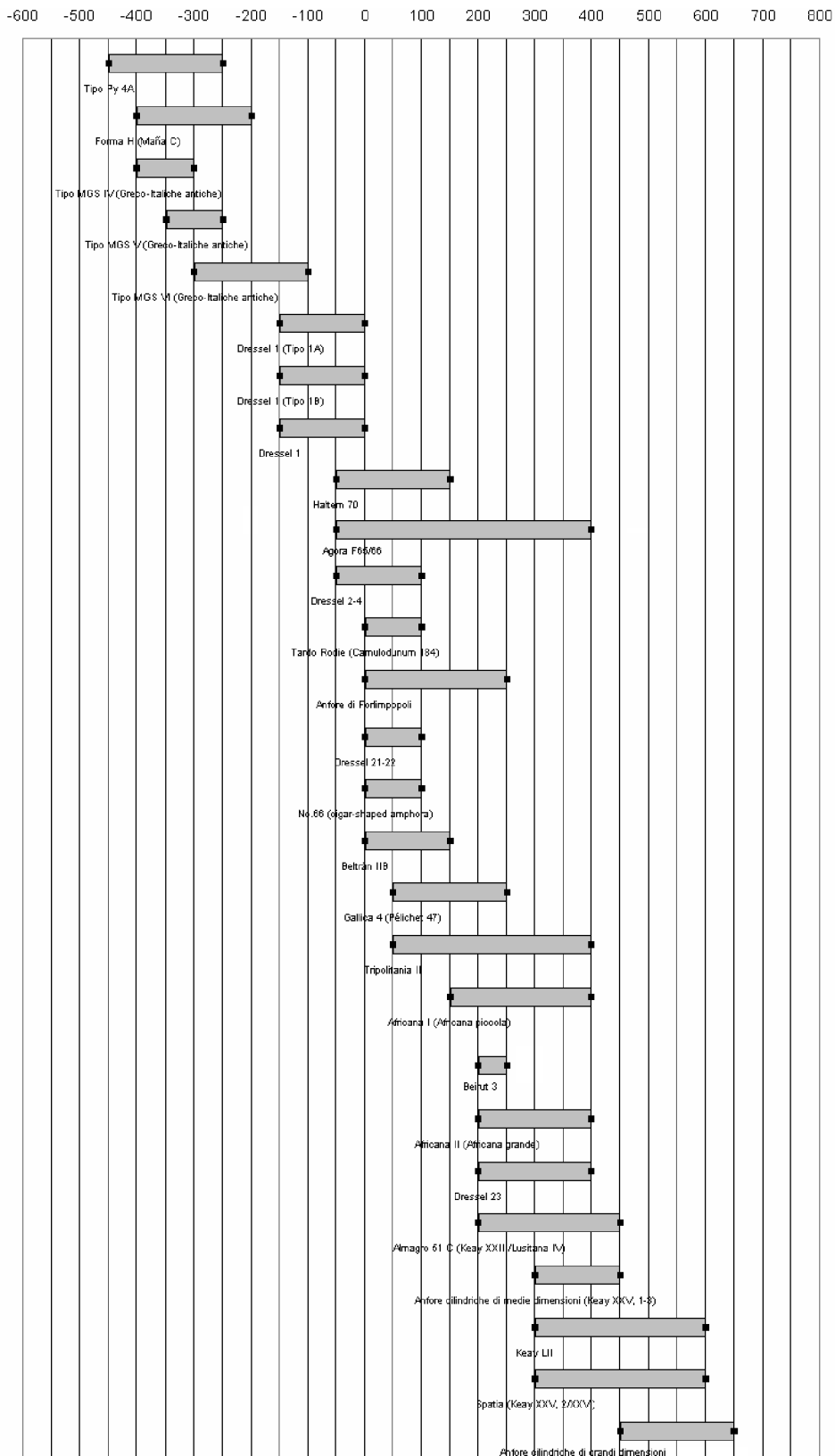


Fig. 8. Date range of the amphorae in the Liboni collection (H. Pape, GIA).

erally considered to have been used to transport wine, while the various African amphorae were most probably used for olive oil and preserved fish (Peacock & Williams, 1991; Caravale & Toffoletti, 1997; *cf.* table 2 below). Of the other amphorae in the collection, 36 most probably carried wine, four amphorae most probably olive oil and two fish sauce. Two amphorae may have contained fruit and preserves (one of Haltern 70 type, one of Dressel 21-22 type). The remaining 16 amphorae may have held various commodities (olives, grapes, olive oil, preserved fish or wine).

The most common amphora types were distributed widely across the Mediterranean and the changes in typology and provenance in the collection reflect broader shifts in production and trade networks within the Roman Empire. The earlier vessels were produced mostly in central and southern Italy (Graeco-Italic, Dressel 1A/B, Dressel 2-4), which was supposedly the dominant wine-producing area in the (late) Republican period (Tchernia, 1986). The rise of other wine-producing areas from the early Imperial period onwards is reflected in the Liboni collection in the appearance of several amphorae from, for example, France (Gallica 4/Pélichet 47).

A second important shift in these trade networks occurs in the 2nd century AD; from this time on, olive oil is exported from North Africa to Italy in large quantities, and the large number of African amphorae (Tripolitanian, Africana II, cylindrical amphorae) reflects this shift. Both preserved fish and fish sauce seem to have been produced at specialized *villae* in Spain, Portugal and Morocco (Curtis, 2005). The amphorae for this purpose were made especially in Baetica (Beltrán IIB), Lusitania (Almagro 51 C) and Tunisia (Africana II, Spatia).⁵

The Keay LII vessels seem to suggest a small-scale renaissance of Italian wine production in the 4th to 7th century AD in Calabria and/or Sicily.

2.3. Amphorae from surveys in the coastal area

The third dataset to be discussed here consists of the amphora sherds collected during surveys in the coastal area. These started in 2003 with intensive surveys in the Astura valley and revisits to sites that had been found in this area on previous occasions (see Attema *et al.*, this volume; Piccarreta, 1977). For the compilation of the *Carta archeologica* these surveys were expanded into the municipality of Nettuno; intensive surveys focused on the areas of *Campana* and *Quarto delle Cinfonare*, while sites mapped previously by Liboni were revisited throughout the coastal area (see

also Attema *et al.*, forthcoming).

During both the block surveys and the site revisits, substantial amounts of amphora sherds were collected. As we processed the finds, 3574 amphora fragments were classified as such, and 254 diagnostic fragments (rims, handles, bases) were drawn and described. Of these diagnostic fragments, 98 could be attributed to known types, but a lot of uncertainty remains because of the large degree of variation (e.g. of rim shapes) within amphora types. Consequently, for example, Graeco-Italic amphora rims may be hard to distinguish from Dressel 1A rims (see also section 2.1.3 above). This means that only a few fragment types, such as Dressel 2-4 handles, can be classified with certainty.

Thus, typological features are often insufficient to allow amphora fragments to be classified and dated; therefore we decided to have a closer look at the clay composition of the sherds. Our analysis of the fabric of the fragments has been limited to the inspection of visual characteristics such as colour and large inclusions. All wall fragments were classified into broad fabric/colour groups. Applying the fabric criteria to the diagnostic fragments, we have been able to indicate possible links between particular fabrics and types.

In general this method proved rather difficult because of the enormous variation in characteristics. It is therefore not possible to present a complete overview of fabrics. Nonetheless, a few clear groups could be connected to specific amphora types:

1. An orange-red group with almost exclusively large, white inclusions; this fabric occurs very often in rolled rims and double bar handles and may be associated with Catalan Dressel 2-4 amphorae (Peacock & Williams, 1991: 106/94; see also Tchernia & Zevi, 1972: 38).
2. An orange to pink/violet group with small, black sand inclusions; this group also occurred in Dressel 1B rims and possibly in Dressel 2-4; this fabric probably represents a Campanian fabric (Peacock & Williams, 1991: 87/88; see also Tchernia, 1986: 45/47).
3. A brown to pale group of coarse or somewhat depurated ware, which includes rims of Graeco-Italic and/or Dressel 1A type. Perhaps this group corresponds to fabrics described by Olcese (2004);
4. A red group with white or grey coating, typical for African amphorae (Africana and Tripolitana; Peacock & Williams, 1991: 154/167).
5. A pale group with various inclusions, which includes several Haltern 70 handles.
6. A pale/pink group, partly with small inclusions,

partly with poorly mixed clays. These fabrics are similar to those of the material from *Le Grottacce*.

Most of these fabrics represent groups that are well known in large parts of the Mediterranean and their occurrence may not be very surprising. Nonetheless, making this connection between types and fabrics has allowed us to roughly date a large group of otherwise non-datable wall fragments in both site and off-site contexts.

3. AMPHORAE FROM THE COASTAL AREA: PERSPECTIVES FOR INTEGRATION AND INTERPRETATION

The previous section discussed the methods and results of three case studies of Roman amphorae from the site of *Le Grottacce*, from the Liboni collection and from our intensive surveys in the coastal area. In this final section we will discuss the perspectives of these studies within the PRP. We shall first look at the possibilities for further integration of the three datasets. We shall then consider how the combined use of the three datasets may improve our understanding of socio-economic developments in the coastal area and patterns of maritime trade.

3.1. Further study and integration of the three datasets

The three studies presented above each have their own aims and uses: the mapping and sampling at *Le Grottacce* has yielded firm evidence of local amphora production, and indirectly also of agricultural production boosted by the *villae maritimae*. The Liboni collection may be of less interpretative value because of its lack of context; however, it is valuable as a reference collection and as a reflection of maritime trade. The study of types and fabrics in the survey assemblages has helped to expand the group of (broadly) datable materials; these data are useful in the reconstruction of supply and demand of certain products in rural contexts.

Combining the results of the three studies may in its turn yield even more useful data. Further study of the survey ceramics may provide new information on the distribution in the hinterland of amphorae produced locally at *Le Grottacce*. A study of the remaining amphorae in the Liboni collection will further expand our reference collection, which in its turn may help to identify more amphora types and fabrics in our survey dataset. A closer look at the fabrics of the Graeco-Italic

and Dressel 1A amphorae in this collection is needed to determine whether they were produced locally.⁶

3.2. Concluding remarks on agricultural specialization, socio-economic organization and trade patterns

3.2.1. *Agricultural specialization*

Amphora production is generally linked to agricultural specialization, especially oil and wine production. In section 2.2.2 it was already observed that most amphorae in the Liboni collection were meant to carry wine and olive oil, and that the earliest among them were produced in central and southern Italy. That wine was produced in the region is suggested by a stamped amphora (Brandizzi Vittucci, 2000: 132).⁷ The amphorae produced at *Le Grottacce* of the Graeco-Italic and Dressel 1A types too can be associated with wine production. The local type, just like other types with knobbed bases (for example Brindisi amphorae) may have been used for olive oil transport. In the specific case of *Le Grottacce*, this would indicate that the villa owner was involved in wine and oil production and/or trade. Land evaluation for the coastal area around Borgo Grappa, south of the river Astura but in a comparable landscape, indicates that fossil dune areas were moderately suited for the cultivation of cereals and grapes and for specialized olive production (Van Joolen, 2003: 144–146). Nowadays vines still are a common sight in the area while, although to a much lesser extent, olives also occur.

Some amphorae, however, were specifically meant to hold fish sauce, likewise a most common commodity in the Roman economy. Installations where fish sauce was produced are not known from the area, but an inscription reported by Brandizzi Vittucci refers to *liquamen* (a type of fish sauce) produced at or near *Antium* (Brandizzi Vittucci, 2000: 132). Exploitation of marine resources is also attested by the presence of *piscinae* at various *villae maritimae* along the coast between *Antium* and Torre Astura (Giacopini, 1994; Higginbotham, 1997). Thus fish farming, fishing and, for instance, fish sauce production must have been important activities in the area.

3.2.2. *Socio-economic organization of the countryside*

The evidence for amphora production at a large coastal villa like *Le Grottacce* shows that local elites were involved in both specialized agricultural production (viticulture and oleoculture) and related rural indus-

try (amphora production). A similar situation has been observed elsewhere, for example at Cosa, where both amphora and brick production are linked to the *Sestii* (Manacorda, 1978; Will, 1979). The data that we obtained from rural sites inland has prompted the hypothesis of elite involvement in the agricultural hinterland (fig. 9). As indicated on the map, fragments of Local-type amphorae have been found on at least two other sites and sherds of a similar fabric on three more sites. Furthermore, fragments of the same fabric were found in various units during the block surveys. Most of these fragments come from (the vicinity of) farmsteads in the Astura valley, and perhaps this was the area where the owner of the *Le Grottacce* villa (and other members of the elite) had their agricultural production units.⁸ In this light, it is notable that in subsequent periods only farmsteads evolved in the Astura valley. This differs from the area nearer to the Roman colony of *Antium*, where we do have evidence of large Roman villas. Apparently socio-economic organization was not uniform over the landscape and could differ over a relatively short distance, in this case with large residential sites in one area and smaller production units in another.

So far, we have no solid evidence relating to the organization of production and land ownership in the area. The observed relation between farmsteads in the Astura valley and *villae maritimae* may indicate that the land was perhaps rented to free farmers; the absence of large villas would mean that the land was subdivided into plots that were either worked by slaves or rented out to (free) farmers (on this subject, see also Coarelli, 1990). At the villas closer to *Antium* and on the coast, which probably were in the hands of an absentee elite, slaves could have been employed to run the estate. Yet other scenarios are also possible, and further research is certainly needed to improve our understanding of the relation between coastal villas and inland farmsteads.⁹

3.2.3. Trade patterns

To highlight overseas trade connections, the Liboni collection provides us with possible clues. In section 2.2 we already observed that the Liboni collection for the early Imperial period, with the rise of wine-producing areas outside Italy, reflects trade connections with Gaul, while in the 2nd century AD trade connections with Africa intensified, largely because of oil imports. However, connections with Spain, Portugal and Morocco were also mentioned when it came to preserved fish and fish sauce.

Although the finds, being recovered from the sea-

floor without a clear context, cannot be directly related to *Antium*, the growing importance of this port is evident from the creation of a large harbour with two basins under Emperor Nero (Lugli, 1940; Felici, 1993; Felici & Balderi, 1997). Also on a regional scale, the growing importance of seaborne commerce is reflected in the investments in harbours at Torre Astura, and also at Circei and Terracina (Piccarreta, 1977: 62–66; Lugli, 1926: 126–132; Lugli, 1928: 32). These harbours functioned within international trade routes, but also indicate the importance of the region's agricultural production and the regional market for imported goods.¹⁰

Off the coast, various shipwrecks are known near *Antium* and Nettuno, but also at Torre Astura and somewhat further south at Foce Verde (De Meis, 1978; Gianfrotta, 1989; Alvisi, 1998). These finds may also provide an indirect context for amphorae in the museum collection, for example in the case of a Rhodian amphora (LAC/74): a similar amphora was found in the sea near Lake Fogliano (Alvisi, 1998: 88/89). Most of these wrecks date to the 1st centuries BC and AD and thus bear witness to the intensification of maritime trade in this period.

3.3. Further work

In the last section we highlighted new perspectives for integration of the three amphora studies presented here. By raising several interpretative issues – agricultural specialization, socio-economic organization of the countryside and trade patterns – we demonstrated the value of such detailed ceramic studies for a better understanding of local and regional socio-economic developments.

In the framework of the *Carta archeologica*, we are therefore currently working on several other ceramic studies that may further contribute to our knowledge of the coastal area. First of all, the third author is studying the remaining amphorae in the Liboni collection. This collection has also yielded enormous quantities of African red-slip wares, which are being studied by Gijs Tol; these fine wares were often produced and imported together with amphorae and may help to identify more closely the provenance of African amphorae in our datasets (*cf.* Peacock *et al.*, 1990). Finally, we will also continue our analyses of the distribution of amphora types and fabrics in rural areas.

At a later stage, we intend to place these studies in the wider context of the Pontine region. Comparative work on ceramics from other survey areas covered by the PRP will help us to map in greater detail the different ways in which agriculture, economy and soci-

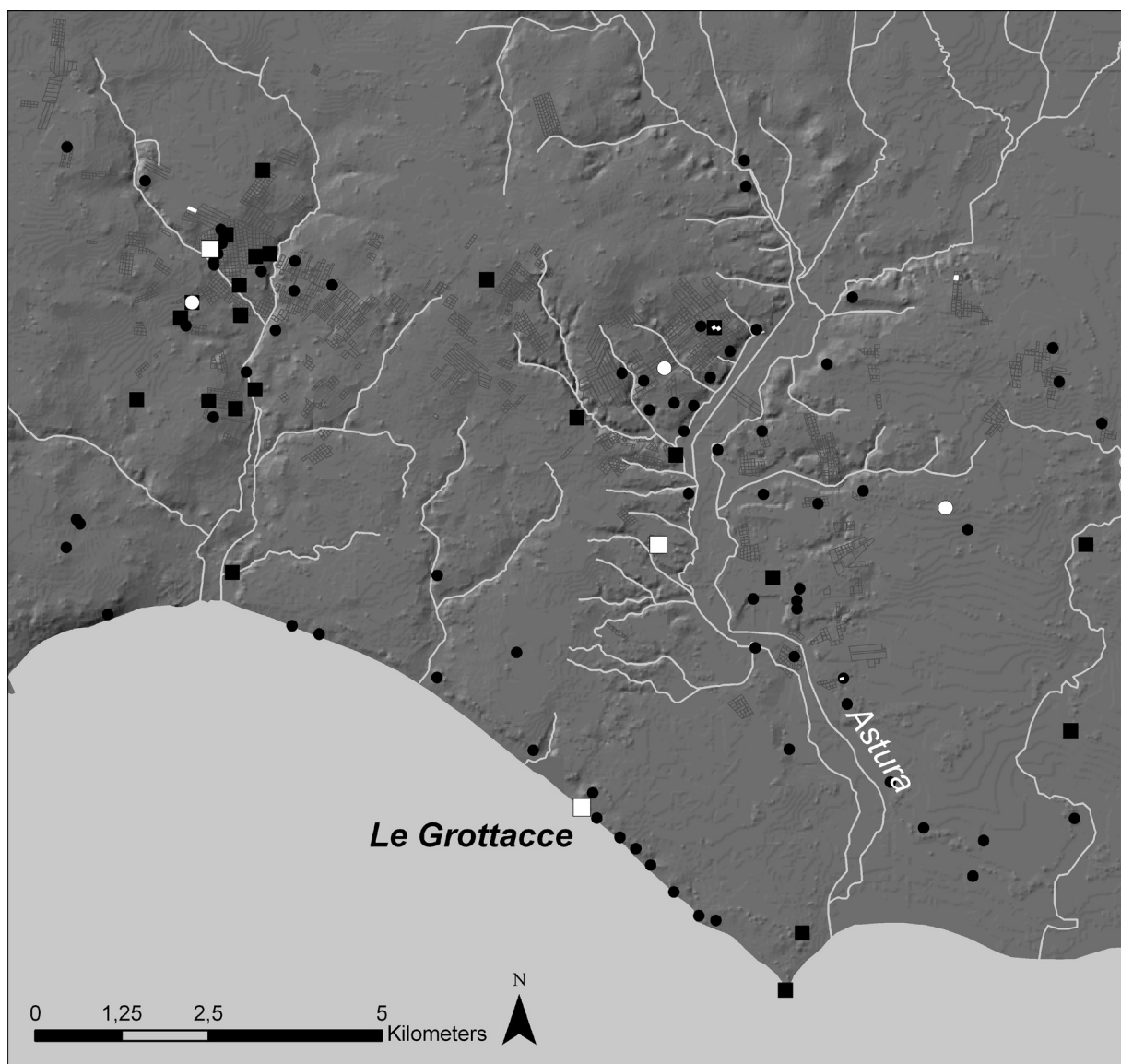


Fig. 9. Sites with certainly (white squares) and possibly (white dots) “Le Grottaacce” type amphorae. Survey units that yielded amphora sherds of a similar fabric are indicated in white. All possibly and certainly occupied Late Republican sites are shown as black dots and black squares, respectively (map T.C.A. de Haas, GIA).

ety developed in the various landscape zones of the Pontine region.

4. NOTES

1. So far, only brief reports in Dutch have appeared on the *Carta archeologica del comune di Nettuno* project; a first synthesis is currently being prepared (Attema *et al.*, forthcoming). The local museum, the *Antiquario comunale di Nettuno*, is housed in the *Forte Sangallo* at Nettuno.
2. The intact vessels in the Liboni collection, as well as some of

the fragmentary vessels, were studied by Pape. In 2007. Pape investigated the remaining fragmentary vessels in the collection; these are not included in this study.

3. The isolated pit C, located directly east of the bath house P15 B, yielded two diagnostic fragments, one of local type and one of Dressel 1A or local type. Including these, the total number of fragments from the amphora is 44 (as recorded in table 1).
4. Lanciani (1886) already reported a load of amphorae from a shipwreck in this area being sold to the Borghese family.
5. Peacock & Williams argue that amphorae produced in a specific region need not have been filled in the same area, but might have been taken elsewhere for that purpose: for example, the

Moroccan fish industry is not linked to local amphora production (Peacock & Williams, 1991: 17–18). Empty amphorae may have been brought in from Spain, but also other containers may have been used to transport products.

6. The fabrics of the amphorae from *Le Grottacce* are currently being studied as part of the research project *Ricostruire i commerci nel Mediterraneo in epoca ellenistica e romana attraverso nuovi approcci scientifici e tecnologici* (www.immensaequora.org) coordinated by prof. Gloria Olcese of the University of Rome “La Sapienza”.
7. Brandizzi Vittucci relates this stamped amphora to local production, referring to Tchernia (1986: 127/194). Tchernia includes *Astura* (sites P11 and P14) in his list of amphora production sites; P11, however, is probably a post-medieval lime kiln and not related to Roman amphora production (Attema *et al.*, 2003: 137/138).
8. Of similar importance is a tile stamp in the museum collection; this stamp apparently comes from a production site (possibly *Le Grottacce*), and tiles with the same stamp have been found in the course of our surveys of several sites in the Nettuno area.
9. We must, for example, keep in mind that the amphorae may also have been sold to other estate owners. For examples of various types of social organization, see Van Dommelen (1993).
10. The Pontine coast was infamous for its adverse winds; Emperor Nero even had plans to create an inland shipping route from Circei to Ostia by interconnecting the lagoons along the coast with canals (Lugli, 1928: 32). The harbours along this stretch of coast may therefore also have functioned as ports of refuge for ships heading for Ostia.

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APPENDIX 1: CATALOGUE OF AMPHORAE FROM *LE GROTTACE*

In this appendix, the amphora and some tile sherds collected at P15 C and between P15 and P13 are presented. The descriptions are ordered by sample and context; this means that material collected in different years is sometimes mixed. Firstly, material from P15 C with a stratigraphic context is presented, followed by the non-stratigraphic material from this part of the site. Secondly, material from the various pits between P15 and P13 is presented, after which the sherds without a precise context follow.

Of the material collected in 2000 only a representative selection was drawn and described. Not all the material from the 2001 (AS '01-) samples has been drawn: when more fragments of the same type occur in one sample, only one of these was drawn. All sherds, however, have been described. The method of describing sherds is derived from the standard used for the material from the Groningen excavations at *Satricum* (see Maaskant Kleibrink, 1987: 137 and following catalogue), but has been slightly altered to the specific characteristics of amphora material; some terms describing the shape of, for instance, amphora bases are derived from Peacock & Williams (1991). The descriptions consist of:

1. The sherd number that combines a project identifier (AS) and collection year (2001 = '01), sample number and an individual sherd-ID. For material collected in 2000, the collection year has not been included in the sherd number.
2. A description of the specific part of the vase (base, wall, neck, handle, rim).
3. For the fragments collected in 2000, a fabric description following the the standard Groningen fabric code (see Attema & van Oortmerssen, 1997/1998; Nijboer & van Oortmerssen, 2003). This code consists of :
 - Project identifier (AST for Astura, SAT for *Satricum* if fabric is similar to a fabric already identified at *Satricum*);
 - Colour (I = red, II = orange, III = pale); if a fabric is typical of more colours this is indicated (for example, I-III = red, orange and pale)
 - Dominant (in capitals) and/or subdominant inclusions (A = quartz, D = feldspar, E = augite, K = lava; * = dominance, sorting or size only visible with microscope);
 - Sorting of inclusions (ws = well sorted, ms = moderately sorted, vps = very poorly sorted);
 - Size range of inclusions (1 = >1000 µm, 2 = 250-1000 µm, 3 = 90-250 µm, 4 = <90 µm); if the range is large a combination of codes is used (for example, 1-3 = >90 µm)
 - Total percentage of inclusions (a = >20%, b = 10-20%, c = 5-10%, d = <5%);
 - Other characteristics.
4. A description of the shape of the fragment; terms used are listed in Maaskant-Kleibrink, 1987: 137; undercut means that rim is strongly overhanging.
5. Measurements (in cms), using the following abbreviations: S length and width of a handle section; D diameter; H height in original position; T thickness; W width of the rim of a roof tile
6. Munsell colour values (Munsell, 1994). Unless otherwise stated this colour code refers to both interior and exterior; a value for the core is only given if a fresh break showing the original colour was present.
7. Any special features or properties related to the sherd, which have not been described above.
8. A typological ascription referring to common types as described in Peacock & Williams, 1991. If possible, an exact parallel from other literature is given.

MATERIAL FROM P15C WITH A STRATIGRAPHIC CONTEXT (SAMPLES AS '01-I, IV, VIII, IX AND X)**1 AS '01-I/1**

rim of an amphora
 straight rim thickened on the outside
 10YR 8/3 very pale brown; core 10YR 8/4 very pale brown
 H 5.8; Hrim 3.0; T wall 1.0; Trim 1.1 – 1.8; Drim 13
 local type

2 AS '01-I/2

rim of an amphora
 straight rim thickened on the outside
 2.5Y 8/3 pale yellow; core 2.5Y 8/4 pale yellow
 Hrim 3.1; Trim 1.6; Drim 15
 local type

3 AS '01-I/3

rim and neck of an amphora
 straight neck; straight rim thickened on the outside and undercut
 5YR 6/6 reddish yellow; core 5YR 5/6 yellowish red
 H 6.1; Hrim 3.0; Twall 0.7; Trim 0.6 - 1.6; Drim 14
 Dressel 1A (Lamboglia, 1955: fig. 10)

4 AS '01-I/4

rim and neck of an amphora
 cylindrical neck, triangular rim
 10YR 8/3 very pale brown
 H 9.5; Hrim 3.6; Twall 1.1 - 1.4; Trim 0.7 - 2.4; Drim 14
 sherd is very irregular with clear ridges from wheel-turning
 Dressel 1A (Lamboglia, 1955: fig. 11)

5 AS '01-I/5

rim and neck of an amphora
 outcurving neck; straight rim thickened on the outside; rim is very
 irregular, with clear ridges from wheel-turning
 2.5Y 8/3 pale yellow; core 2.5Y 8/3 pale yellow
 H 13.9; Hrim 3.5 - 3.9; Twall 1.2 - 1.9; Trim 1.2 - 1.9; Drim 15
 local type?

6 AS '01-I/6

rim of an amphora
 straight rim thickened on the outside with ridge on transition to
 neck
 10YR 7/4 very pale brown; core 5YR 7/6 reddish yellow
 H 4.5; Hrim 3.4; Twall 0.9; Trim 1.4; Drim 16
 local type

7 AS '01-I/7

rim of an amphora
 straight rim thickened and slightly concave on the outside
 7.5YR 8/3 pink
 H 5.0; Hrim 3.4; Twall 1.0; Trim 1.2 - 1.6; Drim 14
 local type

8 AS '01-I/8

handle of an amphora
 rounded band handle oval in section
 10YR 7/4 very pale brown
 H 11.6; S 2.6 × 4.0
 not drawn, similar to AS '01-IV/8
 local type

9 AS '01-I/9

handle of an amphora
 rounded band handle oval in section
 7.5YR 8/3 pink; core 10YR 7/4 very pale brown
 H 7.7; S 2.6 × 4.5
 local type

10 AS '01-I/10

handle attachment of an amphora
 handle oval in section; attached to shoulder
 7.5YR 8/4 pink to 5Y 8/2 pale yellow
 H 6.0; S 2.1 × 5.3
 not drawn

11 AS '01-IV/1

rim of an amphora
 straight rim thickened on the outside
 5Y 8/3 pale yellow
 H 4.7; Hrim 3.5; Twall 1.0; Trim 1.3 - 2.0; Drim 14
 local type

12 AS '01-IV/2

rim of an amphora
 straight rim thickened on the outside
 5Y 8/2 pale yellow; core 5Y 8/3 pale yellow
 H 5.9; Hrim 3.2; Twall 1.2 - 1.5; Trim 1.3 - 2.1; Drim 13
 not drawn, similar to AS '01-IV/1
 local type

13 AS '01-IV/3

rim and neck of an amphora
 cylindrical neck; slightly outcurving rim thickened on the outside
 2.5Y 8/3 pale yellow; core 5YR 7/6 reddish yellow
 H 11.0; Hrim 3.1; Twall 1.0 - 1.4; Trim 1.7 (max); Drim 12
 local type (or Dressel 1A?)

14 AS '01-IV/4

handle attachment of an amphora
 rounded handle oval in section attached to shoulder
 2.5Y 8/3 pale yellow
 H 8.1; Hhandle 6.4; Twall 1.3 - 1.7; S 2.5 × 4.4
 not drawn, similar to AS '01-IV/8; very badly mixed clay
 local type

15 AS '01-IV/5

base of an amphora
 knobbed, globular base with depression above knob; flaring wall
 ext 2.5Y 8/3 pale yellow; int 7.5YR 8/4 pink; core 7.5YR 8/4 pink
 H 7.5; Hknob 2.0; Twall 0.7 - 2.2; Dknob 4.5
 local type

16 AS '01-IV/6

base of an amphora
 knobbed, flattened base; spreading wall
 core 5YR 6/6 reddish yellow
 H 8.5; Hknob 1.9; Twall 0.9 - 1.7; Dknob 5.2
 local type

17 AS '01-IV/7

handle attachment of an amphora
 rounded handle oval in section attached to shoulder
 H 7.5; Twall 1.3 – 1.9; S 2.4 × 4.7
 2.5Y 8/3 pale yellow
 not drawn, similar to AS '01-IV/8; very badly mixed clay
 local type

18 AS '01-IV/8

rim, neck and handle of an amphora
 straight rim thickened on the outside; outcurving neck; rounded
 handle oval in section
 2.5Y 8/3 pale yellow; core 5YR 7/4 pink
 H 14.2; Hrim 3.6; Hhandle 10.1 Twall 0.6 – 1.1; Trim 1.5; S 1.9 ×
 4.1; Drim 12
 local type

19 AS '01-IV/13

handle of an amphora
 rounded handle oval in section attached to neck;
 handle damaged
 2.5Y 8/3 pale yellow
 H 7.1; Twall 1.5
 not drawn; similar to AS '01-IV/8
 local type

20 AS '01-VIII/1

rim of an amphora
 straight rim thickened on the outside; outturning neck; handle at-
 tachment oval in section
 5YR 6/6 reddish yellow; core 5YR 6/6 reddish yellow
 H 11.0; Hrim 3.8; Twall 1.1; Trim 1.6 – 1.9; Drim 13
 not drawn, similar to AS I/01; very flaky, eroded surface
 local type

21 AS '01-VIII/2

rim of an amphora
 straight rim thickened on the outside
 Hrim 3.5; Trim 1.5; Drim 12
 5Y 8/3 pale yellow; core 5Y 8/3 pale yellow
 not drawn, similar to AS I/01; irregular and flaky rim, eroded
 surface
 local type

22 AS '01-VIII/3

rim of an amphora
 straight rim thickening and slightly concave on the outside, concave
 on the inside
 2.5Y 8/3 pale yellow; core 10YR 7/4 very pale brown
 H 6.8; Hrim 4.3; Twall 1.2; Trim 1.8; Drim 13
 Dressel 1A (or local type?)

23 AS '01-VIII/4

handle of an amphora
 upper part of band handle oval in section attached to neck
 5YR 7/6 reddish yellow; core 5YR 7/6 reddish yellow
 H 6.1; Hhandle 3.3; Twall 1.6; S 1.9 – 4.3
 not drawn, very damaged
 local type

24 AS '01-VIII/5

base of an amphora
 knobbed, flattened base
 5YR 7/6 reddish yellow; core 5YR 6/8 reddish yellow
 Hknob 1.8; Dknob 4.0 – 4.2
 not drawn, similar to AS '01-L/1
 local type

25 AS '01-VIII/6

handle of an amphora
 rounded band handle oval in section
 5YR 7/6 reddish yellow; core 5YR 6/6 reddish yellow
 H 7.3; S 1.9 × 3.9
 local type

26 AS '01-VIII/7

handle of an amphora
 rounded band handle oval in section
 10YR 8/3 very pale brown; core 5YR 7/6 reddish yellow
 H 10.2; S 2.3 × 4.0
 local type

27 AS '01-VIII/8

handle of an amphora
 straight elongated band handle oval in section
 7.5YR 7/6 reddish yellow; core 10YR 8/3 very pale brown
 H 12.2; S 2.4 × 4.5
 Graeco Italic/Dressel 1A

28 AS '01-VIII/9&12

rim of an amphora
 straight rim thickening and slightly concave on the outside, concave
 on the inside
 7.5YR 6/6 reddish yellow; core 7.5YR 6/6 reddish yellow
 H 6.0; Hrim 4.4; Twall 0.7 – 0.8; Trim 1.6; Drim 13
 Dressel 1A (or local type?)

29 AS '01-VIII/10

rim of an amphora
 straight rim thickening on the outside, concave on the inside
 2.5Y 7/4 pale yellow; core 2.5Y 7/4 pale yellow
 H 5.0; Hrim 3.9; Twall 1.1; Trim 1.6 – 1.9; Drim 10
 not drawn; similar to AS '01-VIII/3
 Dressel 1A (or local type?)

30 AS '01-VIII/11

rim of an amphora
triangular rim, concave on the inside
2.5Y 7/3 pale yellow; core 7.5YR 7/6 reddish yellow
H 5.7; Hrim 3.6; Twall 0.9 – 1.0; Trim 0.9 – 2.2; Drim 17
Graeco Italic (Will, 1987: A28)

31 AS '01-VIII/14

wall fragment of an amphora
slightly convex sherd with angle of neck-body transition
H 15.8; Twall 1.6 – 2.4; Dmax 29
ext 10YR 7/4 very pale brown; int 5YR 7/6 reddish yellow; core
5YR 6/8 reddish yellow
not drawn

32 AS '01-IX/1

rim of an amphora
triangular rim with ridge on transition to neck
7.5YR 7/6 reddish yellow; core 5YR 6/8 reddish yellow
H 3.6; Hrim 3.3; Twall 0.7; Trim 0.9 – 2.0; Drim 16
Dressel 1A (Lamboglia, 1955: fig. 13)

33 AS '01-IX/2

handle of an amphora
rounded band handle oval in section; very irregularly shaped; on the
inside, a lump of clay is visible with less inclusions
10YR 8/3 very pale brown - 10YR 7/4 very pale brown; core 5YR
7/6 reddish yellow; lump 5YR 6/6 reddish yellow
H 10.7; S 2.2 × 4.3
not drawn; similar to AS '01-IX/3
local type

34 AS '01-IX/3

neck and handle of an amphora
outcurving neck; rounded handle oval in section
7.5 YR 7/6 reddish yellow – 5 YR 6/6 reddish yellow; core 5 YR 6/6
reddish yellow – 2.5 Y 6/2 light brownish grey
H 12.6; Twall T 0.7 – 1.2; S 2.2 × 4.2
local type

35 AS '01-X/1

rim of an amphora
straight rim thickening and slighty concave on the outside, concave
on the inside
ext 10 YR 8/3 very pale brown; int 10 YR 7/4 very pale brown; core
7.5 YR 7/6 reddish yellow
H 5.8; Hrim 4.4; Twall 0.8; Trim 1.4 – 1.8; Drim 13
Dressel 1A (or local type?)

36 AS '01-X/2

rim of an amphora
straight rim thickening and slighty concave on the outside, concave
on the inside

7.5 YR 7/6 reddish yellow; core 5 YR 7/6 reddish yellow
H: 5.3; Hrim 3.6; Twall 1.0; Trim 1.6; Drim 13
not drawn; similar to AS '01-X/1
Dressel 1A (or local type?)

37 AS '01-X/3

rim and (part of) handle of an amphora
slightly outcurving rim thickened on the outside; handle oval in sec-
tion; straight neck
ext 10 YR 8/2 very pale brown; int 10 YR 7/4 very pale brown; core
5 YR 7/6 reddish yellow
H 8.1; Hrim 2.6; Twall: 1.1; Trim 0.8 – 1.6; S: 2.4 × 4.8; Drim 14
on the inside, a lump of clay is visible with less
inclusions (5 YR 6/6 reddish yellow)
local type

**MATERIAL COLLECTED AT P15C WITHOUT A
STRATIGRAPHIC CONTEXT (2000-SAMPLES A, B,
G, I, J, K, M AND 2001 SAMPLES AS'01-II AND P15C)**

38 AS A/01

handle of an amphora
AST.I-III.AD*e.ws(3-4).ab
straight, elongated band handle; oval, ribbed in section
10YR 8/3 very pale brown; core 10YR 8/3 very pale brown & 5YR
7/8 reddish yellow
H 18.5; S 2.5 × 4.2
Graeco-Italic/Dressel 1 A

39 AS A/02

base of an amphora
AST.I-III.ad*e.ws(3-4).cd
knobbed, globular base; depression above knob; flaring wall
ext 7.5YR 8/3 pink; int 7.5YR 7/6 reddish yellow ; core 5YR 6/6
reddish yellow
H 9.1; Hknob 2.5; Twall 0.7-1.3; Dknob 4.4
local type

40 AS B/02

base of an amphora
knobbed flattened base with encircling ridge; depression above
knob; spreading wall
10YR 7/4 very pale brown – 10YR 8/3 very pale brown; core 10YR
8/3 very pale brown
H 9.9; Hbase 2.8; Twall 1.1-2.1; Dknob 5.1
local type

41 AS G/03

fragment of a roof tile
SAT (II)/III.EK.ms-vps(1-4).b
rectangular profile with straight internal angle and rounded external
angle

5Y 8/3 pale yellow & 10YR 8/4 very pale brown; core 10YR 7/6 yellow
Tplate 2.2-2.6; Hrim 6.0; Wrim 2.0

42 AS I/01

rim and neck of an amphora
AST.I-III.AD*e.ws(3-4).ab
straight rim thickened and slightly concave on the outside; slightly outcurving neck with
handle attachment, oval in section
ext 7.5YR 7/6 reddish yellow; int 2.5YR 6/8 red; core 2.5YR 6/8 red
H 12.6; Hrim 3.1; Twall 0.9-1.1; Trim 1.7; S 1.5 × 4.7; Drim 12.5
local type

43 AS I/03

base of an amphora
knobbed base with encircling ridge; depression above knob; spreading wall
7.5YR 7/6 reddish yellow
H 8.1; Hknob 1.6; Twall 1.0-2.0; Dknob 5.8
local type

44 AS I/05

rim of an amphora
AST.I-III.ad*e.ws(3-4).cd
straight rim thickened on the outside
ext 5YR 6/8 reddish yellow; int 5YR 7/8 reddish yellow; core 5YR 6/8 reddish yellow
H 7.1; Hrim 2.7; Twall 0.9-1.1; Trim 1.2-1.7; Drim 14
local type?

45 AS J/01

rim and neck with handle attachment of an amphora
AST.I-III.AD*e.ws(3-4).ab
straight rim thickened on the outside; outcurving neck with handle attachment, oval in section
ext 7.5YR 6/6 reddish yellow; int 5YR 7/8 reddish yellow; core 5YR 6/8 reddish yellow
H 12.5; Hrim 3.8; Twall 1.4; Trim 1.7; Drim 14
local type

46 AS J/02

handle of an amphora
AST.I-III.ad*e.ws(3-4).cd
Rounded band handle; oval, ribbed in section
5YR 6/8 reddish yellow; core 5YR 6/6 reddish yellow
H 13.3; S 2.2 × 4.9
local type

47 AS K/01

fragment of a roof tile
flat plate with part of round stamp preserved, showing letters E M

2.5Y 5/3 light olive brown - 2.5Y 8/4 pale yellow; core 2.5Y 8/4 pale yellow
Tplate 1.8

48 AS M/01

rim and neck with handle attachment of an amphora
AST.I-III.ad*e.ws(3-4).cd
straight rim thickened and slightly concave on the outside; short neck with handle attachment, oval in section
ext 7.5YR 8/4 pink - 2.5YR 6/8 red; int 5YR 7/8 reddish yellow; core 5YR 6/8 reddish yellow
H 13.1; Hrim 4.4; Twall 0.8-1.6; Trim 2.2; S 2.3 × 4.9; Drim 12
local type

49 AS M/02

rim and neck with handle attachment of an amphora
AST.I-III.AD*e.ws(3-4).ab
straight rim thickened on the outside; short neck with handle attachment oval in section; neck contains part of an oval stamp, but the letters are unclear
ext 7.5YR 7/6 reddish yellow; int 7.5YR 8/4 pink; core 5YR 6/6 reddish yellow
H 11.3; Hrim 3.0; Twall 0.9-1.1; Trim 1.8; Drim 14
local type

50 AS M/03

base of an amphora
knobbed base; depression above knob; slightly outcurving wall
10YR 8/3 very pale brown; core 10YR 7/4 very pale brown
H 7.2; Hknob 5.0; Twall 0.8-1.8; Dknob 5.7
local type

51 AS '01-II/1

rim of an amphora
straight rim thickened on the outside
10YR 8/3 very pale brown; core 10YR 7/4 very pale brown
H 7.1; Hrim 3.7; Twall 1.3; Trim 2.0 - 2.7; Drim 16
local type?

52 AS '01-II/2

handle of an amphora
straight, elongated band handle oval, slightly ribbed in section
10YR 7/4 very pale brown; core 10YR 7/4 very pale brown
H 10.7; S 2.4 × 4.4
Graeco-Italic/Dressel 1A

53 AS '01-II/3

handle of an amphora
rounded band handle oval in section
7.5YR 7/6 reddish yellow; core 5YR 6/6 reddish yellow
H 9.3; S 2.2 × 4.0
not drawn, similar to AS '01-VIII/7
local type

54 AS '01-II/4

base of an amphora
 ridged ring base; spreading wall
 5YR 6/8 reddish yellow; core 2.5YR 5/4 weak red
 H 6.1; Hbase 1.7; Twall 1.6 – 2.8; D base ring 13
 open vessel?

55 AS '01-II/5

fragment of a roof tile
 rectangular profile with straight internal and external angle
 7.5YR 7/6 reddish yellow
 Tplate 2.6; Hrim 7.2; Wrim 2.5 – 2.8

56 AS '01-II/6

base of an amphora
 knobbed, globular base; flaring wall
 ext 10YR 7/6 yellow; int 10YR 7/4 very pale brown; core 10YR
 7/8 yellow
 H 11.4; Hknob 3.7; Twall 0.6 – 2.1; Dknob 5.0
 local type/Dressel 6A?

57 P15C S3

spike of an amphora
 high solid cylindrical spike with rounded and slightly thickened
 lower side
 7.5YR 7/6 reddish yellow; core 7.5YR 6/6 reddish yellow
 H 11.1; Dspike 2.8 – 3.5
 Graeco-Italic/Dressel 1A

58 P15C S10

handle of an amphora
 straight elongated band handle oval, ribbed in section
 5YR 6/6 reddish yellow; core 7.5YR 6/6 reddish yellow
 H 20.4; S 2.5 × 4.4
 Graeco-Italic/Dressel 1A

**MATERIAL FROM VARIOUS PITS BETWEEN P15C AND
 P13 (2000 SAMPLE F, 2001-SAMPLES AS '01-C, K, L, N, O,
 R, Q-S, K-L; 2002 SAMPLES AS '02-K, L, N, O)**

PIT C**59 AS '01-C/1**

rim of an amphora
 straight rim thickening on the outside, concave on the inside
 7.5YR 7/6 reddish yellow; core 2.5YR 6/8 red
 H 4.9; Hrim 3.8; Twall 1.0; Trim 1.5 – 1.8; Drim 13
 Dressel 1A (or local type?)

60 AS '01-C/2

neck and handle of an amphora
 short cylindrical neck; rounded band handle oval in section

5YR 7/6 reddish yellow; core 2.5YR 6/8 red
 H 13.5; Hhandle 10.6; Twall 1.1 – 1.7; S 2.3 × 4.7
 local type

PIT K**61 AS '01-K/1**

base of an amphora
 knobbed flattened base; spreading wall
 7.5YR 8/6 reddish yellow; core 5YR 7/6 reddish yellow
 H 10.1; Hknob 1.6; Twall 0.6 – 1.3; Dknob 4.4
 local type

62 AS '01-K/2

rim of an amphora
 triangular rim thickened on the outside and undercut
 10YR 8/3 very pale brown; core 10YR 8/3 very pale brown
 H 4.7; Hrim 3.2; Twall 0.7; Trim 0.7 – 1.8; Drim 14
 Dressel 1A (Lamboglia, 1955: fig. 11)

63 AS '01-K/3

rim and handle attachment of an amphora
 straight rim thickened to triangular on the outside
 5YR 7/6 reddish yellow; core 5YR 7/4 pink
 H 8.1; Hrim 2.7; Twall 1.0; Trim 0.7 – 1.8; Drim 13.5
 local type

64 AS '02-K1

base of an amphora
 knobbed base with flattened lower side
 5YR 6/6 reddish yellow
 H 7.5; Hknob 1.8; Twall 1.1; Dknob 4.7
 local type

65 AS '02-K3

rim of an amphora
 straight rim thickened on the outside, convex lip
 10YR 7/4 very pale brown
 H 8.8; Hrim 2.1; Twall 0.4-0.8; Trim 1.0; Drim 14
 local type

66 AS '02-K10

rim of an amphora
 triangular rim, convex lip
 5YR 6/8 reddish yellow
 H 8.3; Hrim 2.4; Twall 0.9; Trim 2.7; Drim 19.5
 Graeco-Italic

67 AS '02-K13

base of an amphora
 knobbed base with concave lower side
 ext 7.5YR 7/6 reddish yellow; int 5YR 6/6 reddish yellow
 H 5.5; Hknob 1.6; Twall 1.2; Dknob 3.8
 local type

68 AS '02-K14

rim of an amphora
straight rim thickened on the outside, convex lip
7.5YR 7/6 reddish yellow
H 6.5; Hrim 2.2-2.5; Twall 0.8; Trim 1.6; Drim 12
local type

PIT L**69 AS '01-L/1**

base of an amphora
knobbed, flattened base; spreading wall
5YR 6/6 reddish yellow
H 2.5; Hknob 1.7; Dknob 4.3
local type

70 AS '01-L/2

base of an amphora
knobbed, flattened base (damaged)
H 1.9; Twall 0.8 – 1.2
5YR 7/6 reddish yellow
not drawn; similar to AS '01-L/1
local type

71 AS '01-L/3

shoulder fragment with handle attachment of an amphora
rounded band handle oval in section attached to shoulder
7.5YR 7/6 reddish yellow; core 5YR 6/6 reddish yellow - 10YR 7/4
very pale brown
H 5.7; Twall 0.8 – 1.3
not drawn; similar to AS '01-IV/7; very badly mixed clay
local type

72 AS '01-L/4

rim, neck and (part of) handle of an amphora
triangular rim with handle attached to rim; slightly outcurving
neck
7.5YR 7/4 pink
H 8.1; Hrim 2.1; Twall 0.9 – 1.1; Trim 2.7 (max); Drim 16
on the inside, a mix of white and pink to purple clay is visible
Graeco-Italic

73 AS '01-L/5

neck and handle of an amphora
rounded band handle oval in section; slightly outcurving neck with
angle on transition to shoulder
7.5YR 7/6 reddish yellow
H 11.5; Hhandle 11.0; Twall 0.9 – 1.4; S 1.3 × 3.7
local type

74 AS '02-L2

rim of an amphora
triangular, undercut rim, pointed lip; handle attachment immedi-

ately below rim
5YR 7/6 reddish yellow & 7.5YR 7/6 reddish yellow
H 7.1; Hrim 2.4; Twall 0.7; Trim 2.5; Drim 18
Graeco-Italic

75 AS '02-L5

handle of an amphora
straight elongated band handle oval in section
10YR 8/3 very pale brown; core 2.5YR 7/4 light reddish brown
H 15.0; S 2.3 × 4.4
Graeco Italic/Dressel 1A

PITS K & L**76 AS '01-K-L/1**

rim of an amphora
triangular rim
5YR 7/6 reddish yellow - 7.5YR 6/6 reddish yellow; core 7.5YR
6/6 reddish yellow
H 4.8; Hrim 2.5; Trim 2.8 (max); Drim 15 – 16
not drawn; similar to AS '01-L/4. no handle attachment
Graeco-Italic

77 AS '01-K-L/2

rim of an amphora
triangular rim
7.5YR 7/6 reddish yellow; core 7.5YR 6/4 light brown
H 5.6; Hrim 2.5; Twall 0.6 – 1.0; Trim 2.7 (max); Drim 15
not drawn; similar to AS '01-L/4. no handle attachment
Graeco-Italic

PIT N**78 AS '02-N22**

rim and part of neck of an amphora
cylindrical neck with straight elongated band handles oval in sec-
tion; triangular rim with two slight grooves on the lower side; con-
vex lip
2.5Y 8/3 pale yellow
H 15.1; Hrim 2.7; Twall 1.1; Trim 2.9; S 2.5 × 4.8; Drim 19
Graeco Italic

79 AS '02-N25/27

rim of an amphora
triangular, undercut rim; convex lip
2.5Y 8/2 pale yellow
H 5.7; Hrim 2.8; Twall 0.8; Trim 3.2; Drim 19
Graeco-Italic

80 AS '02-N28

rim of an amphora
triangular, undercut rim; convex lip
2.5Y 8/2 pale yellow

H 5.3; Hrim 2.4; Twall 0.8; Trim 2.8; Drim 17.5
Graeco-Italic/Dessel 1A?

81 AS '02-N35/111

rim of an amphora
triangular, undercut rim; convex lip
2.5Y 8/2 pale yellow
H 7.4; Hrim 2.8; Twall 0.8; Trim 3.0; Drim 20
Graeco-Italic

82 AS '02-N36

rim of an amphora
triangular rim with convex outside and ridge on lower side; pointed lip
10YR 8/4 very pale brown
H 6.4; Hrim 2.5; Twall 1.0; Trim 2.9; Drim 16.5
Graeco-Italic

83 AS '02-N41

rim and neck of an amphora
short, cylindrical neck with rounded band handles oval in section; straight rim thickened on the outside; flattened lip
2.5Y 8/2 pale yellow
H 16.3; Hrim 2.7; Twall 1.5; Trim 2.1; S 2.4 × 4.3; Drim 12
local type

84 AS '02-N42

rim and neck of an amphora
long, cylindrical neck with attachment of elongated band handles oval in section; triangular, undercut rim; convex lip
2.5Y 8/3 pale yellow – 10YR 8/3 very pale brown
H 21.0; Hrim 2.7; Twall 0.8-1.5; Trim 3.3; S ? × 5.0; Drim 13
Graeco-Italic

85 AS '02-N46

spike of an amphora
cylindrical solid spike, lower side thickened
2.5Y 8/3 pale yellow
H 18.2; Twall 0.8-1.8; Dspike 4.2-4.8
Graeco-Italic/Dressel 1A

86 AS '02-N48/50

spike of an amphora
cylindrical solid spike, lower side flattened
2.5Y 8/3 pale yellow; core 5YR 7/4 pink
H 13.6; Twall 1.0-1.8; Dspike 3.4-4.4
Graeco-Italic/Dressel 1A

87 AS '02-N56/58/59/61

rim and neck of an amphora
short, cylindrical neck with rounded band handles oval in section; straight rim thickened on the outside; convex lip
ext 7.5Y 7/6 reddish brown; int 7.5Y 6/6 reddish brown

H 16.0; Hrim 2.4; Twall 0.9; Trim 1.6; S 2.3 × 4.2; Drim 12
local type

88 AS '02-N62/63

rim and neck of an amphora
long, cylindrical neck with slightly S-shaped, elongated band handles oval in section with finger impression at attachment to shoulder; triangular, undercut rim; convex lip
5Y 6/8 reddish yellow
H 24.5; Hrim 2.7; Twall 0.9; Trim 3.4; S 2.4 × 4.1; Drim 17
Graeco-Italic

PIT O**89 AS '01-O/1**

rim of an amphora
triangular, undercut rim
10YR 8/3 very pale brown; core 7.5YR 7/6 reddish yellow
H 5.5; Hrim 2.8; Twall 0.6 – 1.0; Trim 2.9 (max); Drim 15
not drawn; similar to AS '01-O/6
Graeco-Italic

90 AS '01-O/2

rim of an amphora
triangular, undercut rim
2.5Y 7/4 pale yellow & 7.5YR 7/4 pink
H 4.9; Hrim 2.5; Twall 0.9; Trim 3.0 (max); Drim 14
not drawn; similar to AS '01-O/6; from same amphora as AS '01-O/3
Graeco-Italic

91 AS '01-O/3

rim of an amphora
triangular, undercut rim
2.5Y 7/4 pale yellow & 7.5YR 7/4 pink
H 3.1; Hrim 2.5; Trim 3.0 (max); Drim 14
not drawn; similar to AS '01-O/6; from same amphora as AS '01-O/2
Graeco-Italic

92 AS '01-O/4

rim of an amphora
triangular, undercut rim
10YR 7/4 very pale brown; core 5YR 7/4 pink
H 6.5; Hrim 2.8; Twall 0.6 – 0.9; Trim 3.0 (max); Drim 14
not drawn; similar to AS '01-O/6
Graeco-Italic

93 AS '01-O/5

rim of an amphora
triangular, undercut rim
7.5YR 7/6 reddish yellow
H 6.2; Hrim 2.4; Twall 0.5 – 1.0; Trim 3.0 (max); Drim 15

not drawn; similar to AS '01-O/6

Graeco-Italic

94 AS '01-O/6

rim and neck of an amphora

triangular, undercut rim; slightly outcurving neck with handle attachment

ext 10YR 8/3 very pale brown; int 7.5YR 8/4 pink & 5YR 6/6 reddish yellow; core 5YR 6/6 reddish yellow

H 16.3; Hrim 2.8; Twall 0.5 – 1.1; Trim 2.9 (max); Drim 15

Graeco-Italic

95 AS '02-O8

rim of an amphora

triangular, undercut rim; convex lip

2.5Y 8/2 pale yellow

H 5.4; Hrim 2.9; Twall 0.8; Trim 3.3; Drim 16

Graeco-Italic

96 AS '02-O14

rim of an amphora

triangular undercut rim; convex lip

10YR 8/3 very pale brown

H 4.7; Hrim 3.1; Twall 0.8; Trim 3.2; Drim 19

Graeco-Italic

97 AS '02-O24

handle of an amphora

rounded band handle oval in section

7.5YR 7/6 reddish yellow

H 9.5; S 2.3 × 4.1

local type

98 AS '02-O28/40

rim and handle of an amphora (very damaged)

triangular, slightly undercut rim with groove on lower side, convex lip; straight elongated band handle irregular-oval in section

10YR 7/4 very pale brown

H 13.3; Hrim 2.8; Twall 0.8; Trim 3.0; S 2.6 × 4.3; Drim 20

Graeco-Italic

99 AS '02-O29/60

handle of an amphora

straight elongated band handle oval in section

5Y 8/2 pale yellow

H 22.7; Twall 0.9-1.4; S 2.4 × 4.4

Graeco-Italic

100 AS '02-O31

rim of an amphora

triangular, undercut rim; convex lip

2.5Y 8/2 pale yellow

H 7.2; Hrim 2.8; Twall 0.9; Trim 2.9; Drim 19

Graeco-Italic

101 AS '02-O35

rim of an amphora

straight rim thickened on the outside; convex lip

7.5YR 7/4 pink

H 4.1; Hrim 2.3; Twall 1.2; Trim 1.5; Drim 11

local type

PIT R

102 AS'01-R/1

base of an amphora

knobbed, flattened base; spreading wall

10YR 7/4 very pale brown

H 3.9; Hknob 2.0; Twall 0.7 – 0.9; Dknob 5.5

local type

103 AS'01-R/2

fragment of a roof tile

rectangular profile with rounded internal angle and straight external angle

5Y 8/3 pale yellow

Tplate 2.4 – 2.6; Hrim 5.9 – 6.5; Wrim 3.6

104 AS'01-R/3

rim and neck of an amphora

cylindrical neck with handle attachment; triangular rim, convex lip

5Y 8/2 pale yellow

H 7.1; Hrim 2.3; Twall 0.6 – 0.9; Trim 1.9 (max); Drim 13.5

Graeco-Italic/Dressel 1A (Lamboglia, 1955: fig. 10/11)

105 AS'01-R/4

handle of an amphora

rounded band handle oval in section

ext 5Y 8/2 pale yellow; int 10YR 8/3 very pale brown

H 11.1; S 2.2 × 4.9

local type

106 AS'01-R/5

rim of an amphora

triangular rim with groove below convex lip and ridge on lower side

5Y 8/2 pale yellow

H 5.2; Hrim 2.7; Twall 0.7 – 0.9; Trim 3.0 (max); Drim 15

Graeco-Italic?

PITS Q & S

107 AS '01-Q-S/1

rim of an amphora

triangular, undercut rim with finger impressions on top

10YR 8/2 very pale brown; core 7.5YR 8/3 pink

Hrim 2.2; Trim 2.8 (max); Drim 15

not drawn, similar to AS '01-O/6

Graeco-Italic

108 AS '01-Q-S/2

handle of an amphora
 rounded band handle oval in section
 10YR 8/2 very pale brown; core 10YR 8/2 very pale brown to 5YR 7/6 reddish yellow
 H 3.6; S 2.4 × 4.2
 not drawn; similar to AS '01-Q-S/5
 local type

109 AS '01-Q-S/3

handle and shoulder of an amphora
 rounded band handle oval in section
 10YR 7/4 very pale brown
 H 14.8; Hhandle 9.8; Twall 1.5 – 2.0; S 2.4 × 4.3
 local type

110 AS '01-Q-S/4

handle of an amphora
 rounded band handle oval in section
 10YR 7/3 very pale brown; core 5YR 6/8 reddish yellow
 H 12.1; S 2.4 × 4.3
 not drawn; similar to AS '01-Q-S/3
 local type

111 AS '01-Q-S/5

rim, neck and handle of an amphora
 short cylindrical neck with angle on transition to shoulder; rounded band handle oval in section; straight rim thickened on the outside, convex lip
 5Y 8/2 pale yellow & 5YR 8/3 pink; core 7.5YR 8/2 pinkish white - 5YR 6/6 reddish yellow
 H 14.8; Hhandle 11.1; Hrim 2.9; Twall 0.8 – 1.0; Trim 0.8 – 1.7; S 2.3 × 4.2; Drim 12
 very badly mixed clay (white and purple)
 local type

112 AS '01-Q-S/6

rim and neck of an amphora
 short cylindrical neck with sharp angle to almost horizontal shoulder; straight rim thickened on the outside, convex lip
 10YR 8/2 very pale brown; core 5YR 7/4 pink
 H 12.6; Hrim 2.5; Twall 0.8 – 1.4; Trim 1.1 – 1.7; Drim 12
 local type

113 AS '01-Q-S/7

rim of an amphora
 triangular rim, convex lip
 5YR 7/6 reddish yellow
 H 5.6; Hrim 2.6; Twall 0.7 – 0.8; Trim 2.6 (max); Drim 15.5
 Graeco-Italic/Dressel 1A (Lamboglia, 1955: fig. 11)

UNKNOWN PIT**114 AS F/01**

rim and neck of an amphora
 AST.I-III.AD*e.ws(3-4).ab
 cylindrical neck; straight rim thickened on the outside and slightly undercut and shallow groove below convex lip
 ext 7.5YR 8/2 pinkish white & 7.5YR 8/4 pink; int 7.5YR 8/3 pink & 5YR 8/3 pink; core 7.5YR 8/3 pink
 H 11.7; Hrim 3; Twall 0.6-1.3; Trim 1.2-1.7; Drim 13
 local type/Dressel 1A? (Lamboglia, 1955: fig. 10)

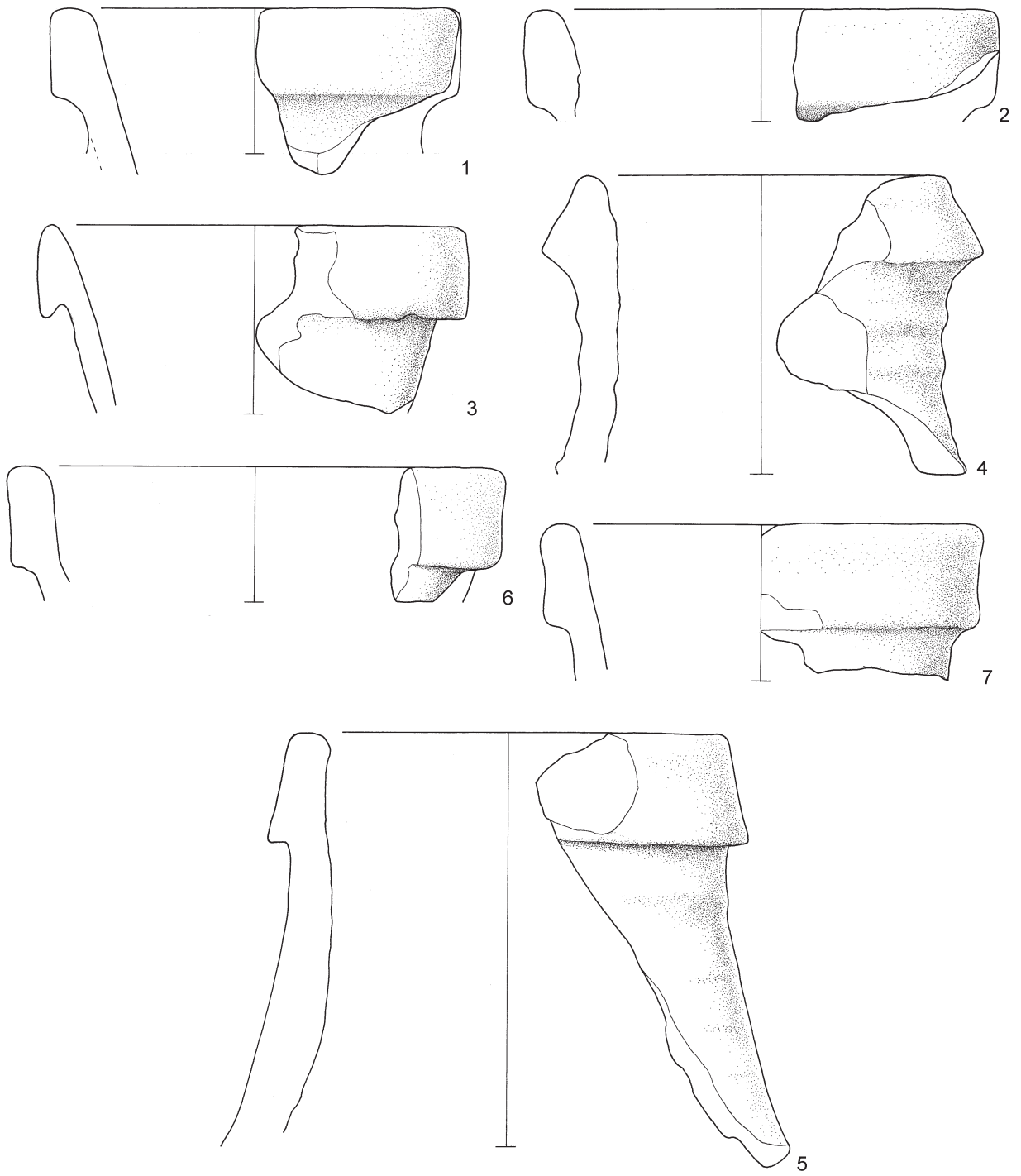
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 MATERIAL FROM BEACH BETWEEN P11 – P15
 (2000-SAMPLE L)**

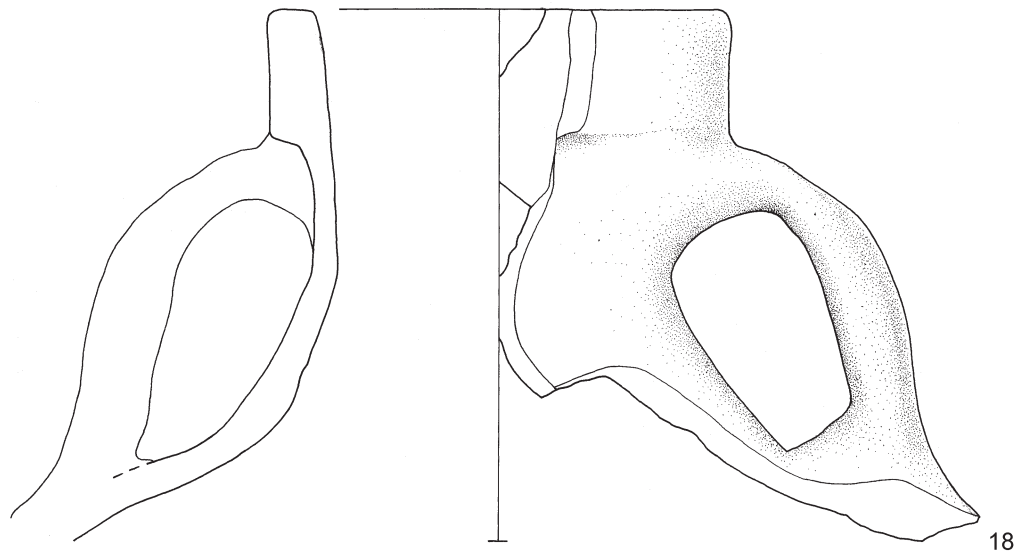
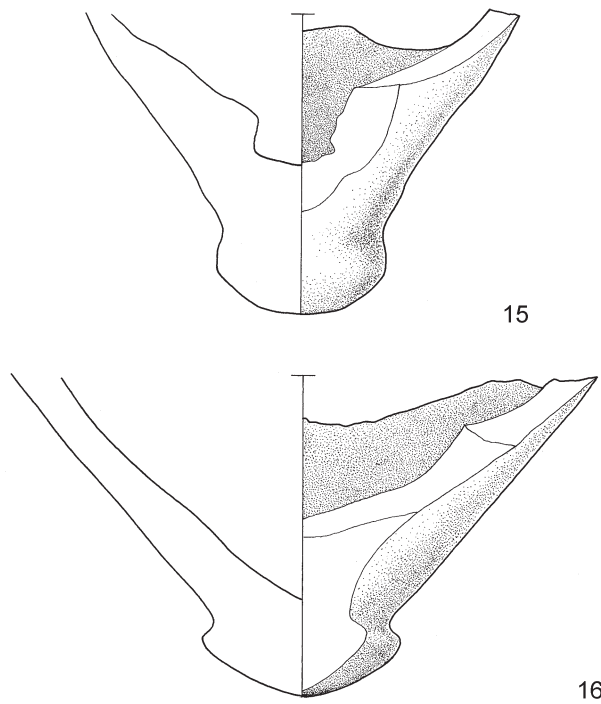
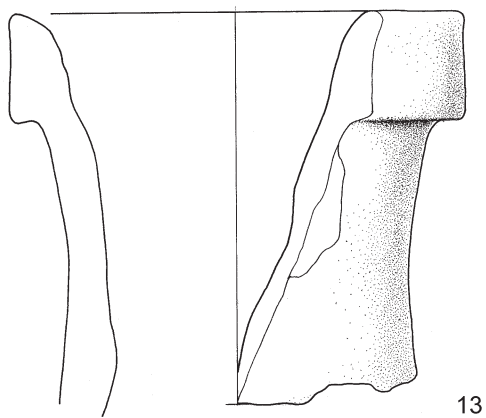
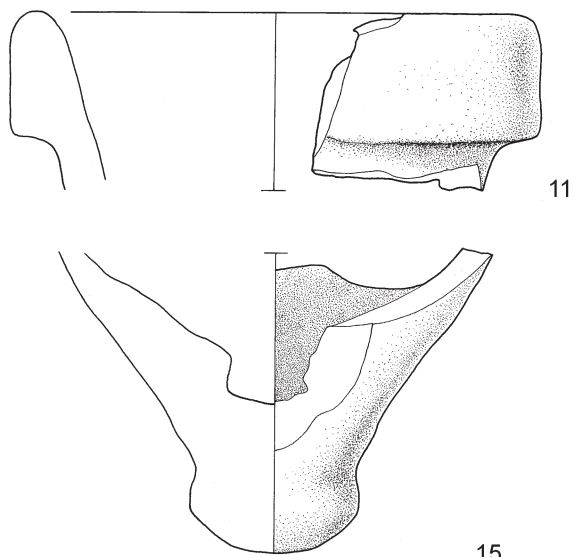
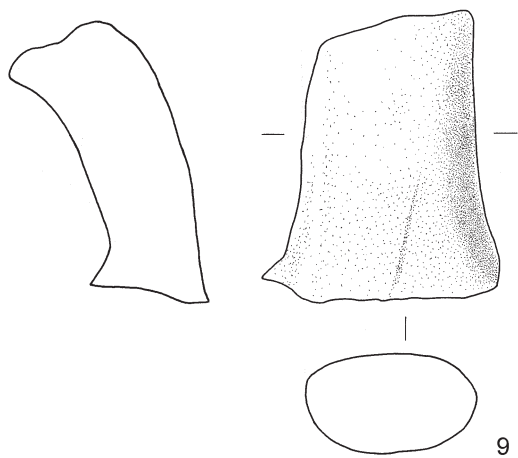
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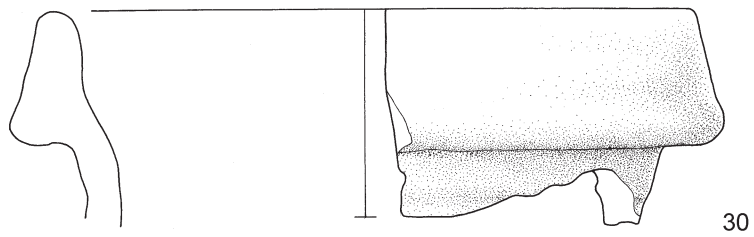
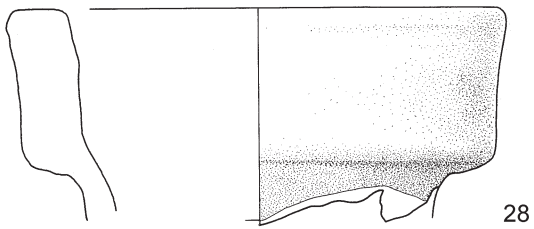
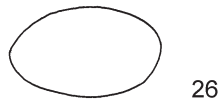
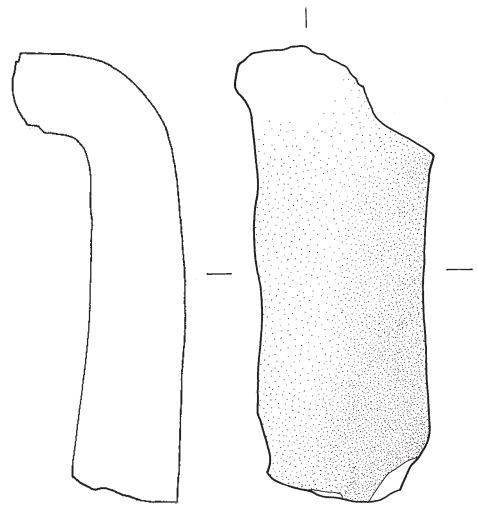
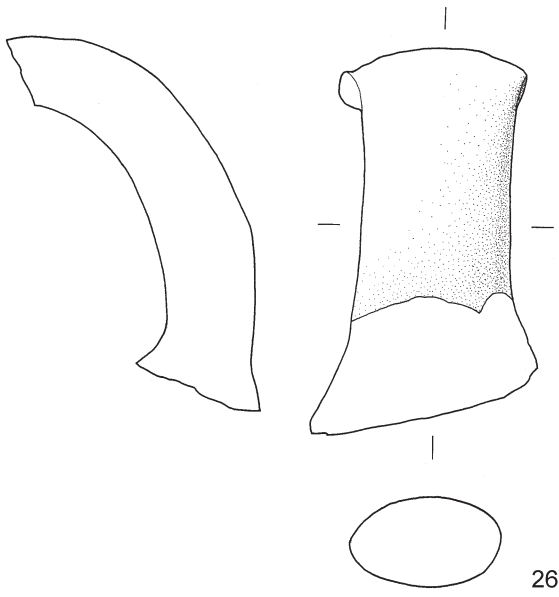
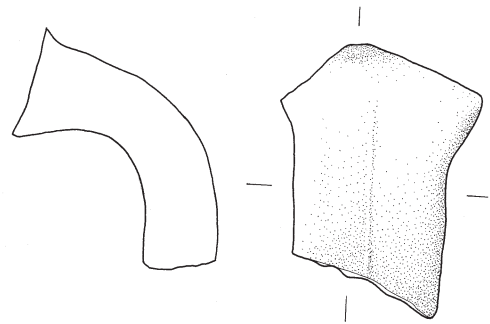
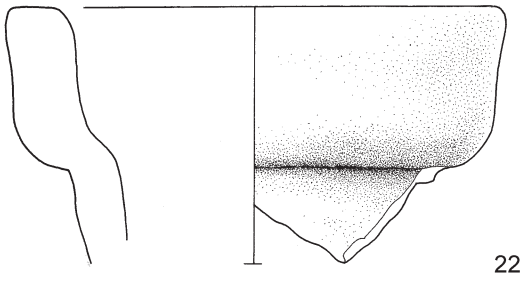
fragment of a roof tile
 rectangular profile with straight internal angle and rounded external angle
 10YR 6/4 light yellowish brown & 10YR 5/3 brown; core 7.5YR 8/3 pink
 Tplate 3.1; Hrim 8.6; Wrim 4.9

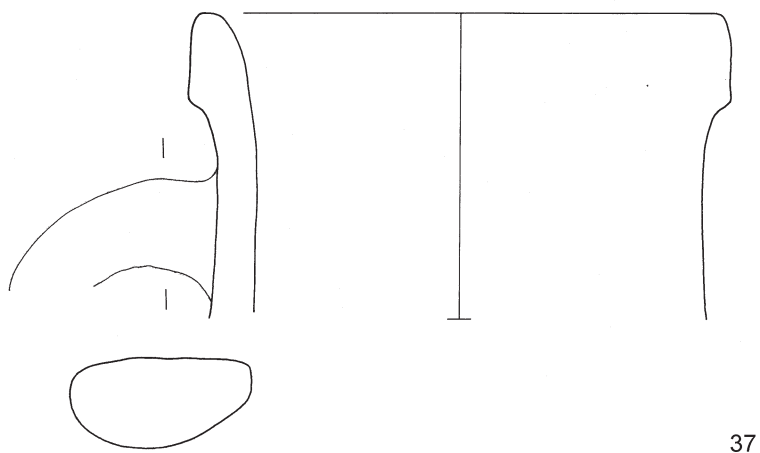
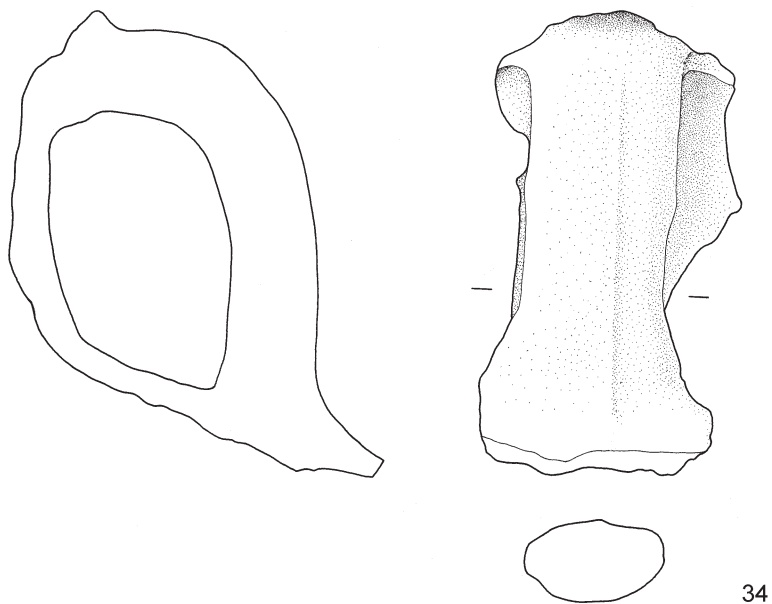
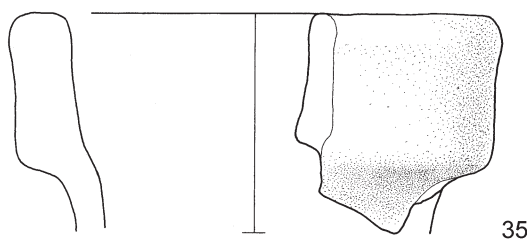
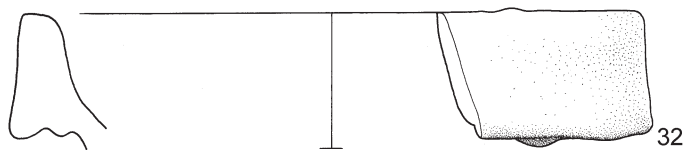
116 AS L/02

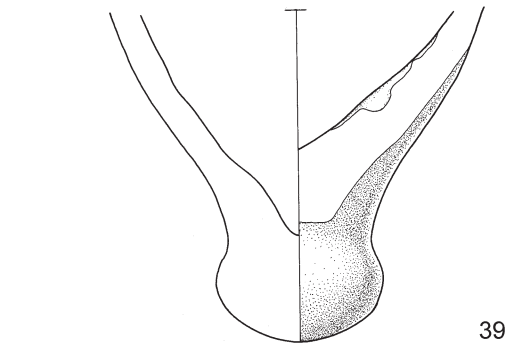
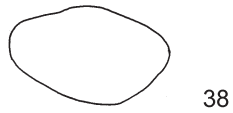
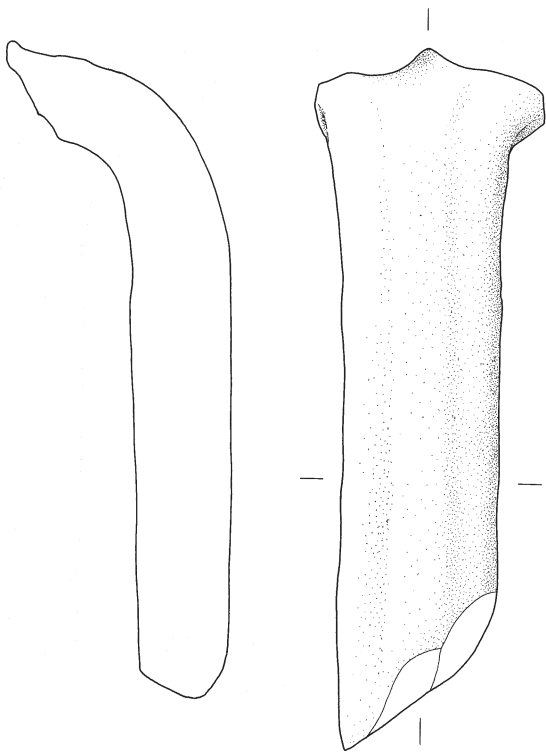
rim and neck with handle attachment of an amphora
 AST.I-III.ad*e.ws(3-4).cd
 cylindrical neck; straight (irregular) rim thickened and slightly concave on the outside; flattened lip
 5Y 8/3 pale yellow; core 5Y 8/3 pale yellow to 5YR 8/3 pink
 H 8.9; Hrim 3.3; Twall 0.7-1.1; Trim 1.5; Drim 13.5
 local type



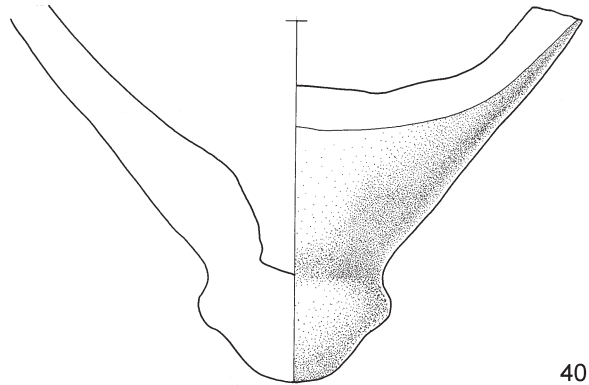




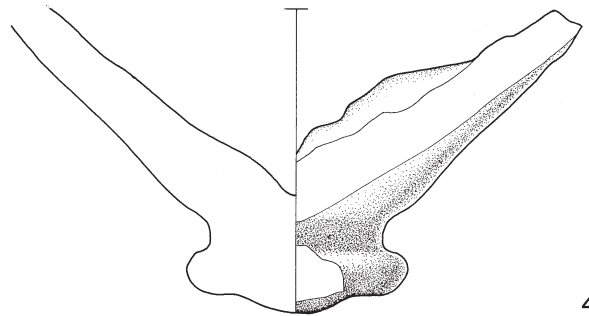




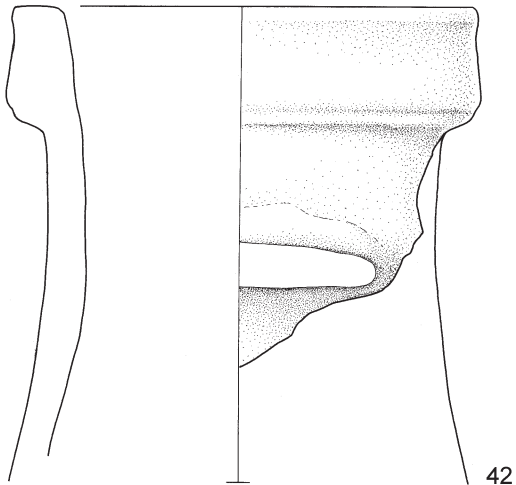
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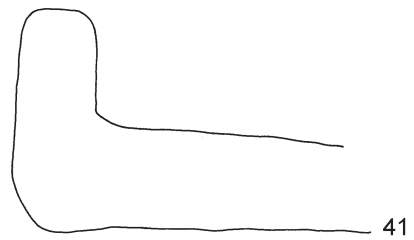
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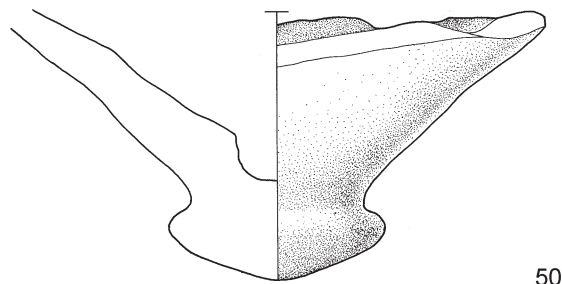
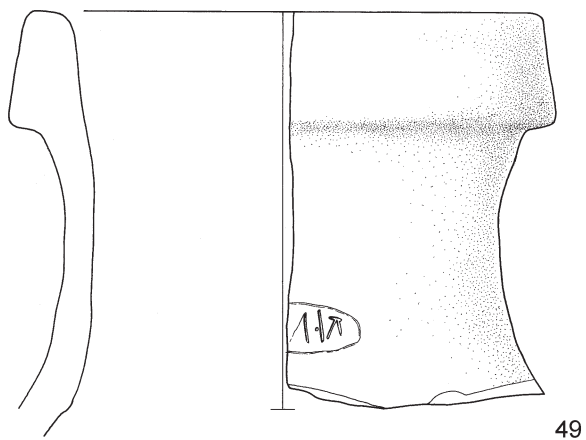
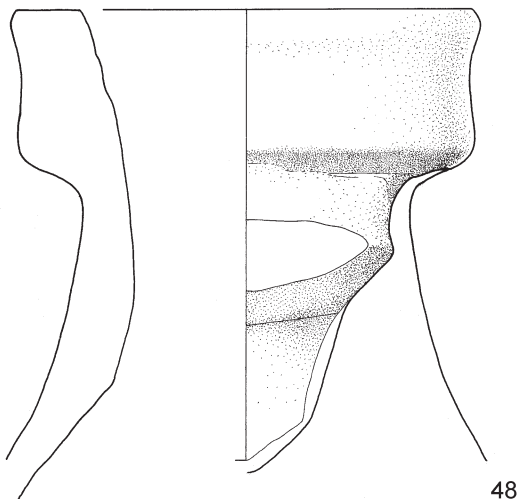
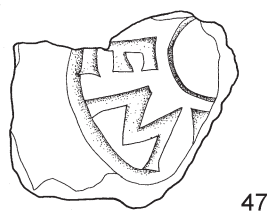
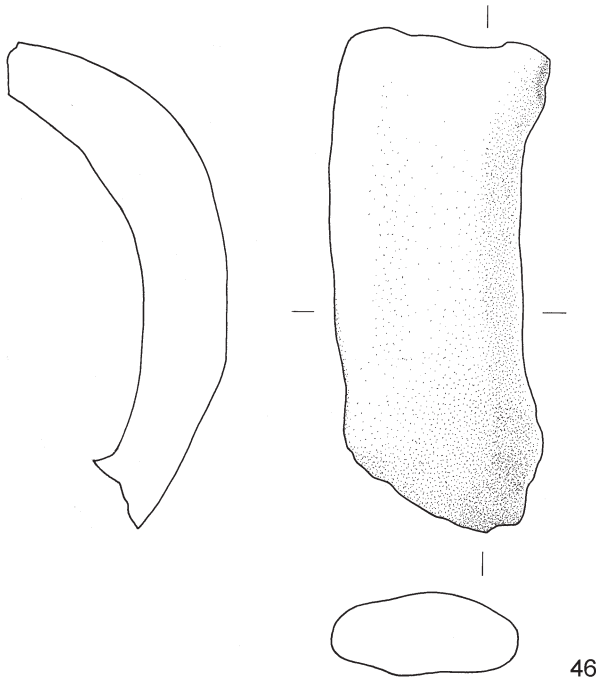
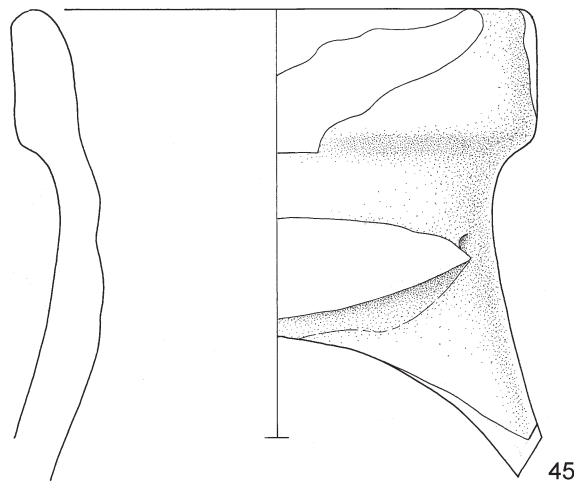
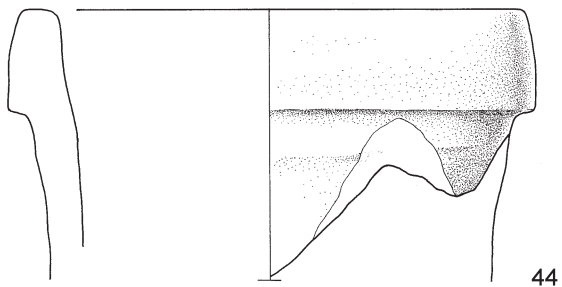
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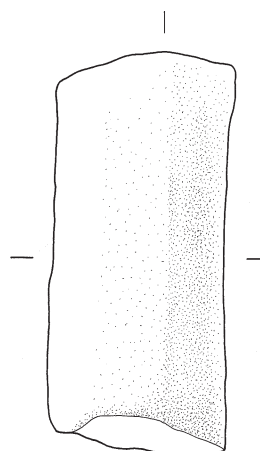
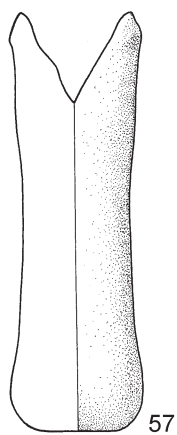
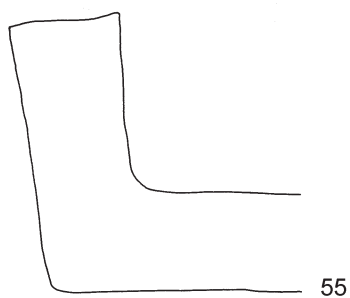
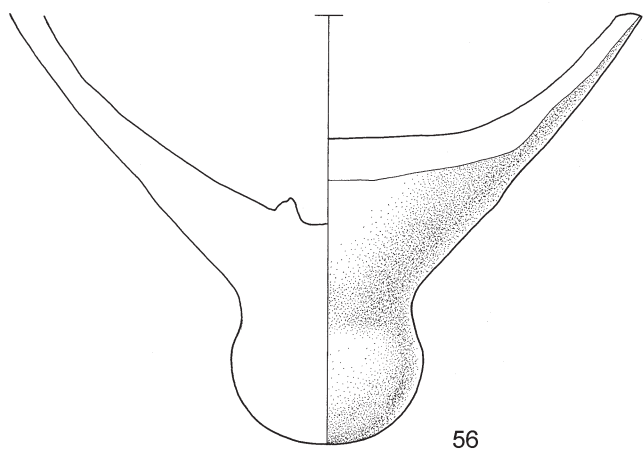
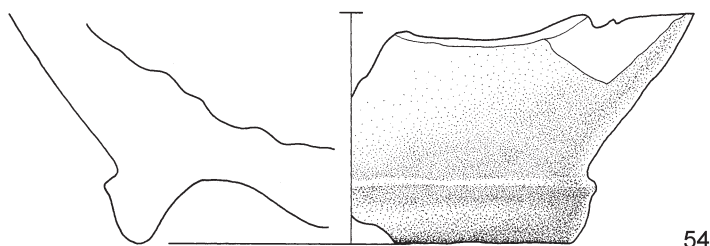
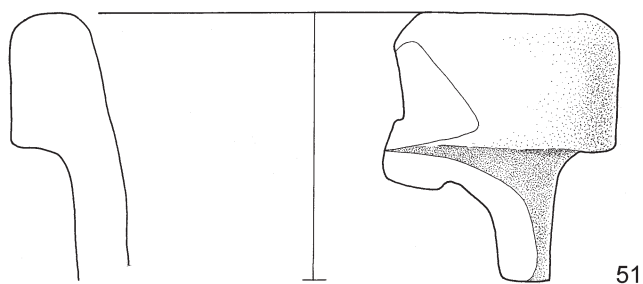


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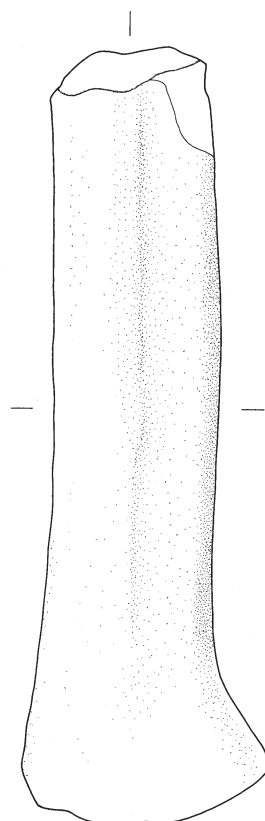
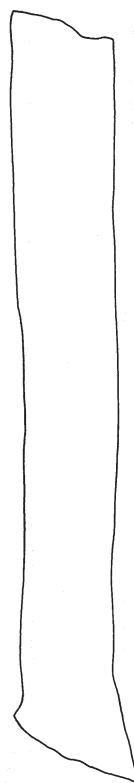


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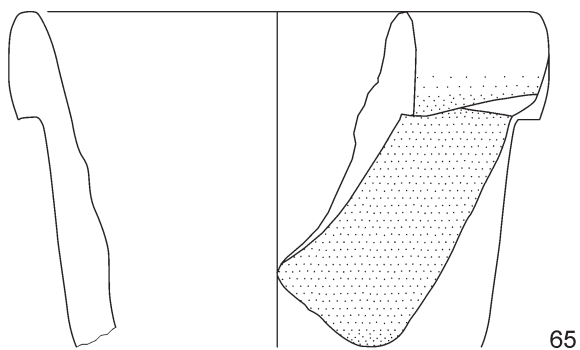
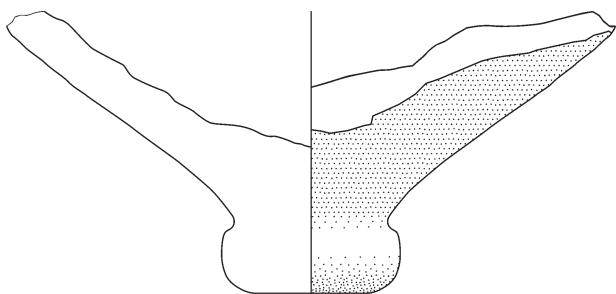
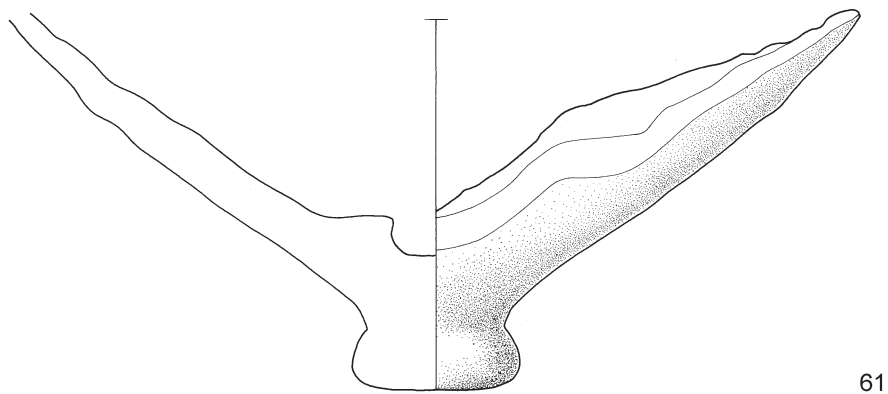
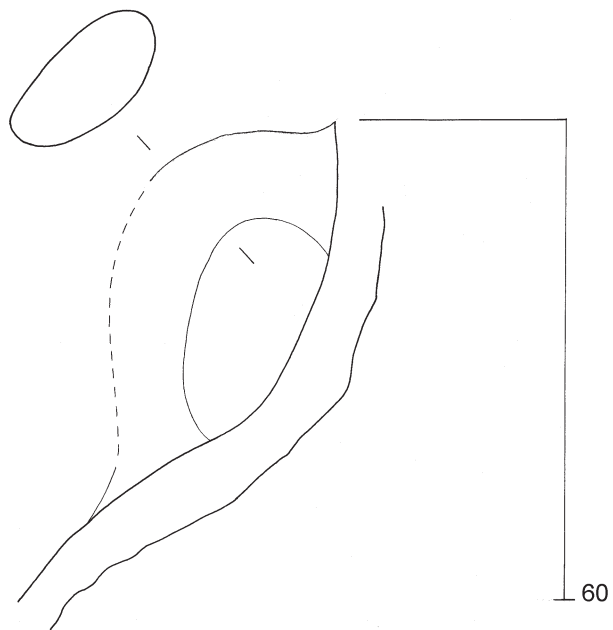
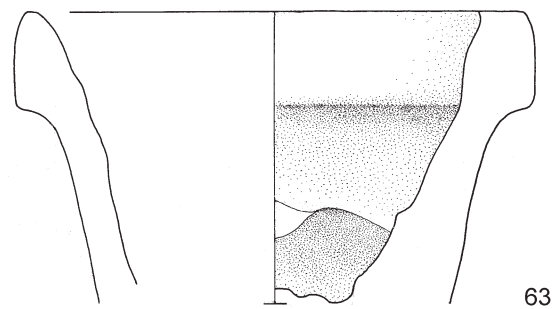
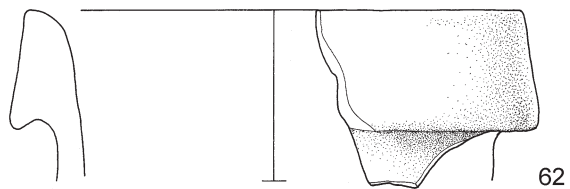
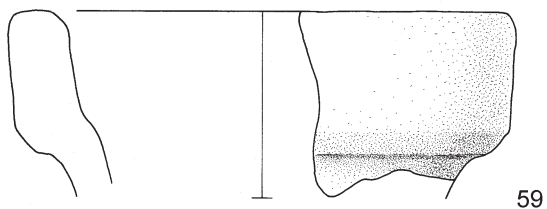


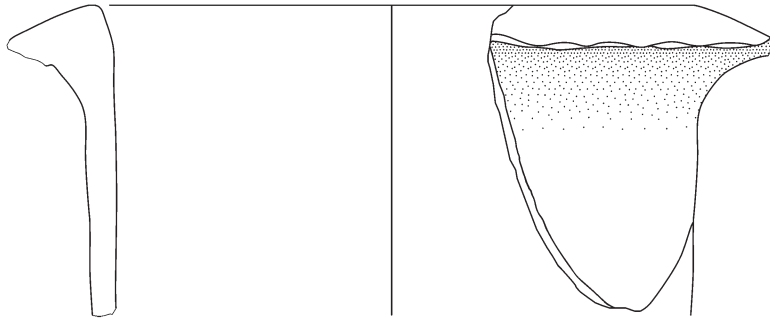


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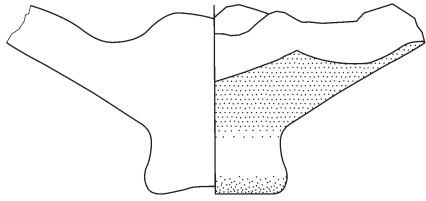


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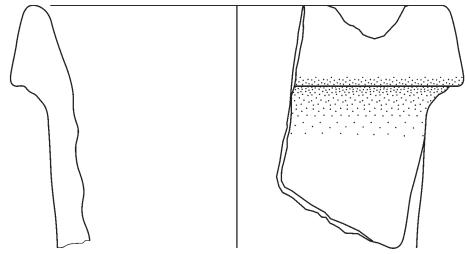




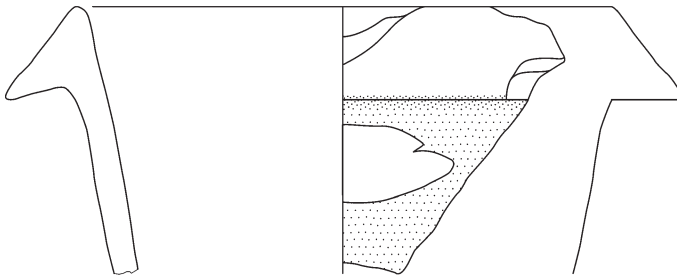
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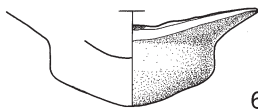
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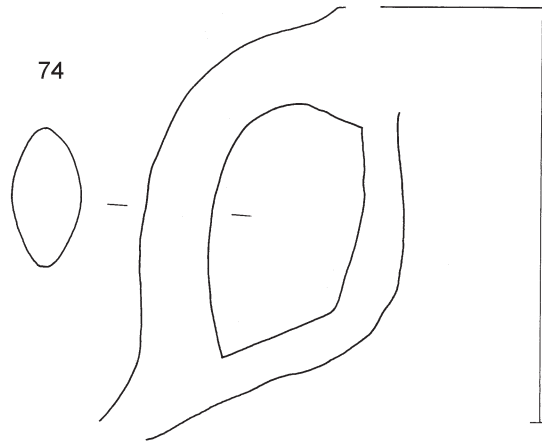
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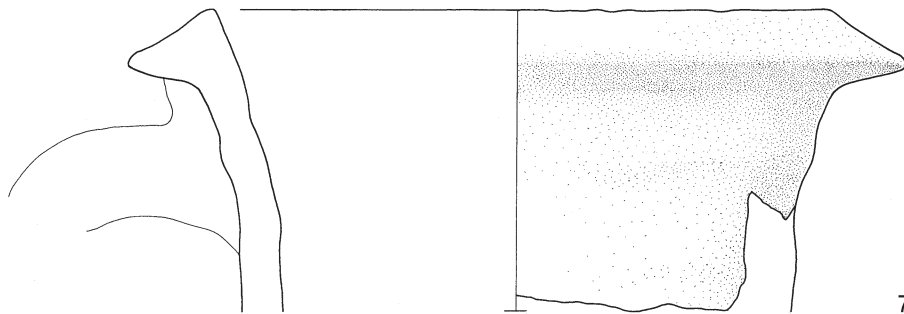
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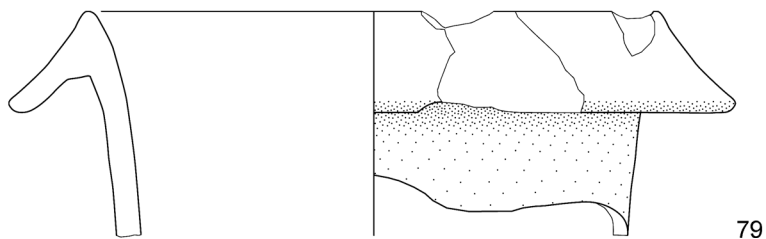
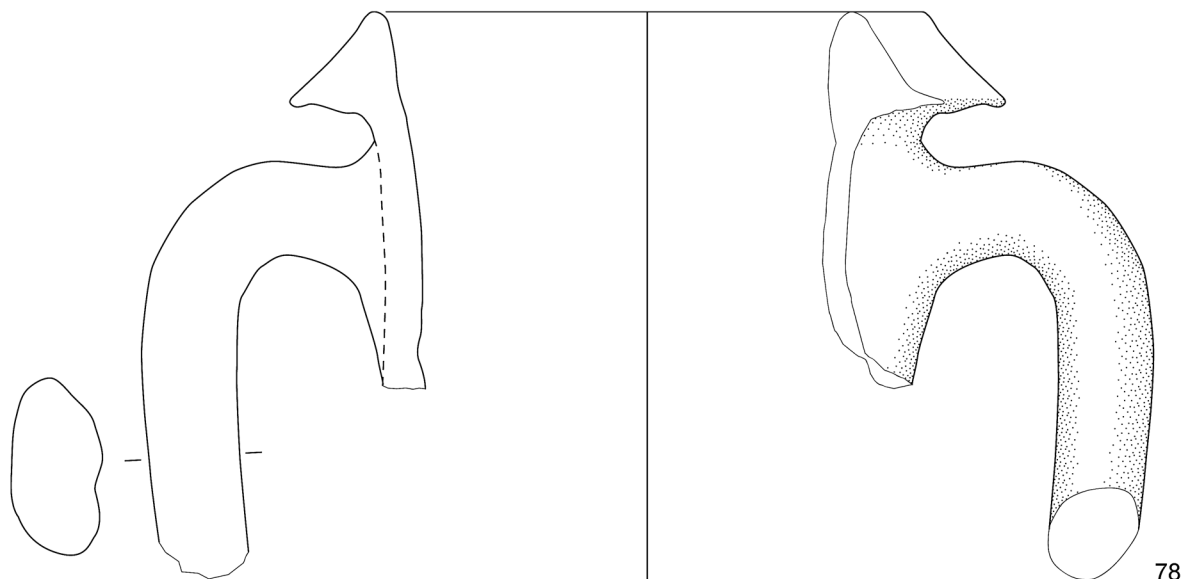
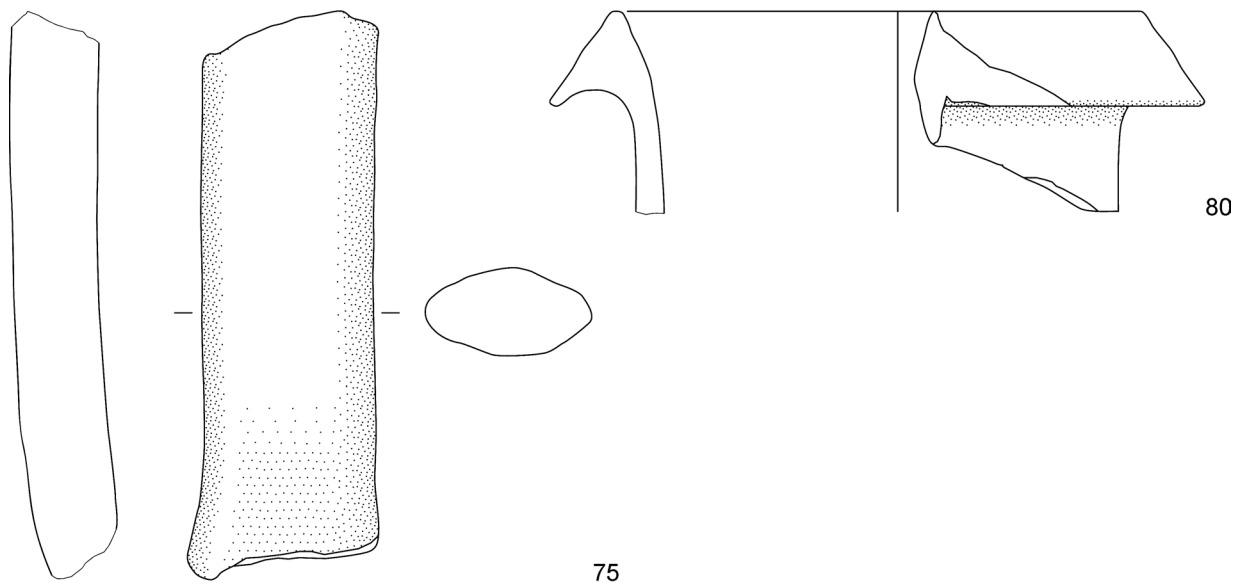
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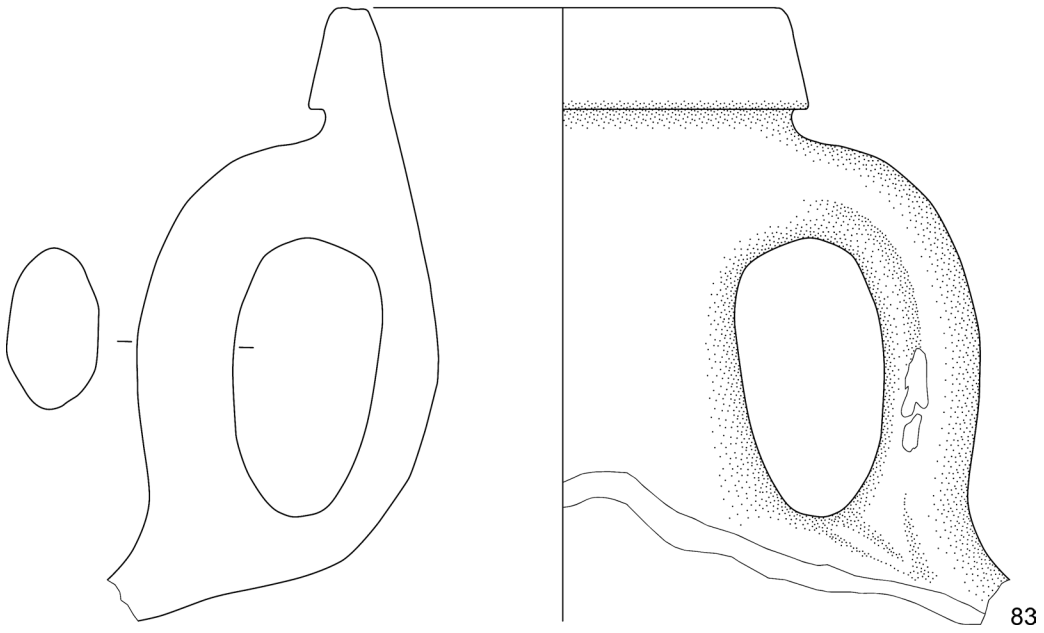
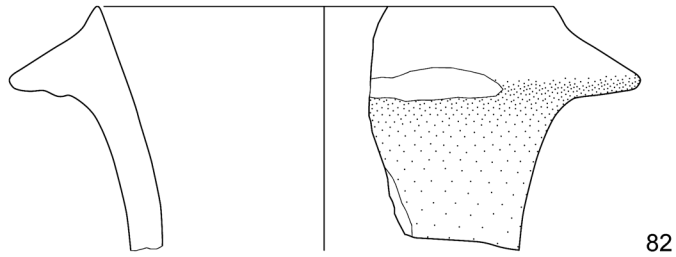
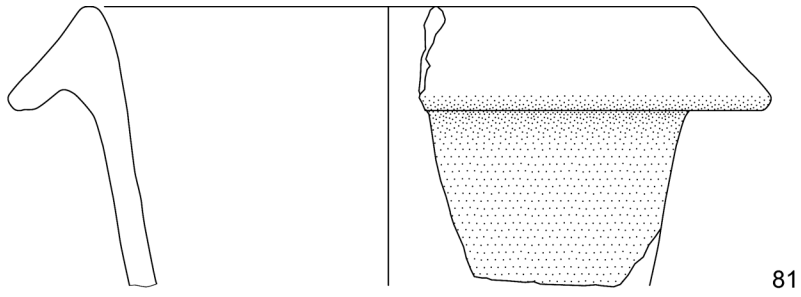


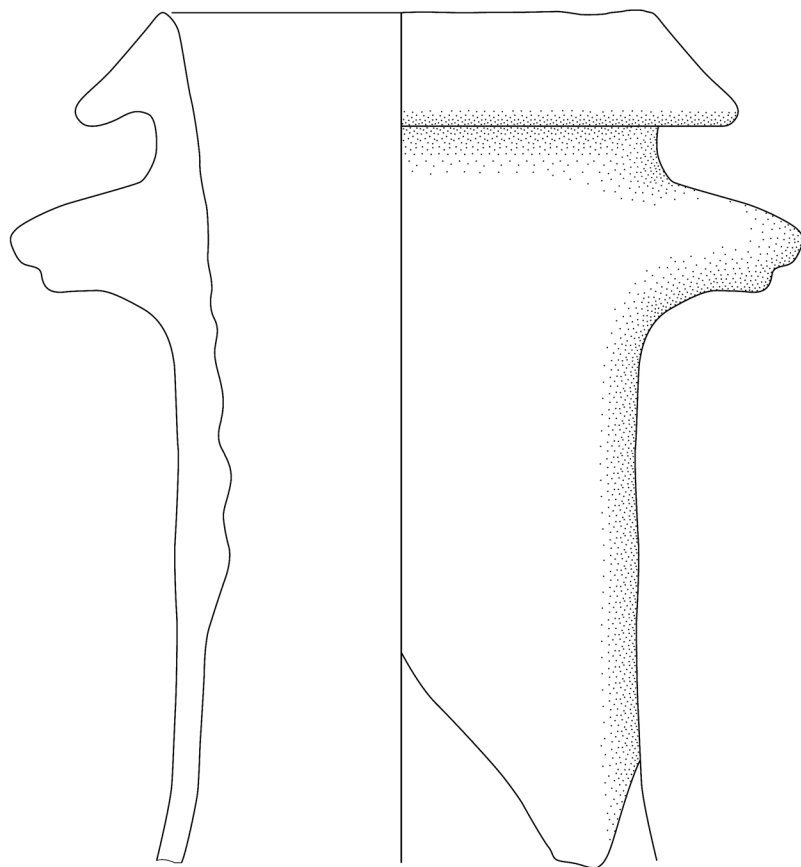
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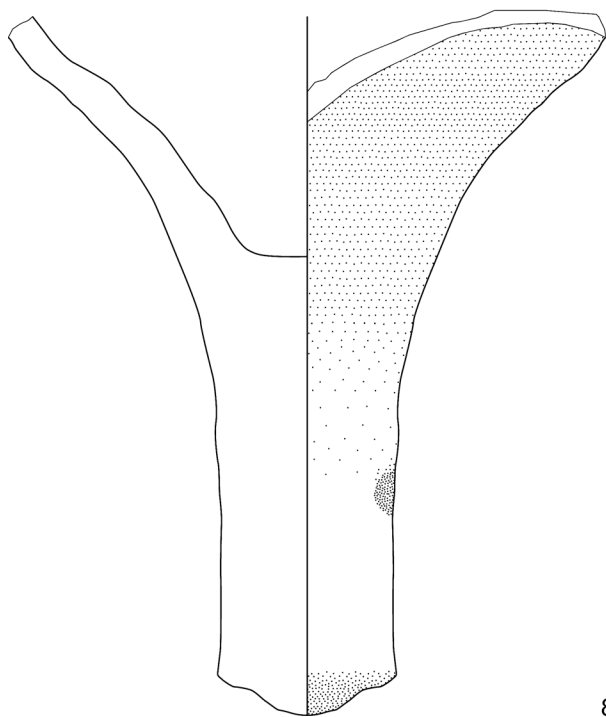
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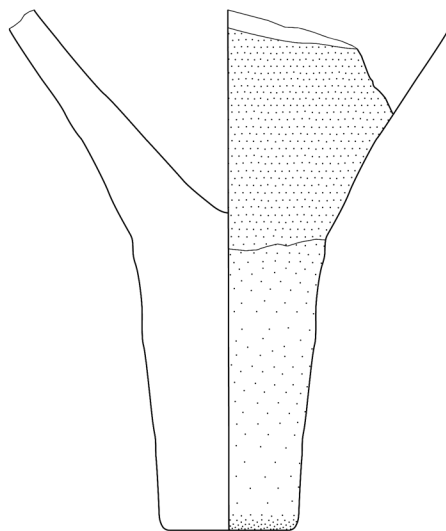




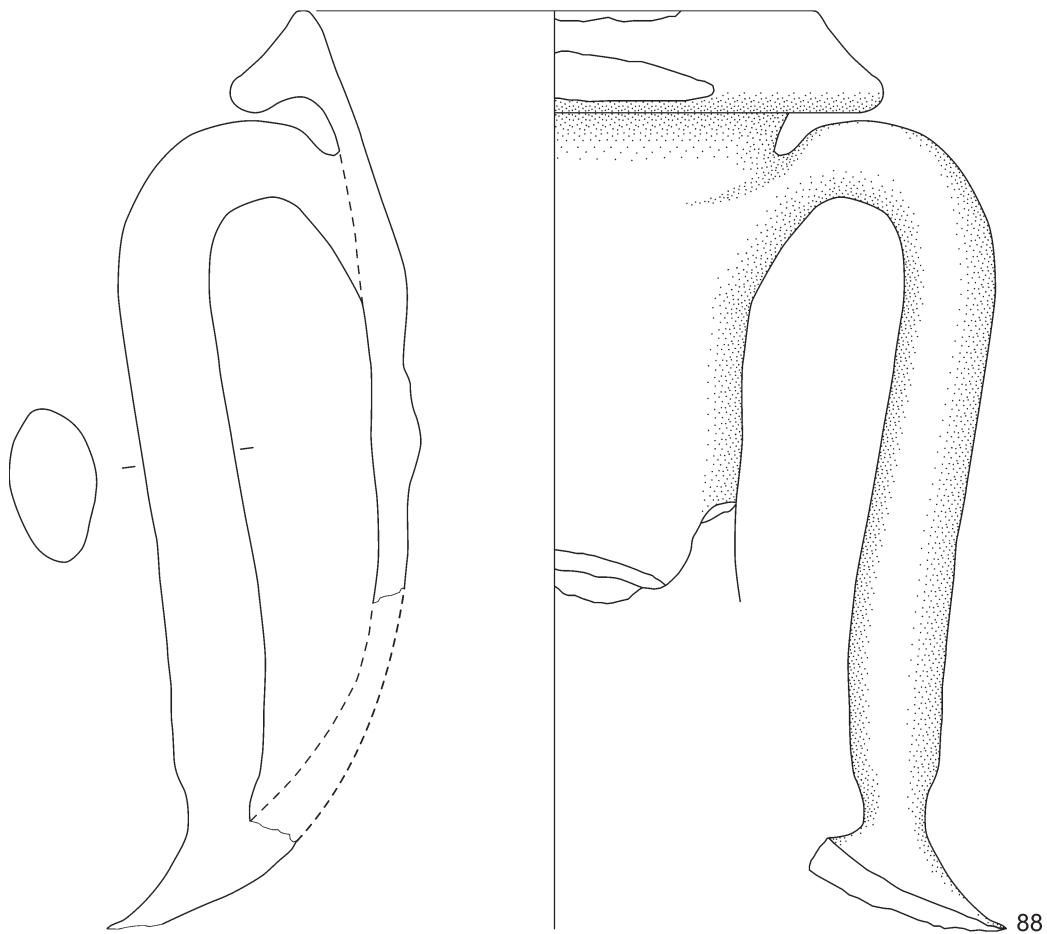
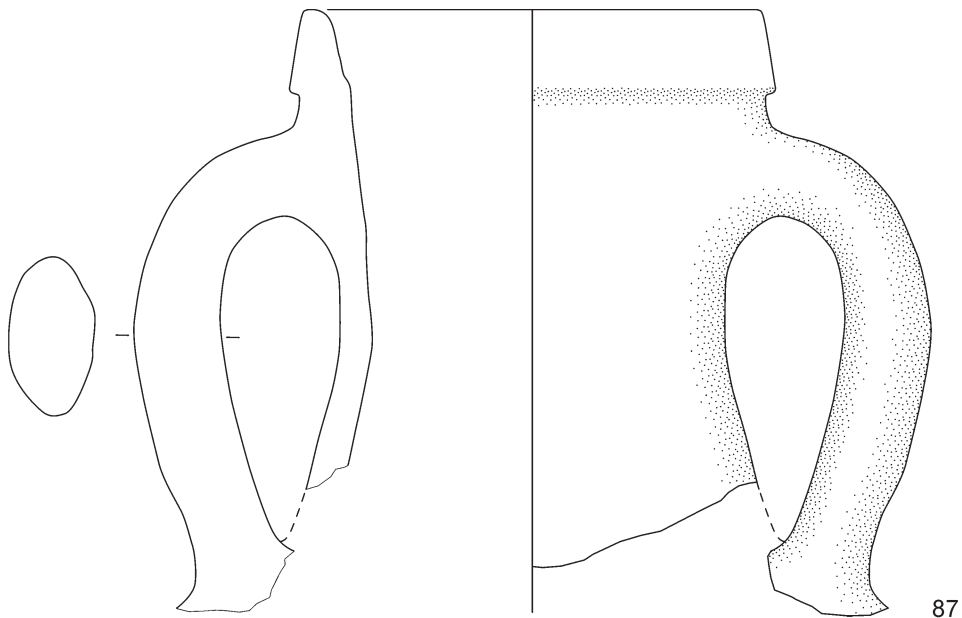
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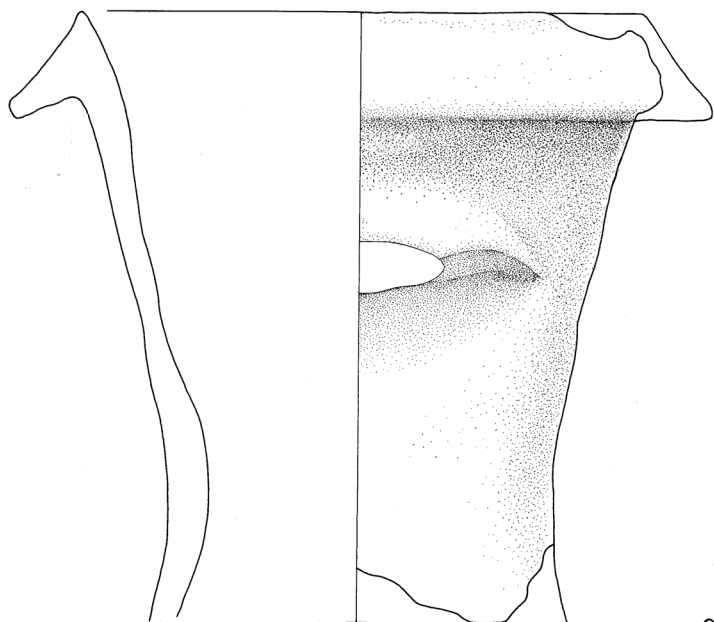


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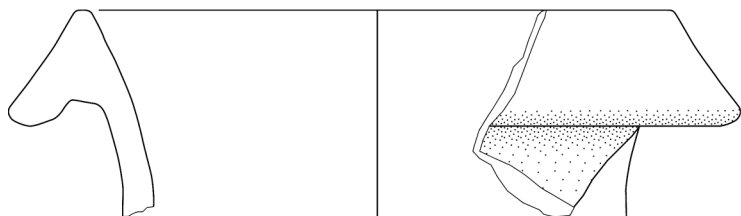


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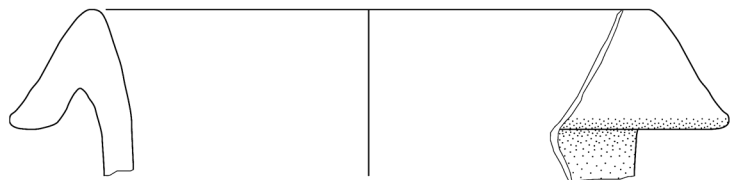




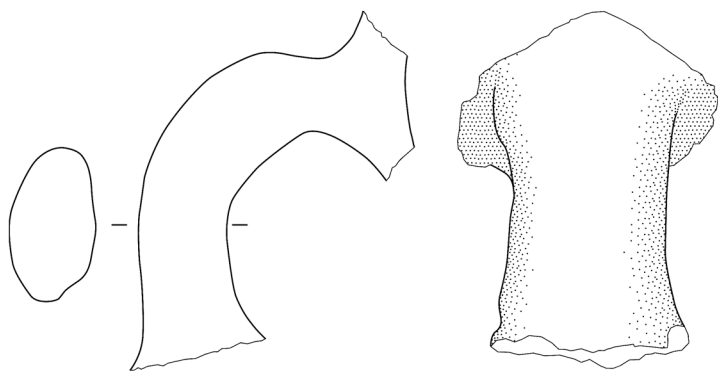
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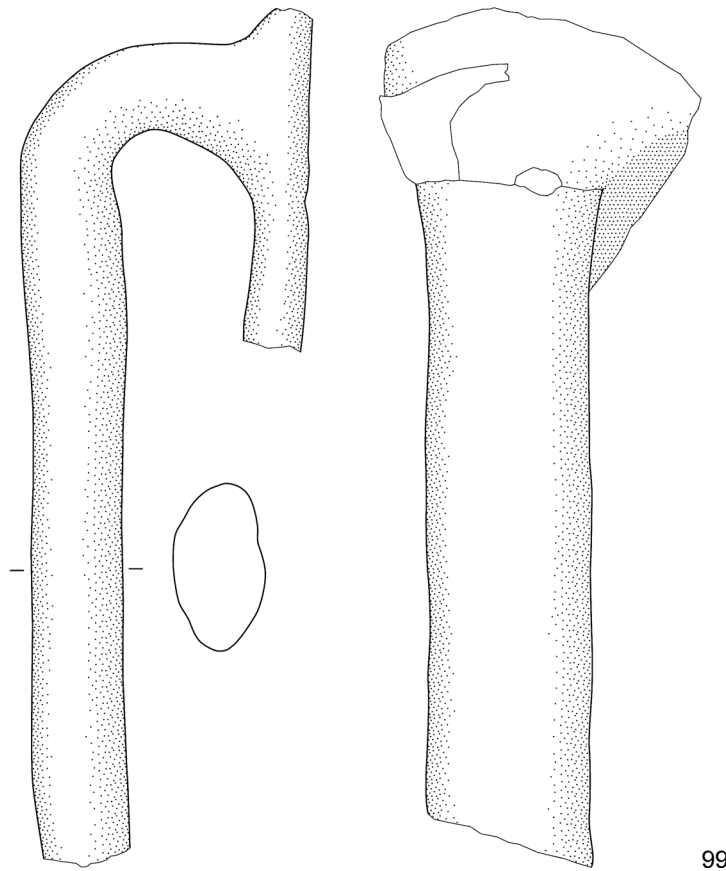
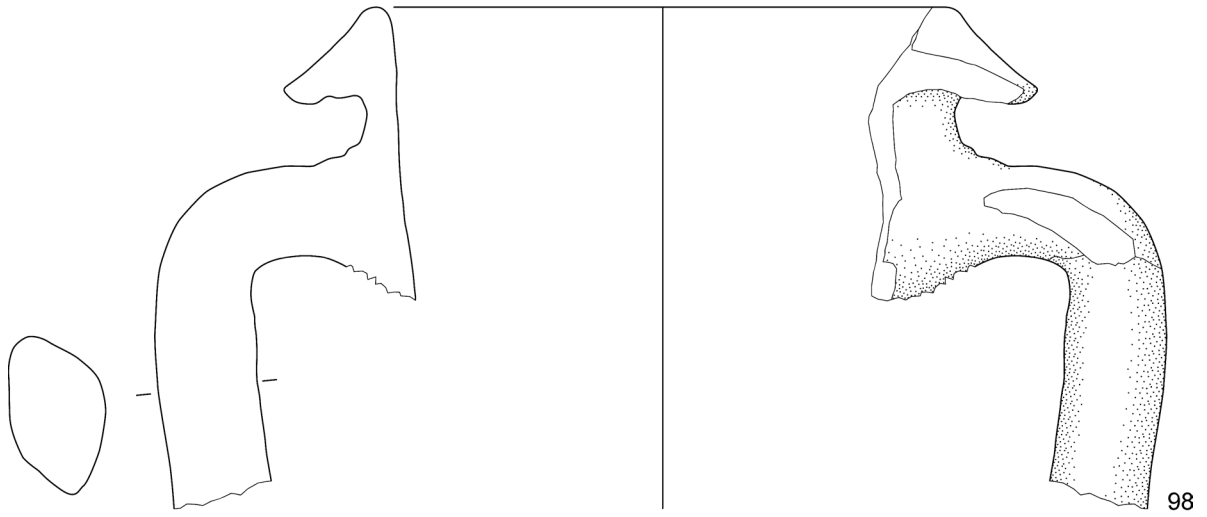
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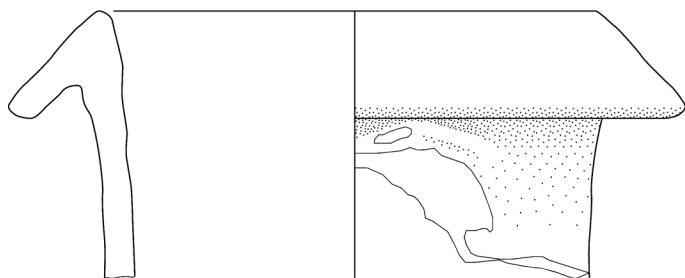


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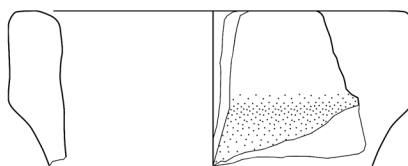


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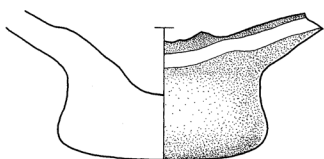




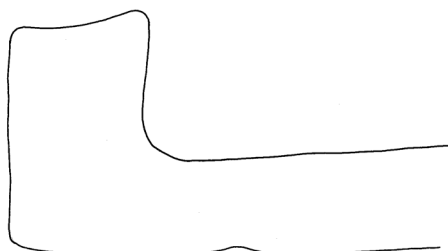
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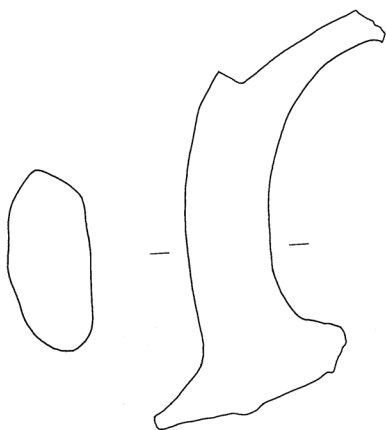
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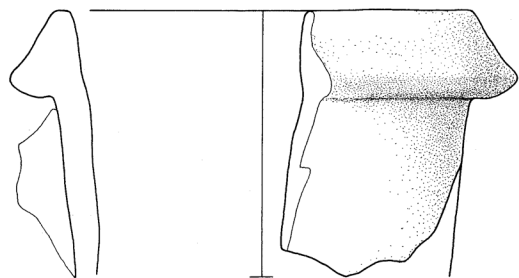
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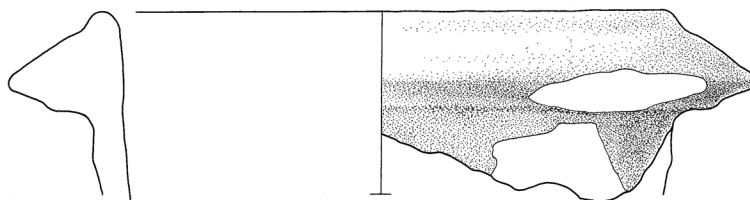
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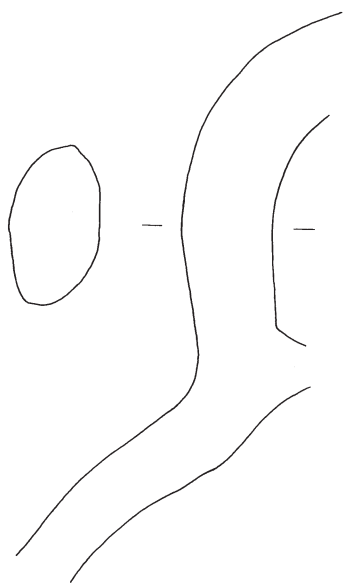
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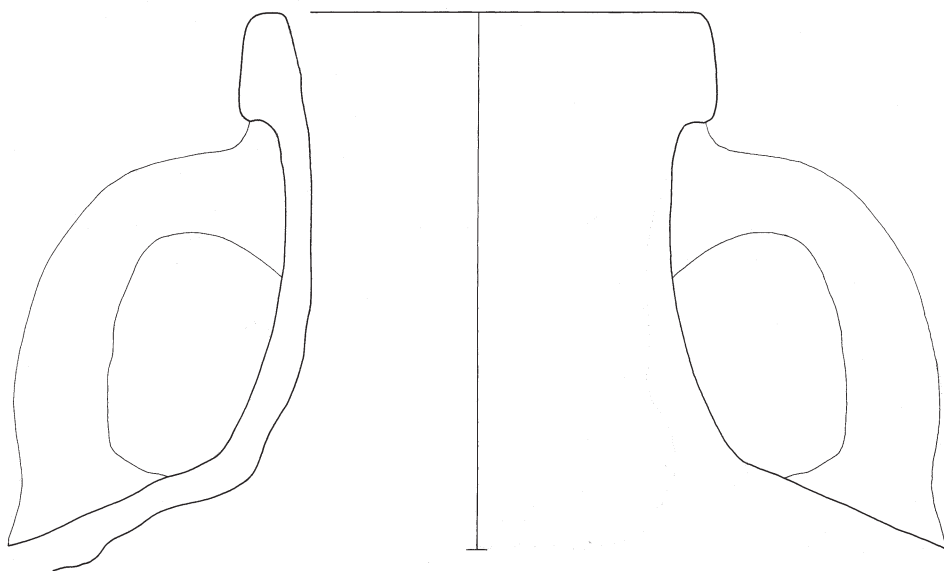
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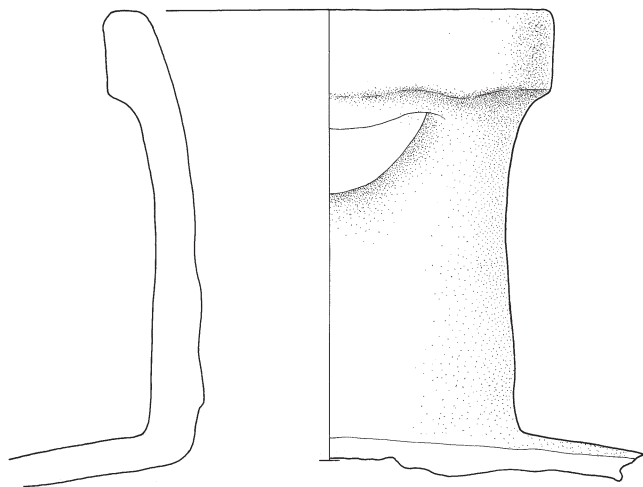
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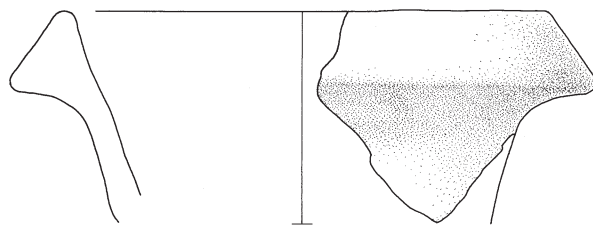
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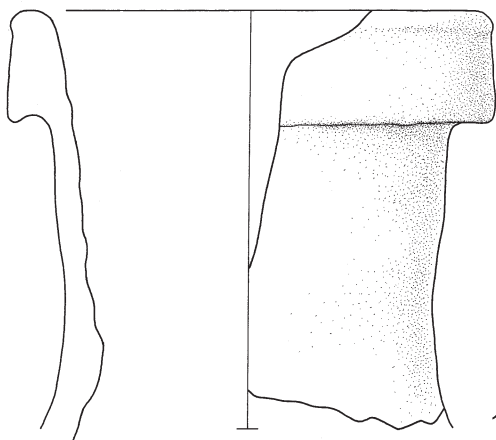
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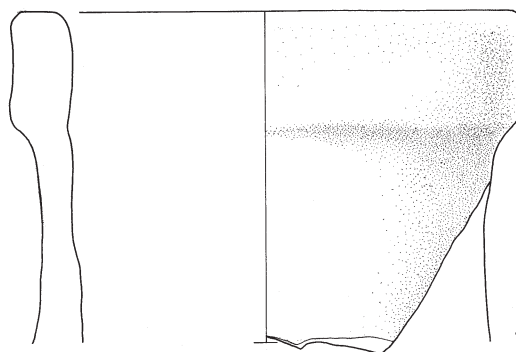
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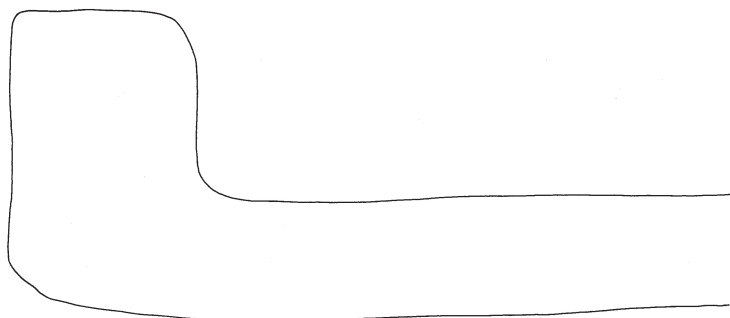
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APPENDIX 2: CATALOGUE OF AMPHORAE FROM THE LIBONI COLLECTION

In this appendix, we present the amphorae present in the collection of the *antiquario comunale* in Nettuno. These vessels as well as other large ceramic vessels (situlae, one-handled large vessels) were studied by the third author in a BA thesis. All fragmentary and complete vessels have been described and photographed and their bases, handles and rims have been drawn. The format and abbreviations used in the sherd descriptions are the same as in appendix 1. but the following differences should be noted:

- The sherd number consists of the collection code (“LAC”) and an individual sherd/vessel ID assigned by Liboni (number) or by Pape (with an “X” before the number);
- Occasional fabric descriptions based on visual examination have been included as well as other relevant observations;
- Where possible, a reference to existing typologies and date ranges has been included; for this, the typologies of Caravale & Toffoletti (1997) and Peacock & Williams (1991) have been used; in some cases the website of the University of Southampton Amphora Project (USAP, 2005) has been used as an extra source for typological ascriptions.

The descriptions are ordered by typological ascription; amphorae with typological ascriptions are listed first (in chronological order), followed by amphorae without typological ascription.

AMPHORAE WITH PARALLELS AND DATING

1 LAC/15

complete amphora
tapering base, convex point; bulbous piriform body; no distinguishable neck; straight, spreading rim with external angle; convex lip; thick ring handles rounded in section
ext 2.5YR 6/6 light red & 7.5YR 7/4 pink to 2.5YR 4/6 red; int 7.5YR 7/4 pink; core 7.5YR 7/4 pink
H 61.3; Twall 0.6; Trim 1.6; Drim 28.3; S 3.4 × 3.5
circular hole in wall; very coarse fabric with many large augite inclusions
Tipo Py 4A (Caravale & Toffoletti, 1997: 79)
450-250 BC

2 LAC/39

complete amphora
fairly long, tapering spike; long, narrow, cylindrical body; short,

fairly wide, cylindrical neck; outcurving rim thickened on the outside and undercut; convex lip; small ring handles on body below shoulder

ext 10YR 8/1 white & 10YR 4/2 dark greyish brown to 2.5YR 6/4 light reddish brown; int 10YR 8/1 white to 2.5YR 6/4 light reddish brown; core 2.5YR 6/4 light reddish brown
H 67.7; Twall 0.6; Trim 1.2; Dspike 7.0; Drim 11.4; S 2.0 × 1.2
Forma H/Maña C (Caravale & Toffoletti, 1997: 58)
4th - 2nd century BC

3 LAC/5

almost complete amphora (spike missing)
piriform body; somewhat carinated shoulder; cylindrical neck; straight, triangular rim, thickened on the outside; convex, slightly bevelled lip; long, straight band handles from shoulder to neck bending towards neck just below rim, oval in section
ext 7.5YR 7/4 pink & 7.5YR 4/2 dark brown to 7.5YR 7/6 reddish yellow; int 7.5YR 7/4 pink to 2.5YR 4/2 weak red; core 2.5YR 6/6 light red
H 72.0; Twall 1.3; Trim 2.9; Drim 17.9; S 3.7 × 2.4
horizontal grooves below shoulder
Tipo MGS IV/Greco-Italiche antiche (Caravale & Toffoletti, 1997: 86)
4th - start 3rd century BC

4 LAC/76

almost complete amphora (spike missing)
piriform body; carinated shoulder; short, conical/cylindrical neck, slightly spreading triangular rim, thickened on the outside; convex lip; fairly short, straight band handles from shoulder to neck bending towards neck just below rim, oval in section
ext 7.5YR 6/4 light brown & 5YR 5/3 reddish brown to 5YR 3/2 dark reddish brown; int 5YR 6/2 pinkish grey; core 5YR 6/4 light reddish brown
H 59.5; Twall 0.8; Trim 3.1; Drim 17.6; S 3.9 × 2.3
Tipo MGS V/Greco-Italiche antiche (Caravale & Toffoletti, 1997: 88)
mid 4th - mid 3rd century BC

5 LAC/35

almost complete amphora (spike damaged)
solid, stumpy spike; piriform body; carinated shoulder; wide cylindrical neck; triangular rim, undercut; convex lip; band handles from shoulder to neck, lozenge-shaped in section
ext 7.5YR 5/6 strong brown to 5YR 5/4 reddish brown; int 5YR 5/2 reddish grey; core 2.5YR 5/4 reddish brown
H 65.5; Twall 0.7; Trim 2.6; Drim 16.9; S 4.2 × 2.5
Tipo MGS VI/Greco-Italiche antiche (Caravale & Toffoletti, 1997: 89)
end 4th - 2nd century BC

6 LAC/2

complete amphora

tapering spike, slightly flaring at the bottom, rounded knob; slender, cylindrical/piriform body; carinated shoulder (worn); long, cylindrical neck; outcurving triangular rim, undercut; convex lip; long, straight band handles from shoulder to neck bending sharply towards neck below rim, oval in section

ext 5YR 7/4 pink to 7.5YR 6/4 light brown; int 2.5YR 6/6 light red; core 2.5YR 6/6 light red to 2.5YR 5/6 red

H 95.2; Hrim 3.2; Twall 0.8; Trim 2.5; Drim 16.3; Dspike 5.1; S 4.3 × 2.6

Dressel 1A (Caravale & Toffoletti, 1997: 98/99)

mid 2nd to end 1st century BC

7 LAC/7

almost complete amphora (spike damaged)

tapering spike; slender, cylindrical/piriform body; carinated shoulder (worn); long, cylindrical neck; spreading, triangular rim, convex lip; long, straight band handles from shoulder to neck bending sharply towards neck below rim, oval in section

ext 5YR 7/4 pink to 7.5YR 7/4 pink; int 5YR 7/4 pink to 7.5YR 7/4 pink; core 2.5YR 6/6 light red

H 93.2; Twall 1.0; Trim 2.4; Drim 18.0; S 4.1 × 2.3

Dressel 1A (Caravale & Toffoletti, 1997: 98/99)

mid 2nd - end 1st century BC

8 LAC/6

almost complete amphora (restored, spike damaged)

tapering spike; cylindrical body; long, cylindrical neck; slightly outcurving triangular collar-rim, thickened and slightly undercut on the outside; convex lip; very long, straight band handles from shoulder to neck bending sharply towards neck below rim, oval in section

ext 7.5YR 6/4 light brown to 7.5YR 5/6 strong brown; int 7.5YR 6/4 light brown and 5YR 5/1 grey to 5YR 3/1 dark grey; core 5YR 6/6 reddish yellow

H 96.7; Twall 0.7; Trim 2.9; Drim 18.0; S 5.2 × 2.8

Dressel 1B (Caravale & Toffoletti, 1997: 98/99)

mid 2nd - end 1st century BC

9 LAC/37

complete amphora (restored)

solid spike, slightly flaring at the bottom; cylindrical body; rounded shoulder; long cylindrical neck, bent; straight, slightly spreading collar-rim; convex lip; long band handles from shoulder to neck, oval in section

ext 2.5YR 5/6 red to 7.5YR 7/6 reddish yellow; int 2.5YR 5/6 red; core 2.5YR 5/8 red

H 84.8; Twall 1.6; Trim 2.9; Drim 19.1; Dspike 4.0; S 5.9 × 3.2

Dressel 1B (Caravale & Toffoletti, 1997: 98/99)

mid 2nd - end 1st century BC

10 LAC/77

lower half of an amphora (restored, spike missing)

piriform body

ext 5YR 7/6 reddish yellow to 2.5YR 6/4 light reddish brown; int 5YR 6/6 reddish yellow to 5YR 6/2 pinkish grey; core 5YR 6/2 pinkish grey

H 26.0

Dressel 1B? (Caravale & Toffoletti, 1997: 98/99)

mid 2nd - end 1st century BC

11 LAC/22

spike, body and part of handles & neck of an amphora

three fragments: long, tapering spike; piriform/cylindrical body; carinated shoulder; long, cylindrical neck; long, straight band handle right from shoulder to neck bending sharply towards neck just below (missing) rim

ext 7.5YR 5/6 strong brown to 7.5YR 4/6 strong brown; int 10R 4/2 weak red; core 2.5YR 6/6 light red

H 97.2; Twall 1.6; Tneck 2.0; Dneck 13.9; Dspike 6.0; S 6.0 × 2.8

Dressel 1 (Caravale & Toffoletti, 1997: 98/99)

mid 2nd - end 1st century AD

12 LAC/X 2

body and neck of an amphora (restored; rim and most of handles and spike missing)

cylindrical body; carinated shoulder; long, cylindrical neck; vertical band handles oval in section

ext 5YR 7/4 pink & 2.5YR 6/6 red to 2.5YR 6/8 red; int 5YR 7/4 pink & 5YR 8/2 white to 7.5YR 5/6 strong brown; core 5YR 6/4 light reddish brown

H 92.0; Dmax 30.0; Tneck 1.0; Dneck 12.6;

Dressel 1 (Caravale & Toffoletti, 1997: 98/99)

mid 2nd - end 1st century AD?

13 LAC/X 9

body and neck of an amphora

cylindrical/piriform body; cylindrical neck with attachment to band handles oval in section

ext 10YR 6/1 light grey to 10YR 5/1 grey; int 10YR 6/1 light grey; core 10YR 6/1 light grey to 10YR 5/1 grey

H 26.2; Twall 1.6; Dneck 14.7

Dressel 1 (Caravale & Toffoletti, 1997: 98/99)

mid 2nd - end 1st century AD?

14 LAC/X 10

body of an amphora

cylindrical/piriform body; cylindrical neck

ext 5YR 8/3 pink and 5YR 7/4 pink to 10R 6/6 light red; int 2.5YR 6/6 light red; core 2.5YR 6/6 light red

H 23.2; Twall 1.1; Dneck 11.7

Dressel 1 (Caravale & Toffoletti, 1997: 98/99)

mid 2nd - end 1st century AD

15 LAC/13

complete amphora

long, solid, tapering spike; slightly bulbous, cylindrical body with horizontal groove below shoulder; somewhat carinated shoulder; fairly long, cylindrical neck; slightly outcurving collar-rim, thickened on the inside and outside and undercut; convex lip; long, ribbed band handles, with deep vertical groove in the middle, from shoulder to neck bending toward neck just below rim

ext 7.5YR 7/4 pink to 7.5YR 6/4 light brown; int 7.5YR 7/4 pink, 7.5YR 6/4 light brown to 7.5YR 5/4 brown; core 7.5YR 7/4 pink
H 82.6; Twall 0.7; Trim 1.6; Drim 16.9; Dspike 9.2; S 5.0 × 2.5
Halterm 70 (Caravale & Toffoletti, 1997: 134)
mid 1st century BC - mid 1st century AD

16 LAC/1

spike (damaged), body and small part of the neck of an amphora cylindrical body; carinated shoulder; conical/cylindrical neck; attachments of double-bar handles on neck

ext 5YR 7/6 reddish yellow to 2.5YR 6/6 light red; int 2.5YR 6/4 light reddish brown; core 2.5YR 6/4 light reddish brown
H 77.5; Tneck 1.3; Dshoulder: 27.8
Dressel 2-4 (Caravale & Toffoletti, 1997: 107)
mid 1st century BC - end 1st century AD

17 LAC/12

almost complete amphora (spike missing)

cylindrical/piriform body; carinated shoulder; fairly long, cylindrical neck; spreading rim, thickened on the outside; convex lip; long, straight double-bar handles from shoulder to neck bending sharply towards neck just below rim

ext 7.5YR 5/6 strong brown & 7.5YR 6/6 reddish yellow to 10YR 4/4 dark yellowish brown; int 10YR 4/4 dark yellowish brown; core 7.5YR 6/6 reddish yellow
H 88.0; Twall 0.6; Trim 2.3; Drim 15.0; S 4.8 × 2.5
Dressel 2-4 (Caravale & Toffoletti, 1997: 107)
mid 1st century BC - end 1st century AD

18 LAC/88

spike, body and very small part of neck of an amphora tapering spike, flaring at the bottom, rounded knob; cylindrical/piriform body; carinated shoulder; very small part of cylindrical or conical neck; attachments of double-bar handles

ext 5YR 6/6 reddish yellow & 7.5YR 7/4 pink to 7.5YR 7/2 pinkish grey; int 7.5YR 7/4 pink to 7.5YR 7/2 pinkish grey; core 2.5YR 6/4 light reddish brown
H 70.5; Tneck 1.4; Dneck 12.5; Dspike 6.5
Dressel 2-4 (Caravale & Toffoletti, 1997: 107)
mid 1st century BC - end 1st century AD

19 LAC/117749

complete amphora

short, tapering spike; fairly long, cylindrical body; carinated shoulder; cylindrical neck; irregular, outcurving rim, thickened on both

in- and outside; convex lip; long, straight double-bar handles from shoulder to neck bending sharply just below rim
ext 2.5YR 5/8 red & 5YR 6/6 reddish yellow to 5YR 8/1 white; int 5YR 6/6 reddish yellow; core 2.5YR 6/4 light reddish brown
H 91.5; Twall 0.7; Trim 1.2; Drim 11.4; Dspike 4.0; S 4.7 × 2.1
Dressel 2-4 (Caravale & Toffoletti, 1997: 107)
mid 1st century BC - end 1st century AD

20 LAC/117750

almost complete amphora (rim damaged)

tapering spike; cylindrical/piriform body; carinated shoulder; fairly long, cylindrical neck with horizontal groove on transition shoulder-neck; outcurving rim, thickened on both in- and outside; convex lip; long, straight, double-bar handles from shoulder to neck bending sharply just below rim

ext 5YR 7/4 pink to 2.5YR 6/6 light red; int 5YR 7/4 pink to 2.5YR 6/6 light red; core 10R 6/4 pale red
H 91.2; Twall 1.2; Trim 1.4; Drim 11.2; Dspike 4.2; S 4.9 × 2.5
Dressel 2-4 (Caravale & Toffoletti, 1997: 107)
mid 1st century BC - end 1st century AD

21 LAC/X 3

almost complete amphora (rim damaged/missing)

flaring spike, bevelled edge, lower side concave with strongly convex to pointed centre point; rilled ovoid/globular body; no distinguishable shoulder; small, ribbed band handle bending sharply on body just below and against neck, roughly oval in section

ext 7.5YR 6/6 reddish yellow; int 7.5YR 6/6 reddish yellow; ore 7.5YR 6/6 reddish yellow
H 48.0; Twall 0.5; Trim 0.6; Tspike 1.4; Drim 4.5; Dspike 5.0; S 2.4 × 1.3
Agora F65/66 (USAP, 2005: Agora F65/66)
mid 1st century BC – 4th century AD

22 LAC/74

upper half of an amphora

Cylindrical/piriform body; long, upwards tapering, cylindrical neck; outcurving rim, thickened on the outside and undercut; long, straight, ring handles from shoulder to neck bending sharply towards neck just below rim, handles pointed on top at level with rim

Ext 10YR 8/4 very pale brown to 7.5YR 5/4 brown; int 2.5Y 8/4 pale yellow; core 5YR 8/3 pink
H 62.0; Twall 1.3; Trim 1.7; Drim 12.3
Tardo Rodie/Camulodunum 184 (Caravale & Toffoletti, 1997: 164)
end 1st century BC - start 2nd century AD

23 LAC/78

shoulder, neck, rim and part of right handle of an amphora

long, cylindrical neck; rectangular rim thickened on the outside; flattened lip; long, straight band handles from shoulder to neck bending sharply downwards towards neck just below rim, oval in section

ext 7.5YR 6/2 pinkish grey to 5YR 6/4 light reddish brown; int 5YR 4/1 dark grey; core 5YR 6/6 reddish yellow
H 33.0; Twall 1.1; Trim 1.4; Drim 11.4; S 3.1 × 3.4
Tardo Rodie/Camulodunum 184 (Caravale & Toffoletti, 1997: 164)
end 1st century BC - start 2nd century AD

24 LAC/11

complete amphora

flaring base ring, rounded edge, outside convex, inside slightly concave; piriform body; conical neck; outcurving rim, slightly undercut on outside; convex lip; long band handles from shoulder to neck bending just below the rim, oval in section

ext 7.5YR 6/6 reddish yellow & 2.5YR 5/6 red to 7.5YR 4/6 strong brown; int 2.5YR 5/4 reddish brown; core 10R 6/4 pale red; traces of brown slip on body and neck (5YR 3/3 dark reddish brown)

H 46.4; Twall 0.7; Trim 0.5; Drim 7.7 Dbase 11; S 3.5 × 1.8
Anfore di Forlimpopoli? (Caravale & Toffoletti, 1997: 109; Aldini 1978)

end 1st century BC - mid 3rd century AD?

25 LAC/18

complete amphora

raised base ring, tapering bevelled edge, inside slightly concave, outside concave with convex centre point; piriform body; carinated shoulder; small cylindrical neck with two grooves between handles; outturning rim with internal angle thickened on the outside and undercut; flattened lip; ribbed ring handles from shoulder to neck, round in section

ext 5YR 6/6 reddish yellow to 5YR 6/4 light reddish brown; int 2.5YR 6/4 light reddish brown; core 5YR 6/6 reddish yellow

H 48.6; Twall 0.7; Trim 0.9; Drim 7.0; Dbase ring 9.2; S 3.0 × 2.8
Anfore di Forlimpopoli (Caravale & Toffoletti, 1997: 109)

end 1st century BC - mid 3rd century AD

26 LAC/19

almost complete amphora (base ring and rim damaged)

raised base ring, rounded edge, inside flat, outside convex; piriform body; long cylindrical neck; outturning rim, slightly thickened on the outside; convex lip; straight, long band handles from shoulder to neck, oval in section

ext 5YR 6/4 light reddish brown to 7.5YR 6/6 reddish yellow; int 5YR 6/4 light reddish brown; core 5YR 6/4 light reddish brown

H 48.2; Twall 0.5; Trim 0.6; Drim 7.3; Dbase ring 10.0; S 3.2 × 2.1
Anfore di Forlimpopoli? (Caravale & Toffoletti, 1997: 109; Aldini 1978)

end 1st century BC - mid 3rd century AD?

27 LAC/50

almost complete amphora (restored, spike damaged)

tapering spike; spindle-shaped/piriform body; no distinguishable neck; outcurving rim, thickened on the outside and undercut; convex lip; short, ribbed band handles on body, ovoid to diamond-shaped in section

ext 10YR 7/3 very pale brown and 7.5YR 7/4 pink to 2.5YR 4/4 reddish brown; int 7.5YR 7/4 pink; core 7.5YR 7/4 pink to 2.5YR 4/4 reddish brown

H 59.3; Twall 0.7; Trim 1.8; Drim 15.8; S 3.0 × 1.4

Dressel 21-22 (Caravale & Toffoletti, 1997: 110)

1st century AD

28 LAC/65

almost complete amphora (restored, spike and one handle missing) cylindrical filled body without distinguishable shoulder; straight vertical rim, thickened on the inside; convex lip; small ring-handle, irregular in section

ext 5YR 6/6 reddish yellow to 5YR 6/8 reddish yellow; int 5YR 5/4 reddish brown; core 10R 5/6 red to 10R 5/8 red

H 61.3; Twall 0.8; Trim 0.6; Drim 11.2; S 2.1 × 2.6

cigar-shaped amphora (Peacock & Williams, 1991: 217)

1st century AD

29 LAC/14

complete amphora (restored)

short, stumpy spike; globular/bag-shaped body; cylindrical neck with groove on exterior just below rim; outturning rim thickened on the outside; flattened lip; band handles from shoulder to neck with concave depression on inside bending just below rim, roughly oval in section

ext 5YR 7/6 reddish yellow - 5YR 4/4 reddish brown; int 5YR 7/6 reddish yellow; core 5YR 7/6 reddish yellow

H 56.7; Twall 0.5; Trim 2.1; Drim 14.1; Dspike 4.0; S 4.4 × 1.8

Dressel 35 (Dressel, 1899: Tab II; USAP, 2005: Dressel 35)

1st century AD?

30 LAC/61

almost complete amphora (restored, spike missing)

long, sagging body widening towards the base; no distinguishable shoulder; short cylindrical neck; outcurving rim, thickened on the inside with two grooves running beneath outcurving part of rim; tapering, rounded lip; long band handles from body to rim, oval in section

ext 7.5YR 6/4 light brown to 7.5YR 5/6 strong brown; int 7.5YR 6/4 light brown to 7.5YR 6/2 pinkish grey; core 7.5YR 6/4 light brown

H 91.5; Twall 1.4; Trim 3.4; Drim 20.5; S 4.1 × 2.4

Beltrán IIB (Caravale & Toffoletti, 1997: 128)

start 1st - mid 2nd century AD

31 LAC/10

complete amphora

slightly flaring base ring, rounded edge, outside convex, inside flat; wide, piriform body; somewhat carinated shoulder; small, conical neck; outcurving rim, thickened on the outside and undercut; convex lip; ribbed band handles from shoulder to neck bending sharply just below rim (ribs on the sides are narrow and very pronounced), irregularly oval in section

ext 10YR 7/3 very pale brown to 7.5YR 4/4 dark brown; int 10YR 7/3 very pale brown to 7.5YR 8/2 pinkish white; core 10YR 7/3 very pale brown
H 68.5; Twall 0.4; Trim 1.9 (lip); Drim 10.8; Dbase 7.8; S 3.4 × 2.3
Gallica 4/Pélichet 47 (Caravale & Toffoletti, 1997: 115)
mid 1st - mid 3rd century AD

32 LAC/24

complete amphora (restored)
raised base ring, rounded edge, inside flat, outside flat; wide piriform body with horizontal grooves; short conical/cylindrical neck; slightly outcurving rim, thickened on the outside and undercut; convex lip; short band handles with deep vertical groove, from shoulder to neck, partly oval in section bending sharply towards neck just below rim
ext 7.5YR 7/6 reddish yellow; int 7.5YR 7/6 reddish yellow to 5YR 7/4 pink; core 5YR 7/4 pink
H 65.0; Twall 1.2; Trim 2.2; Drim 12.6; Dbase 10.9; S 5.1 × 3.1
Gallica 4/Pélichet 47 (Caravale & Toffoletti, 1997: 115)
mid 1st - mid 3rd century AD

33 LAC/25

complete amphora
small, bulbous spike; wide piriform body; small, cylindrical neck; outcurving rim, thickened on the outside and undercut; convex lip; band handles from shoulder to neck, with concave depression on outside bending just below rim, roughly oval in section
ext 7.5YR 6/4 light brown to 7.5YR 5/6 strong brown; int 7.5YR 6/4 light brown to 2.5YR 6/4 light reddish brown; core 2.5YR 6/4 light reddish brown
H 64.3; Twall 1.2; Trim 1.7; Drim 12.3; Dspike 6.4; S 5.3 × 2.4
Gallica 4/Pélichet 47 (Caravale & Toffoletti, 1997: 115)
mid 1st - mid 3rd century AD

34 LAC/28

complete amphora (restored, in two pieces)
solid, flaring spike; piriform body; rounded shoulder; short, cylindrical neck; straight, almost vertical collar-rim, thickened on the outside and undercut; convex lip; ribbed band handles from shoulder to neck; bending sharply toward neck just below the rim, oval in section
ext 2.5YR 6/6 light red & 5YR 6/4 light reddish brown & 5YR 6/1 light grey to 5YR 7/1 grey; int 2.5YR 6/6 light red; core 2.5YR 6/6 light red to 2.5YR 6/4 light reddish brown
H 66.6; Twall 0.8; Trim 1.6; Drim 12.6; Dspike 6.2; S 4.4 × 2.4
Gallica 4/Pélichet 47? (Caravale & Toffoletti, 1997: 115)
mid 1st - mid 3rd century AD?

35 LAC/X 12

part of shoulder, neck, rim and handles of an amphora
rounded shoulder; short, conical neck; outcurving rim thickened on the outside; band handles with central depression bending sharply against rim, irregular in section

ext 10YR 7/3 very pale brown; int 10YR 7/4 very pale brown; core 7.5YR 7/4 pink
H 15.7; Twall 0.8; Trim 2.1; Drim 11.8; S 4.8 × 1.5
Gallica 4/Pélichet 47 (Caravale & Toffoletti, 1997: 115)
mid 1st - mid 3rd century AD

36 LAC/X 19

part of shoulder, neck, rim and handles of an amphora
rounded shoulder; outcurving rim, thickened on inside and outside; convex lip; band handles with central depression bending just below rim, roughly oval in section
ext 10YR 8/1 white - 10YR 7/6 yellow; int 10YR 7/4 very pale brown; core 10YR 6/1 light grey/grey
H 14.0; Twall 1.0; Trim 1.8; Drim 12.2; S 5.3 × 2.1
Gallica 4/Pélichet 47 (Caravale & Toffoletti, 1997: 115)
mid 1st - mid 3rd century AD

37 LAC/X 21

part of shoulder, neck, rim and handles of an amphora
rounded shoulder; short, conical neck; straight rim thickened on the outside; flattened to convex lip; band handles with central vertical groove bending just below rim, oval in section
ext 2.5YR 6/2 light brownish grey; int 5YR 6/4 light reddish brown; core 5YR 6/6 reddish yellow
H 13.7; Twall 1.4; Trim 2.1; Drim 10.4
Gallica 4/Pélichet 47? (Caravale & Toffoletti, 1997: 115)
mid 1st - mid 3rd century AD?

38 LAC/X 23

part of shoulder, neck, rim and one handle of an amphora
rounded shoulder; short, conical neck; spreading rim, thickened on the outside and undercut, slightly concave on the inside; convex lip; one band handle with central vertical groove bending just below rim
ext 5YR 6/6 reddish yellow; int 5YR 6/4 light reddish brown; core 2.5YR 6/6 light red
H 13.4; Twall 1.1; Trim 1.9; Drim 11.6; S 5.3 × 2.3
Gallica 4/Pélichet 47 (Caravale & Toffoletti, 1997: 115)
mid 1st - mid 3rd century AD

39 LAC/X 4

rim of an amphora
short, conical neck; outcurving rim, thickened on the outside with pointed ridge below lip; convex lip
ext 5YR 6/3 reddish brown; int 10YR 5/6 yellowish brown; core 10R 5/6 red
H 23.0; Twall 1.3; Trim 2.2; Drim 17.0
Tripolitania II (Caravale & Toffoletti, 1997: 150)
mid 1st - end 4th century AD

40 LAC/36

almost complete amphora (restored, base/spike missing)
rilled, conical/piriform body; fairly long, cylindrical neck; straight,

spreading rim thickened on the outside; lip bevelled on the outside; elongated, ribbed band handles bending sharply towards neck just below rim, roughly oval in section

ext 5YR 6/6 reddish yellow - 2.5YR 6/6 light red; int 2.5YR 6/4 light reddish brown; core 10R 5/6 red - 2.5YR 6/8 light red

H 79.1; Twall 0.6; Trim 1.8; Drim 13.9; S 3.7 × 2.1

Beirut 3 (USAP, 2005: Beirut 3)

late 1st - mid 2nd century AD

41 LAC/X 18

part of shoulder, part of neck, rim and one handle of an amphora rounded shoulder; cylindrical neck; outcurving rim, thickened on the outside; convex lip; short band handle bending below rim, roughly oval in section

ext 10YR 8/1 white; int 10YR 8/1 white; core 10YR 8/1 white

H 14.0; Twall 1.0; Trim 2.5; Drim 13.6; S 3.1 × 1.6

Africana I/Africana piccola (Caravale & Toffoletti, 1997: 143)

mid 2nd - start 5th century AD

42 LAC/X 24

part of shoulder, neck, rim and one handle of an amphora rounded shoulder; short, conical/cylindrical neck; slightly outcurving rim, thickened on the outside and slightly incurving on the inside; convex lip; fairly small band handle bending below rim, oval in section

ext 7.5YR 6/0 light grey/grey to 7.5YR 8/0 white; int 7.5YR 5/0 grey to 10YR 8/1 white; core 7.5YR 6/0 light grey/grey

H 12.8; Twall 1.2; Trim 2.1; Drim 13.2; S 3.4 × 1.6

Africana I/Africana piccola (Caravale & Toffoletti, 1997: 143)

mid 2nd - start 5th century AD

43 LAC/75

larger part of an amphora (spike missing)

long, cylindrical body; cylindrical/conical neck; straight, almost vertical collar-rim; convex lip; band handles from shoulder to neck bending towards neck just below rim, oval in section

Ext 7.5YR 6/4 light brown to 2.5YR 6/6 light red; int 2.5YR 6/6 light red to 2.5YR 5/6 red; core 2.5YR 6/6 light red to 2.5YR 5/6 red

H 81.3; Twall 1.1; Trim 1.8; Drim 11.8; S 3.7 × 2.6

Africana II/Africana grande (Caravale & Toffoletti, 1997: 144)

end 2nd - start 5th century AD

44 LAC/9

complete amphora

tapering spike bulging in the middle, flat foot; wide, cylindrical body; short, conical neck; outturning rim with internal angle, undercut, thickened and with one horizontal groove on the outside; convex lip; short band handles from shoulder to neck bending sharply towards neck below rim, oval in section

ext 2.5YR 6/6 light red & 5YR 6/6 reddish yellow - 5YR 3/2 dark reddish brown; int 2.5YR 6/6 light red; core 2.5YR 6/6 light red

H 97.0; Twall 0.5; Trim 1.6; Drim 13.3; Dspike 5.6; 4.1 × 2.8

Africana II/Africana grande (Caravale & Toffoletti, 1997: 144; Gibbins, 2001)

end 2nd - start 5th century AD

45 LAC/X 11

part of shoulder, neck, rim and one handle of an amphora rounded shoulder; short, conical/cylindrical neck; outturning rim with internal angle, undercut and thickened twice on the outside; convex lip; short band handle, roughly oval in section

ext 5YR 7/2 pinkish grey; int 2.5YR 6/4 light reddish brown; core 10R 6/6 light red to 5YR 4/1 dark grey

H 19.2; Twall 1.1; Trim 2.0; Drim 14.4; S 3.2 × 2.1

black resin (?) visible on interior

Africana II/Africana grande (Caravale & Toffoletti, 1997: 144; Gibbins, 2001)

end 2nd - start 5th century AD

46 LAC/X 17

part of shoulder, part of neck, rim and one handle of an amphora rounded shoulder; fairly wide, conical/cylindrical neck; outcurving rim, thickened and undercut twice on the outside; convex lip; fairly short, ribbed band handle bending just below rim, roughly oval in section

ext 5YR 8/3 pink to 10YR 7/2 light grey; int 2.5YR 6/4 light reddish brown; core 2.5YR 6/6 light red

H 18.4; Twall 1.0; Trim 1.8; Drim 12.6; S 3.6 × 2.8

Africana II/Africana grande (Caravale & Toffoletti, 1997: 144; Gibbins, 2001)

end 2nd - start 5th century AD

47 LAC/3

complete amphora

short, stumpy spike; wide, cylindrical body; short, cylindrical neck; slightly outcurving rim, thickened and undercut twice on the outside; convex lip; short band handles from shoulder to neck bending sharply towards neck below rim, oval in section

ext 10YR 7/3 very pale brown - 7.5YR 5/4 brown; int 10YR 7/3 very pale brown - 10YR 6/3 pale brown; core 5YR 6/6 reddish yellow

H 93.8; Twall 0.6; Trim 2.1; Drim 14.3; Dspike 8.2; S 4.3 × 2.6

Africana II/Africana grande (Caravale & Toffoletti, 1997: 144; Gibbins, 2001)

end 2nd - start 5th century AD

48 LAC/4

complete amphora

short, stumpy spike; wide, cylindrical body; short, cylindrical neck; slightly outcurving rim, thickened and undercut twice on the outside; convex lip; short band handles from shoulder to neck bending sharply towards neck below rim, oval in section

ext 2.5YR 6/6 light red - 10YR 6/2 light brownish grey; int 2.5YR 6/6 light red; core 2.5YR 6/6 light red - 2.5YR 6/4 light reddish brown

H 97.9; Twall 0.7; Trim 1.6; Drim 13.8; Dspike 9.1; S 4.2 × 2.5

Africana II/Africana grande (Caravale & Toffoletti, 1997: 144; Gibbins, 2001)

end 2nd - start 5th century AD

49 LAC/X 6

part of shoulder, neck, rim (damaged) and handles of an amphora short, conical/cylindrical neck; slightly outcurving rim, thickened and undercut twice on the outside with horizontal groove in between, slightly incurving on the inside; rounded convex lip; short band handles from shoulder to neck bending sharply just below rim, roughly oval in section

ext 5YR 6/1 light grey/grey - 5YR 7/8 reddish yellow; int 5YR 6/1 light grey/grey - 5YR 7/8 reddish yellow; core 10R 6/6 light red H 17.7; Twall 1.0; Trim 1.6; Drim 14.3; S 3.8 × 1.9

Africana II/Africana grande (Caravale & Toffoletti, 1997: 144; Gibbins, 2001)

end 2nd - start 5th century AD

50 LAC/27

complete amphora

short, tapering spike; piriform body; small, cylindrical neck; triangular rim, thickened on the inside and outside; convex lip; ring handles from shoulder to neck, round in section

ext 7.5YR 7/4 pink to 10YR 7/4 very pale brown; int 7.5YR 7/4 pink; core 7.5YR 7/4 pink

H 52.1; Twall 1.1; Trim 2.1; Drim 11.6; Dspike 3.5; S 2.5 × 2.4

Dressel 23 (Caravale & Toffoletti, 1997: 133)

3rd - end 4th century AD

51 LAC/23

complete amphora

small solid spike; piriform body; small cylindrical neck; slightly outcurving triangular rim with rounded edge; flattened lip; long, ribbed band handles from shoulder to neck, oval in section

ext 5YR 6/4 light reddish brown - 10YR 5/6 yellowish brown; int 5YR 6/4 light reddish brown; core 10YR 5/2 greyish brown

H 75.0; Twall 0.8; Trim 1.7; Drim 10.4; S 3.3 × 2.0

Almagro 51 C/Keay XXIII/Lusitana IV (Caravale & Toffoletti, 1997: 138)

3rd - mid 5th century AD

52 LAC/69

almost complete amphora (base missing)

cylindrical body; cylindrical neck; straight, outturning rim with external angle, slightly thickened on the outside; flattened to convex lip; ribbed band handles from shoulder-neck transition to neck, roughly oval in section

ext 7.5YR 6/4 light brown - 7.5YR 5/4 brown; int 7.5YR 6/2 pinkish grey; core 7.5YR 5/2 brown

H 91.8; Twall 1.0; Trim 2.0; Drim 12.6; S 3.6 × 2.3

Anfore cilindriche di medie dimensioni/Keay XXV-1/Africana 3A (Caravale & Toffoletti, 1997: 146)

start 4th - mid 5th century AD

53 LAC/70

upper half of an amphora

cylindrical body; tapering cylindrical neck; spreading rim; flattened to convex lip; band handles from shoulder to neck bending just below rim, oval in section

ext 5YR 7/6 reddish yellow - 7.5YR 7/6 reddish yellow; int 5YR 7/6 reddish yellow - 2.5YR 5/6 red; core 2.5YR 5/6 red

H 67.2; Twall 1.1; Trim 1.8; Drim 11.3; S 3.8 × 2.3

Anfore cilindriche di medie dimensioni/Keay XXV-1/Africana 3A (Caravale & Toffoletti, 1997: 146)

start 4th - mid 5th century AD

54 LAC/72

upper half of an amphora

cylindrical body; short cylindrical neck; outcurving rim, convex lip; band handles from shoulder to neck bending just below rim, oval in section

ext 5YR 6/4 light reddish brown - 5YR 5/4 reddish brown; int 5YR 6/4 light reddish brown; core 5YR 6/4 light reddish brown

H 38.0; Twall 1.0; Trim 1.5; Drim 12.6; S 2.6 × 2.1

Anfore cilindriche di medie dimensioni/Keay XXV-1/Africana 3A (Caravale & Toffoletti, 1997: 146)

start 4th - mid 5th century AD

55 LAC/73

almost complete amphora (spike missing)

long, cylindrical body; short, conical/cylindrical neck; outcurving, overhanging rim, convex lip; short band handles from shoulder to neck bending halfway towards neck, oval in section

ext 10YR 5/4 yellowish brown - 10YR 7/3 very pale brown; int 10YR 5/4 yellowish brown - 5YR 6/6 reddish yellow; core 10YR 5/4 yellowish brown - 10YR 7/3 very pale brown

H 88.0; Twall 1.1; Trim 3.1; Drim 13.2; S 3.6 × 2.2

Anfore cilindriche di medie dimensioni/Keay XXV-1/Africana 3A (Caravale & Toffoletti, 1997: 146)

start 4th - mid 5th century AD

56 LAC/20

almost complete amphora (restored, base missing)

globular/bag-shaped body; small conical neck; outcurving rim slightly thickened on the outside, convex lip; long ring handles, oval/round in section

ext 2.5YR 5/6 red; int 2.5YR 5/4 reddish brown; core 2.5YR 5/8 red

H 46.0; Twall 0.9; Tlip 0.7; Drim 7.1; S 2.4 × 2.6

Keay LII (Caravale & Toffoletti, 1997: 112)

4th - 7th century AD

57 LAC/21

almost complete amphora (restored, neck and rim damaged)

raised base ring, rounded edge, inside flat, outside concave with convex centre point; cylindrical/piriform body; cylindrical neck; spreading triangular rim; convex lip; long band handles (protrud-

ing) from shoulder to neck, oval in section
 ext 7.5YR 6/4 light brown - 10YR 7/6 yellow; int 5YR 7/6 reddish yellow; core 5YR 6/6 reddish yellow
 H 46.0; Twall 0.5; Trim 1.2; Drim ca 10; Dbase ring 8.4; S 2.8 × 2.1
 Keay LII (Caravale & Toffoletti, 1997: 112)
 4th - 7th century AD

58 LAC/31

almost complete amphora (rim damaged)
 Raised base ring with slightly bevelled to rounded edge, outside concave with slightly convex centre point, inside unknown; downward tapering, piriform body (rilled); fairly long, cylindrical/conical neck; slightly incurving, triangular rim; convex lip; fairly long band handles from shoulder to neck bending towards neck below rim, oval in section
 ext 7.5YR 6/6 reddish yellow - 7.5YR 3/2 dark brown; int 7.5YR 4/2 dark brown; core 7.5YR 4/2 dark brown
 H 50.7; Twall 0.6; Trim 1.1; Drim 10.2; Dbase 9.6; S 2.9 × 2.0
 Keay LII (Caravale & Toffoletti, 1997: 112)
 4th - 7th century AD

59 LAC/49

almost complete amphora (base ring damaged)
 raised base ring with rounded edge (floor of base ring missing); piriform body; small cylindrical neck; straight, tapering rim, thickened on the outside; convex lip; thick ring handles from shoulder to neck, round in section
 ext 2.5YR 4/2 weak red - 2.5YR 5/4 reddish brown; int 2.5YR 4/2 weak red; core 2.5YR 4/8 red
 H 48.0; Twall 0.5; Trim 0.9; Drim 7.7; Dbase ring 8.0; S 2.6 × 2.6
 Keay LII (Caravale & Toffoletti, 1997: 112)
 4th - 7th century AD

60 LAC/53

complete amphora
 flaring base ring, rounded edge, inside flattened, outside concave with convex centre point; piriform body; small cylindrical neck; straight rim thickened on the outside and slightly concave on the inside, lip bevelled on the outside; band handles from shoulder to neck bending halfway shoulder towards neck, oval in section
 ext 10YR 8/2 white - 7.5YR 6/6 reddish yellow; int 10YR 8/2 white - 7.5YR 6/6 reddish yellow; core 7.5YR 6/6 reddish yellow
 H 40.5; Twall 0.9; Trim 1.3; Drim 8.7; Dbase 7.2; S 2.9 × 1.8
 Keay LII (Caravale & Toffoletti, 1997: 112)
 4th - 7th century AD

61 LAC/38

almost complete amphora (damaged spike)
 long, tapering spike; long, narrow, cylindrical body; long, conical/cylindrical neck; slightly outcurving, triangular rim, thickened on the outside and undercut; convex lip; short band handles, roughly oval in section

ext 5YR 8/1 white & 2.5YR 6/6 light red - 2.5YR 4/2 weak red; int 5YR 8/1 white; core 10R 4/8 red
 H 79.8; Twall 1.1; Trim 2.4; Drim 11.0; S 3.2 × 1.5
 Spatia 1/Keay XXV-2/XXVI (Caravale & Toffoletti, 1997: 147)
 4th - 7th century AD

62 LAC/X 1

neck, rim and part of shoulder with handle of an amphora
 short, cylindrical neck; outcurving rim, thickened on the inside, thickened on the outside and undercut; convex lip; short ring handle from shoulder to neck bending just below rim, round in section
 ext 7.5YR 5/4 brown; int 7.5YR 5/4 brown - 7.5YR 6/4 light brown; core 5YR 6/4 light reddish brown
 H 16.5; Twall 1.0; Trim 2.4; Drim 15.7; S 3.2 × 3.5
 Anfore cilindriche di grandi dimensioni/Keay XXV, 1-3 (Caravale & Toffoletti, 1997: 148)
 mid 5th - mid 7th century AD

63 LAC/X 20

part of shoulder, neck, rim and handles of an amphora
 rounded shoulder; outturning triangular rim with external angle, thickened on both sides; convex lip; band handles bending just below rim, round in section
 ext 10YR 8/3 very pale brown; int 7.5YR 8/2 pinkish white; core 7.5YR 8/4 pink
 H 18.2; Twall 1.1; Trim 2.4; Drim 14.4; S 3.9 × 2.0
 Anfore cilindriche di grandi dimensioni/Keay XXV, 1-3 (Caravale & Toffoletti, 1997: 148)
 mid 5th - mid 7th century AD

AMPHORAE WITHOUT PARALLEL AND DATING**64 LAC/17**

complete amphora
 concave base with convex centre point, rounded edge; globular/bag-shaped body; no distinguishable neck; outturning rim with groove on interior; flattened lip; band handles from shoulder to rim, oval in section
 ext 7.5YR 7/4 pink - 7.5YR 4/2 dark brown; int 7.5YR N7/ light grey - 7.5YR N6/ grey; core 7.5YR 7/4 pink
 H 53.3; Twall 1.1; Trim 1.4; Drim 16.9; S 3.2 × 1.7

65 LAC/26

complete amphora
 short, tapering spike; globular/piriform body; cylindrical neck; tapering, outcurving rim thickened on the outside and undercut; convex lip; irregular ribbed band handles sharply bending towards neck, oval in section
 ext 2.5YR 6/6 light red - 2.5YR 5/4 reddish brown; int 2.5YR 5/6 red - 2.5YR 6/6 light red; core 2.5YR 6/6 light red
 H 59.0; Twall 0.6; Trim 1.1; Drim 7.2; S 3.5 × 2.0

66 LAC/29

complete amphora (restored)

concave base, rounded edge; rilled, piriform body; short, cylindrical neck; straight, vertical collar-rim, thickened on the inside and outside; convex lip; band handles from shoulder to rim with shallow depression on inside bending sharply above rim, roughly oval in section

ext 7.5YR 7/4 pink - 5YR 7/4 pink; int 2.5YR 6/4 light reddish brown; core 2.5YR 6/6 light red

H 50.8; Twall 0.7; 1.2; Drim 12.7; S 4.4 × 2.2

67 LAC/32

almost complete amphora (base damaged)

concave base, inside concave; globular body; wide, cylindrical neck; slightly incurving rim, thickened on outside and undercut; convex lip; band handles from shoulder to neck bending sharply below rim, oval in section

ext 2.5YR 6/6 light red; int 2.5YR 6/6 light red; core 2.5YR 6/6 light red

H 35.0; Twall 0.4; Trim 0.8; Drim 16.0; Dbase 11.0; S 3.4 × 1.6

68 LAC/40

almost complete amphora or large jug (upper part damaged)

rounded base ring, rounded edge, inside flat, outside flat; piriform body; carinated shoulder; short, conical/cylindrical neck; outturning flanged rim with internal angle, convex lip; short, ribbed band handle (four ribs) from shoulder to neck bending sharply towards neck just below rim

ext 10YR 7/2 light grey - 10R 4/6 red; int 10YR 7/2 light grey - 2.5YR 6/4 light reddish brown; core 2.5YR 5/6 red

H 17.5; Twall 0.3; Trim 1.1; Drim ca. 10; Dbase 9.6; S 2.3 × 0.8

69 LAC/45

almost complete amphora (rim and one handle missing)

flaring base ring with rounded edge, inside concave, outside convex; wide, globular/piriform body; short, conical neck; band handle from shoulder to neck bending towards neck, roughly oval in section

ext 10YR 6/6 brownish yellow to 7.5YR 6/6 reddish yellow; int 5YR 5/8 yellowish red; core 2.5YR 6/6 light red

H 32.5; Twall 0.5; Dbase 8.2; S 3.7 × 1.8

blackened by firing

70 LAC/47

complete amphora

raised base ring with rounded edge, outside convex; piriform body; short, cylindrical neck; outcurving rim slightly thickened on the outside, convex lip; short band handles from shoulder to neck bending towards neck below rim, oval in section

ext 10YR 7/3 very pale brown to 5YR 7/4 pink; int 5YR 7/4 pink; core 5YR 7/4 pink

H 27.8; Twall 0.7; Trim 0.8; Dbase 7.8; Drim 6.4; S 2.2 × 1.5

71 LAC/48

almost complete amphora (rim damaged)

flat base, inside concave; piriform/globular body; outcurving rim thickened on the outside and concave on the inside, convex lip; fairly short ribbed band handles (three ribs) from shoulder to neck bending sharply towards neck just below and against rim, roughly oval in section

ext 10YR 6/3 pale brown; int 10YR 6/3 pale brown; core 10YR 6/3 pale brown

H 31.0; Twall 0.4; Trim 0.6; Dbase 8.0; Drim 15; S 2.9 × 1.1

72 LAC/52

complete amphora

rounded base, concave on the outside; rilled, piriform body; short, conical neck; slightly outcurving rim, thickened on the inside and outside; convex lip; band handles from shoulder to neck bending sharply above rim, oval in section

ext 7.5YR 6/4 light brown; int 7.5YR 6/4 light brown; core 5YR 6/6 reddish yellow

H 30.5; Twall 0.8; Trim 1.1; Drim 5.4; S 4.3 × 2.0

73 LAC/54

almost complete amphora (rim damaged)

flat base with rounded edge, inside and outside flat; tapering body; very short, cylindrical neck; outcurving rim with groove on the outside; convex lip; very small band handles from shoulder to neck bending sharply towards neck just below rim, flattened in section

ext 2.5YR 4/6 red & 5YR 6/4 light reddish brown - 5YR 5/4 reddish brown; int 5YR 5/4 reddish brown; core 5YR 6/4 light reddish brown

H 33.0; Twall 0.4; Trim 0.5; Drim 12.4; Dspike 7.0; S 2.3 × 0.7

74 LAC/79

body and neck of an amphora

tapering body, rilled cylindrical neck; large hole on shoulder may indicate handle attachment

ext 7.5YR 5/4 brown - 7.5YR 4/6 strong brown; int 7.5YR 5/4 brown; core 7.5YR 5/4 brown

H 68.5; Twall 0.9; Dneck 11.2

75 LAC/ X 5

damaged spike and lower part of an amphora

tapering spike; flaring, conical lower part of body

ext 2.5YR 5/6 red; int 2.5YR 5/8 red; core 2.5YR 5/8 red

H 25.6; Twall 1.0; Dspike ca. 6.5

not drawn

76 LAC/X 7

base and lower part of body of an amphora

raised base ring with rounded edge, inside concave, outside convex; flaring wall

ext 7.5R 4/0 dark grey - 10YR 7/1 light grey; int 10YR 5/1 grey;

core 7.5R 5/0 grey to 10YR 7/1 light grey
H 13.2; Twall 1.3; Dbase 10.7

77 LAC/X 8

spike and lower part of an amphora (restored)
tapering spike; flaring wall
ext 10YR 7/1 light grey - 10YR 5/1 grey; int 10YR 6/1 grey; core
10R 4/1 dark reddish grey
H 52.4; Twall 1.6

78 LAC/X 13

spike of an amphora
slightly tapering, straight spike
ext 2.5YR 6/6 light red - 2.5YR 5/6 red; int 2.5YR 5/6 red; core
2.5YR 6/6 light red - 2.5YR 5/6 red
H 26.9; Twall 0.9; Dspike 4.5

79 LAC/X 14

spike of an amphora
tapering spike, bulbous knob
ext 2.5YR 5/6 red; int 2.5YR 6/6 light red; core 2.5YR 6/6 light
red
H 21.5; Twall 1.2; Dspike 3.4

80 LAC/X 15

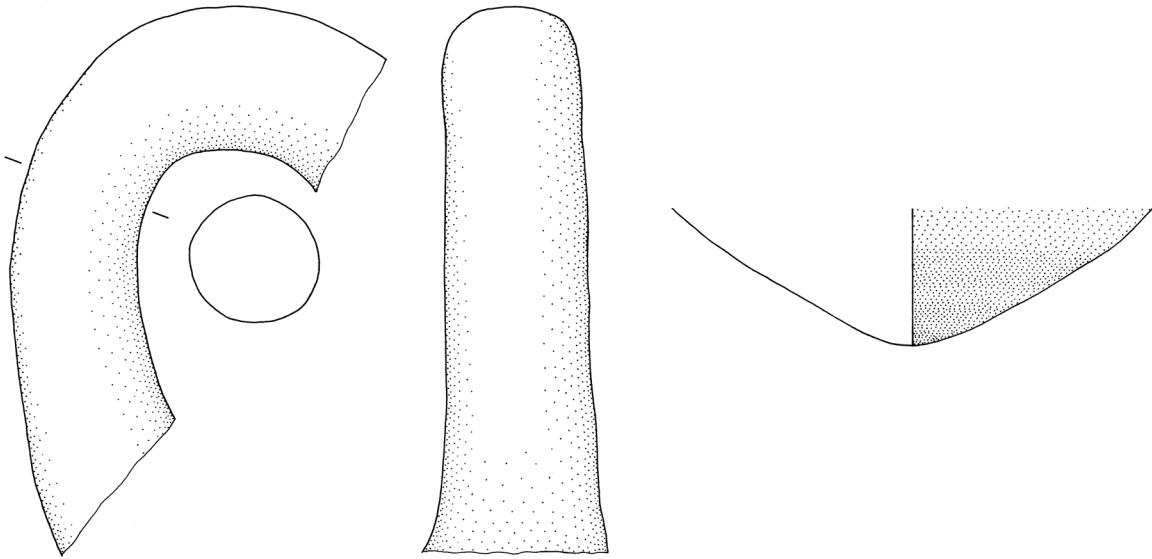
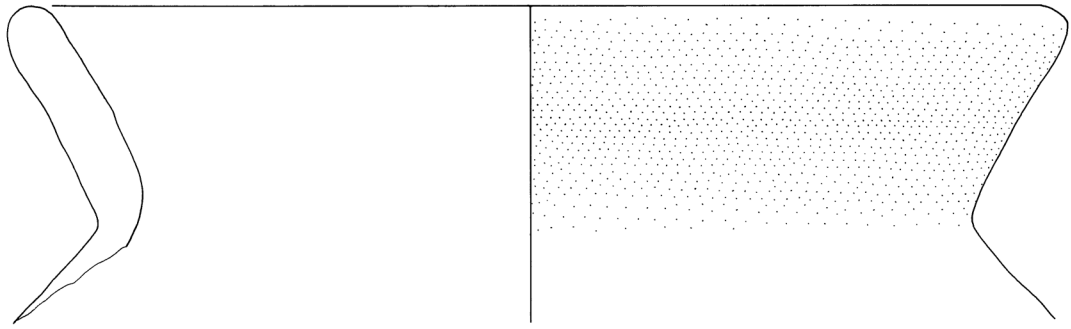
part of shoulder, neck, rim and handles of an amphora
rounded shoulder; short, conical/cylindrical neck; straight rim
thickened on the outside and undercut; convex lip; ring handles
bending sharply at height of rim, round in section
ext 7.5YR 6/0 light grey/grey; int 10YR 6/4 light yellowish brown;
core 10YR 5/1 grey
H 14.7; Twall 0.7; Trim 1.1; Drim 7.3; S 2.3 × 2.0

81 LAC/X 16

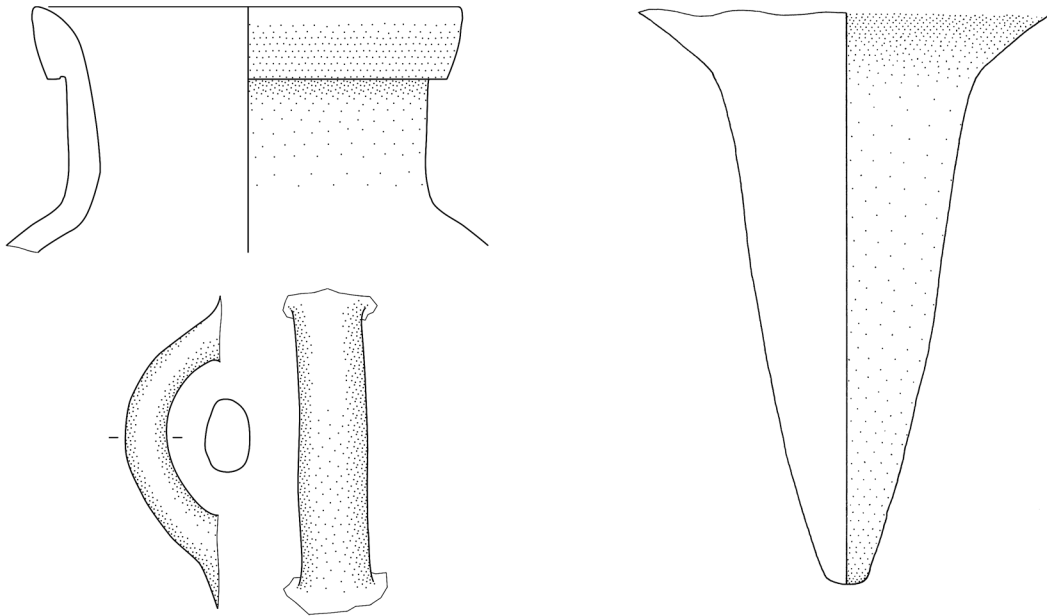
part of shoulder, neck, rim and handles of an amphora
rounded shoulder; fairly short, cylindrical neck; straight rim thick-
ened on the outside; convex lip; band handles bending sharply at
height of rim, roughly oval in section
ext 5YR 7/6 reddish yellow - 7.5YR 8/4 pink; int 5YR 4/1 dark
grey; core 2.5YR 6/6 light red
H 15.2; Twall 0.7; Trim 0.9; Drim 7.4; S 2.4 × 1.4

82 LAC/X 22

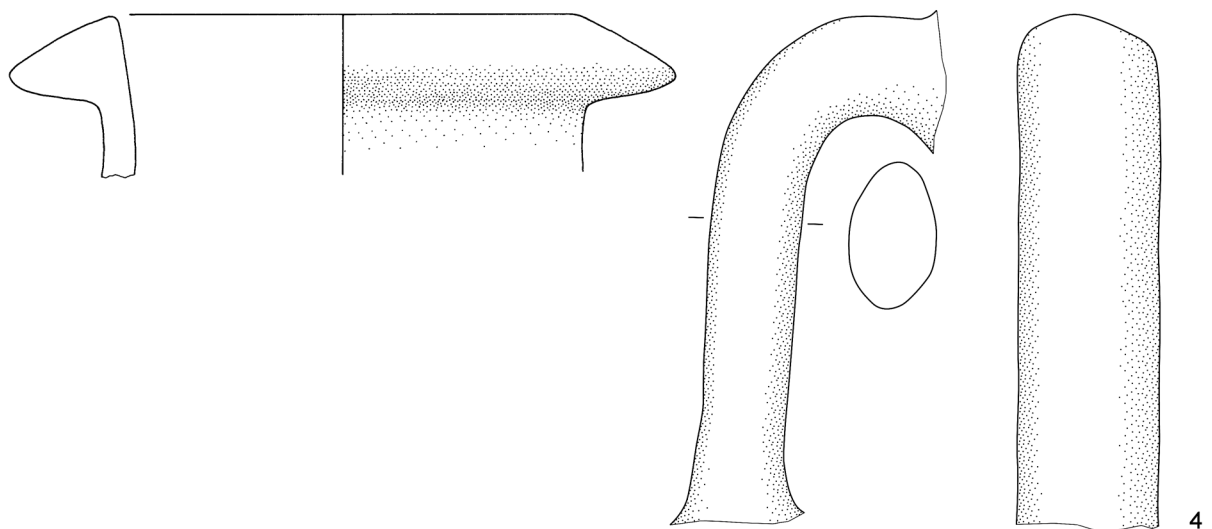
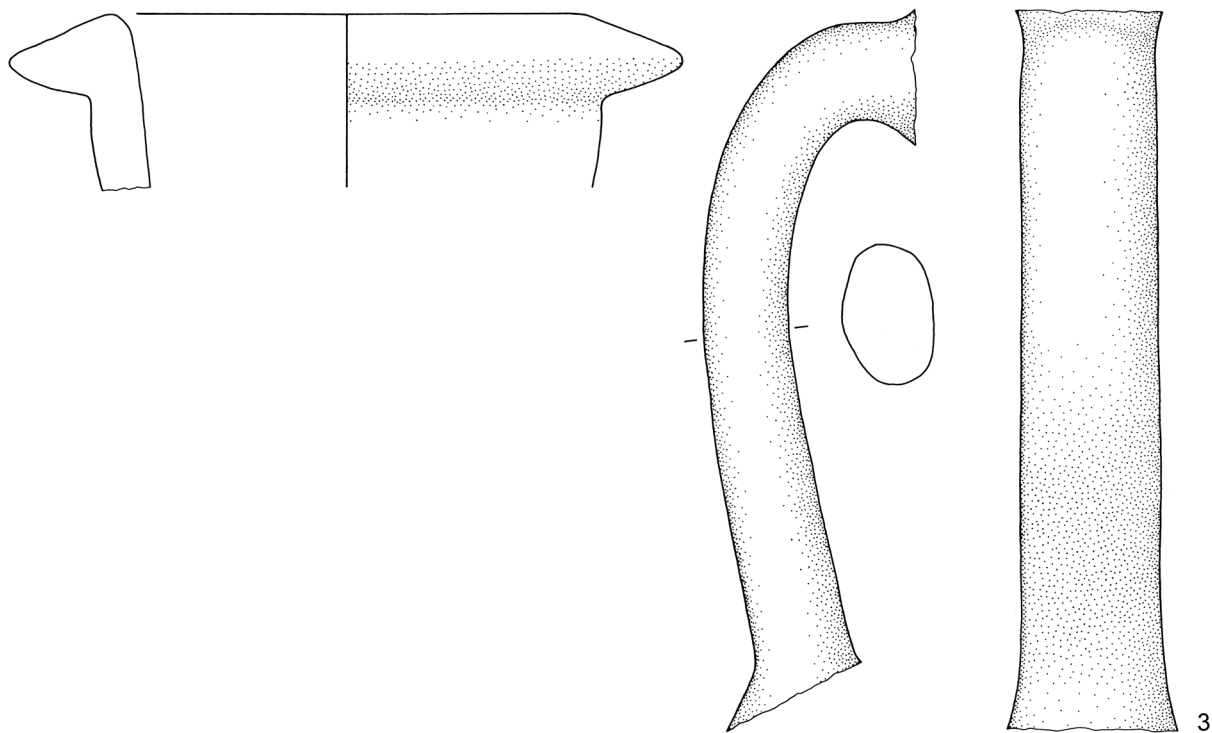
part of shoulder, neck, rim, one handle and one handle attachment
of an amphora
rounded shoulder; long, cylindrical neck; straight, upright rim thick-
ened on the outside; convex lip; irregularly ribbed band handle
ext 5YR 6/6 reddish yellow - 10YR 7/4 very pale brown; int 10YR
5/3 brown; core 2.5Y 7/4 pale yellow
H 17.8; Twall 0.6; Trim 1.1; Drim 10.4; S 3.2 × 2.5

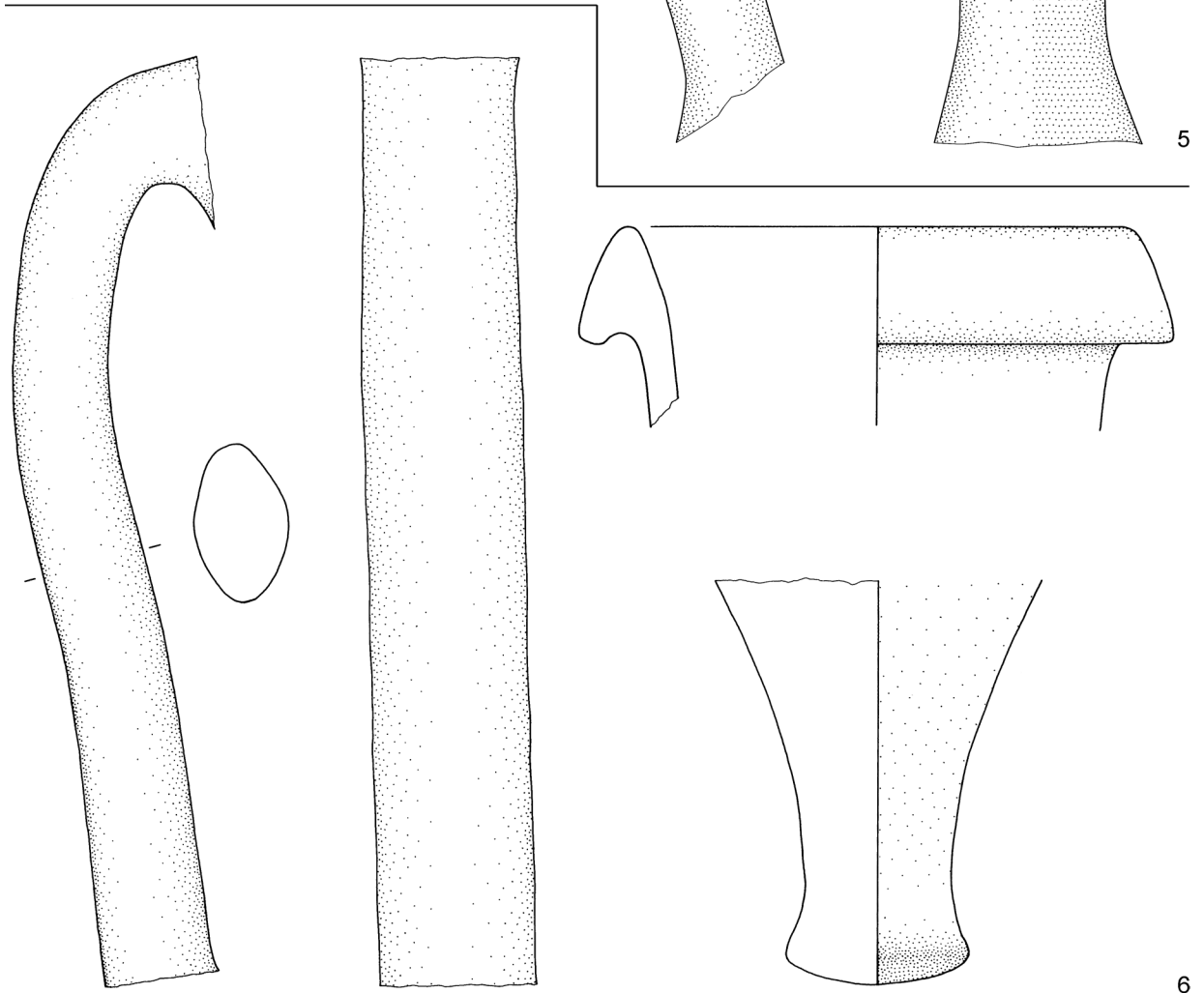
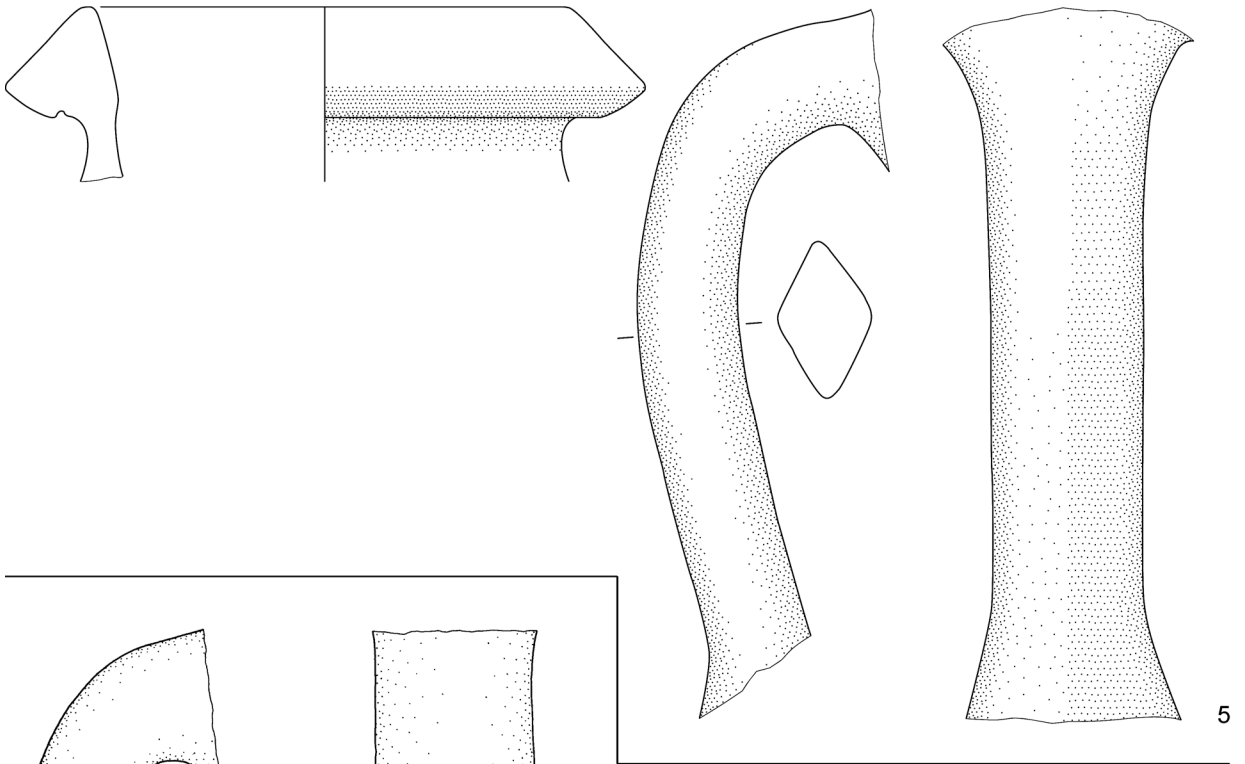


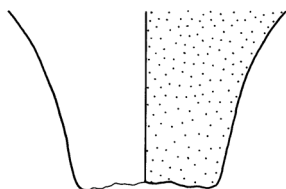
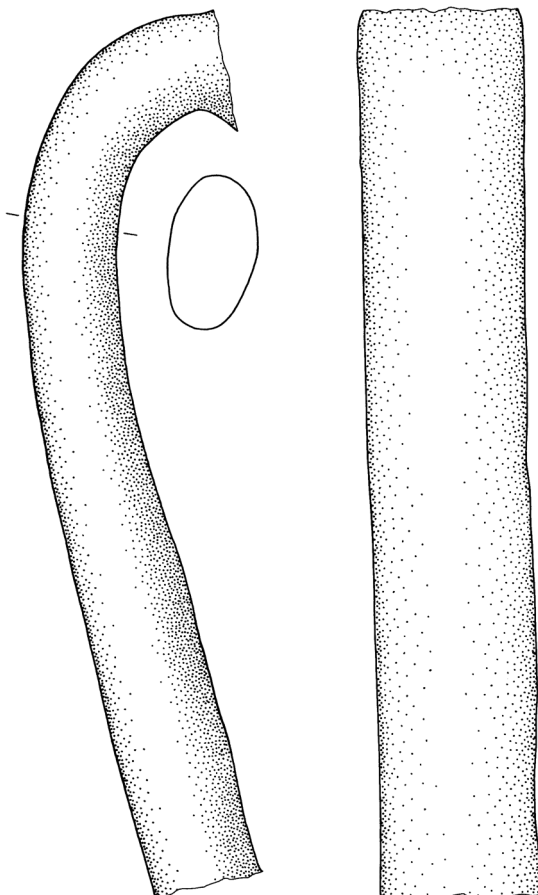
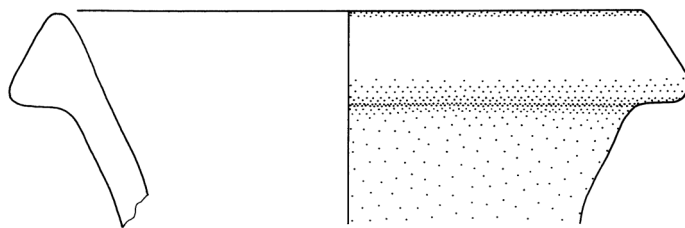
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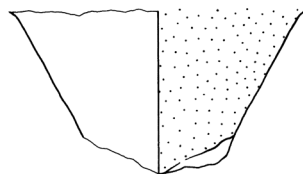
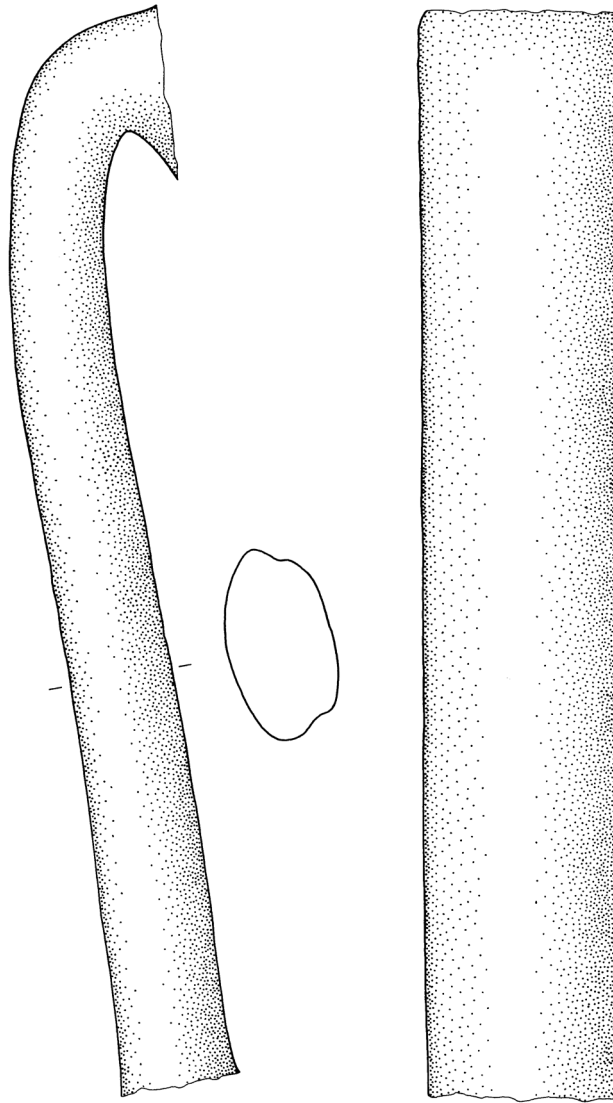
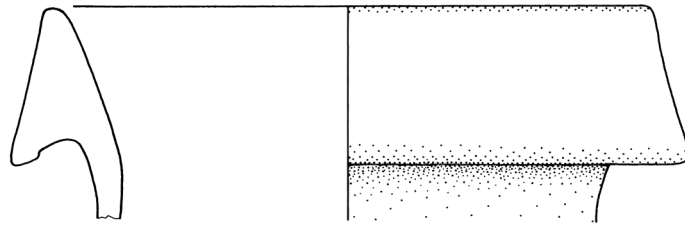


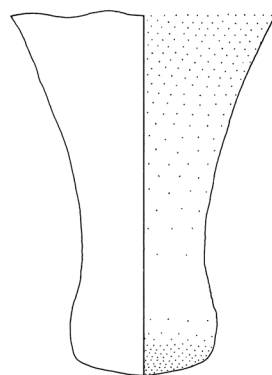
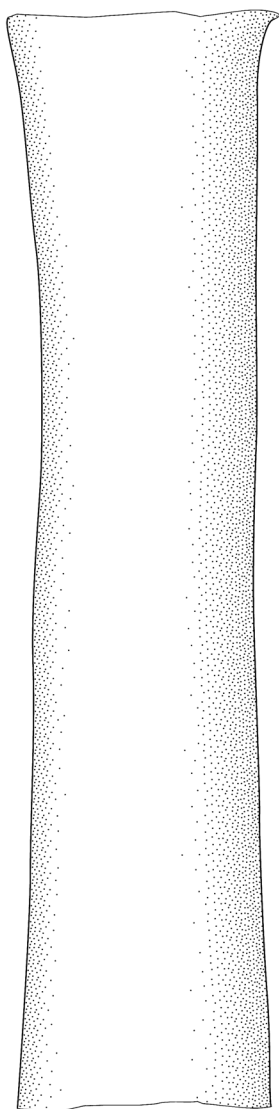
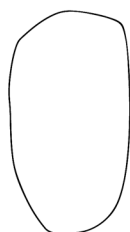
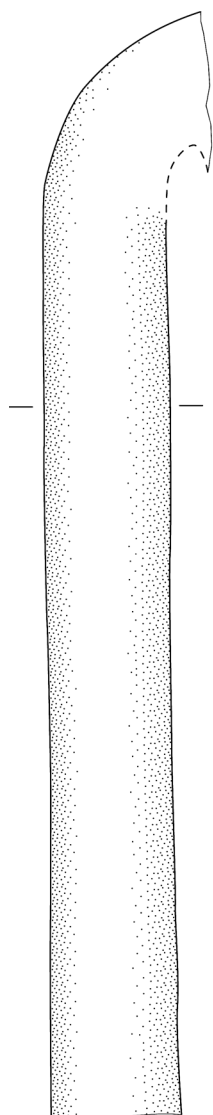
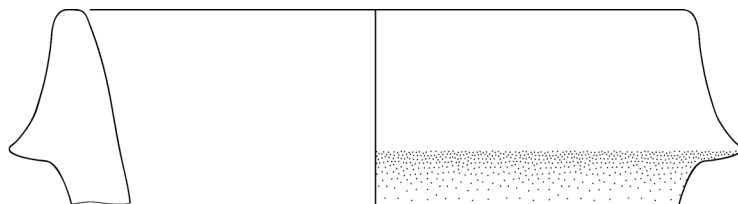
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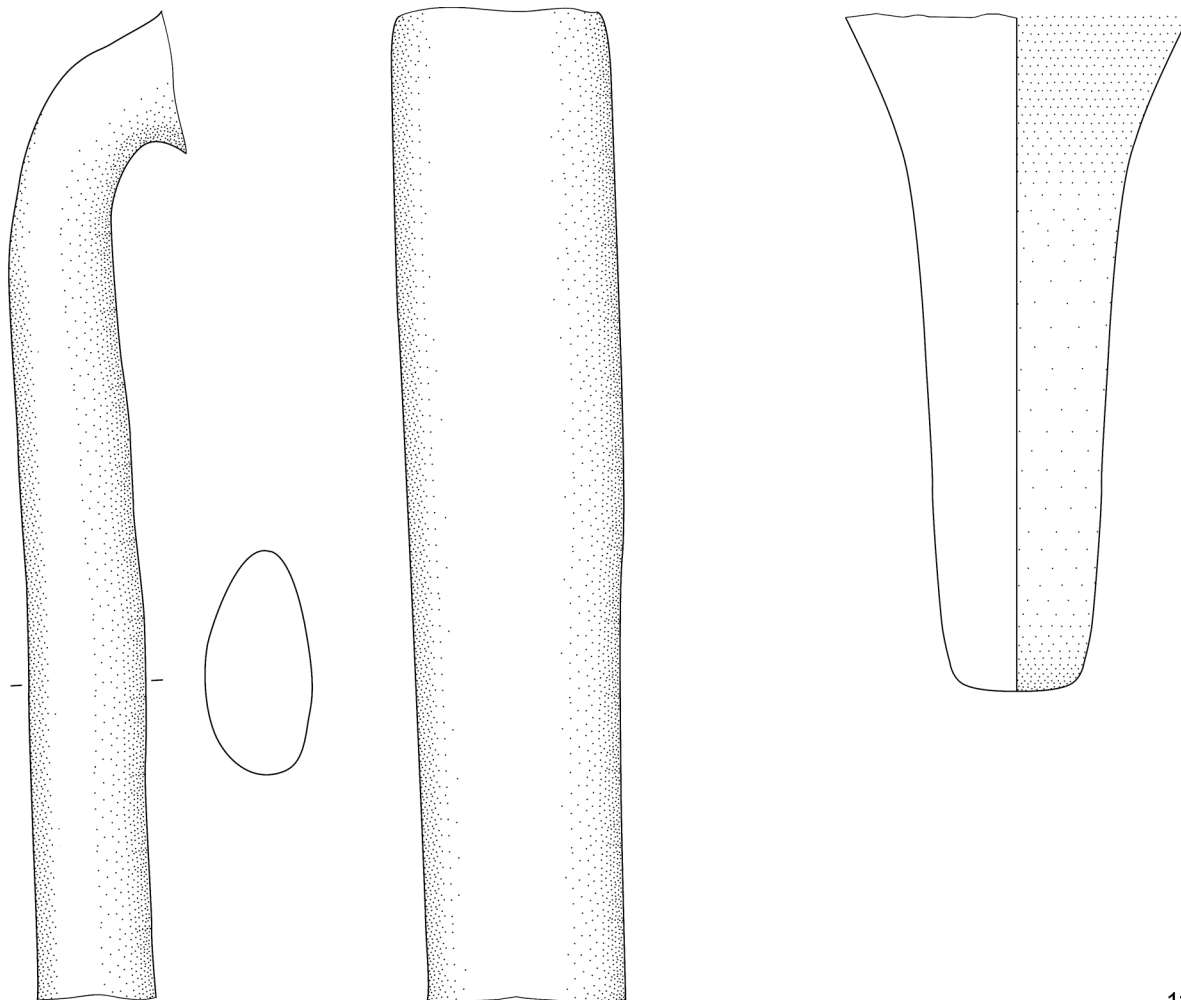




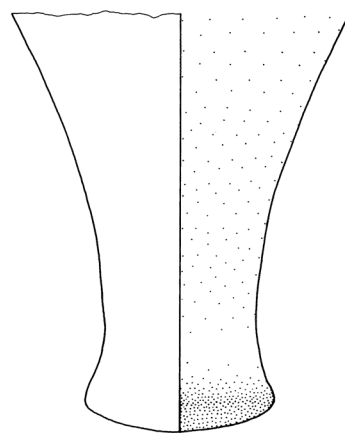
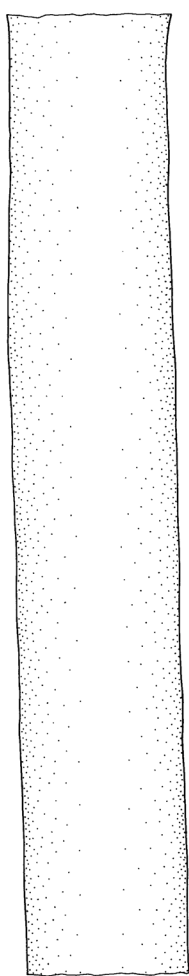
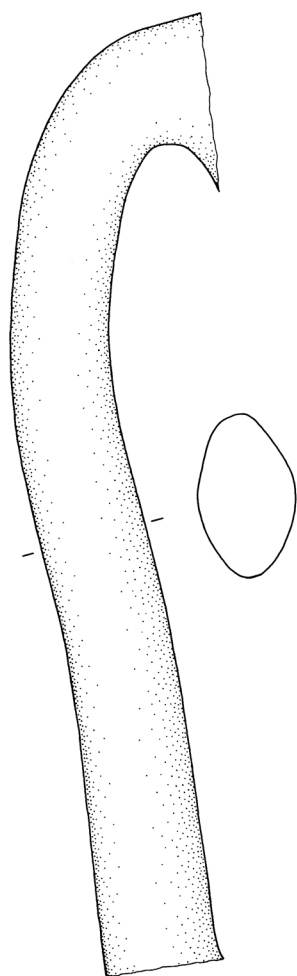
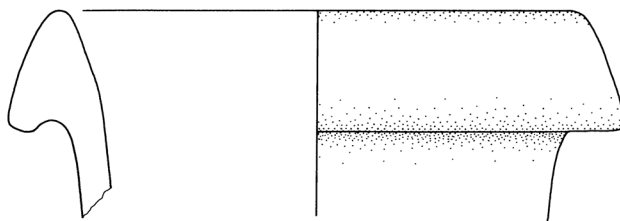


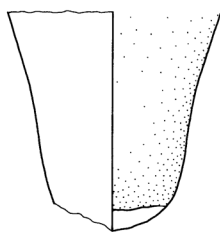
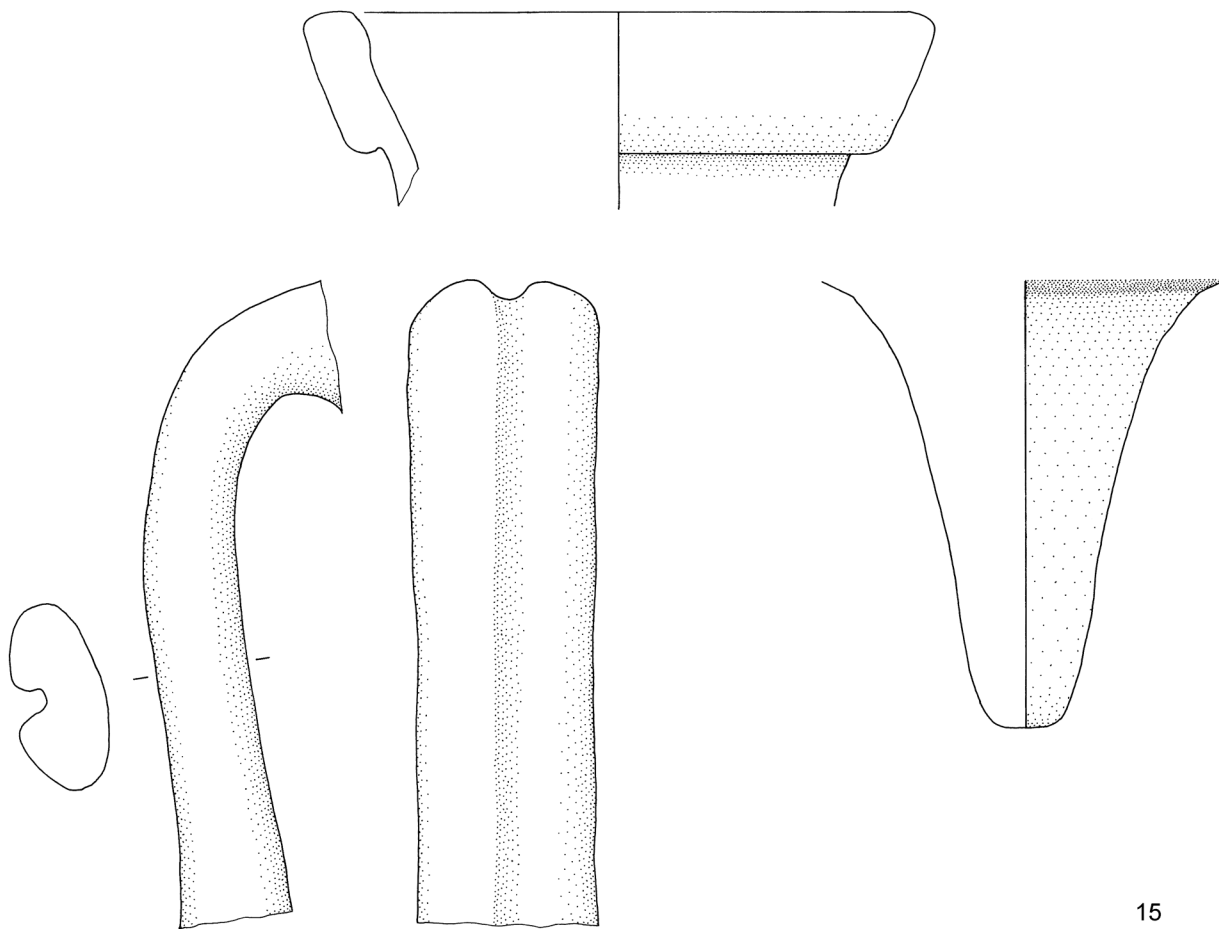


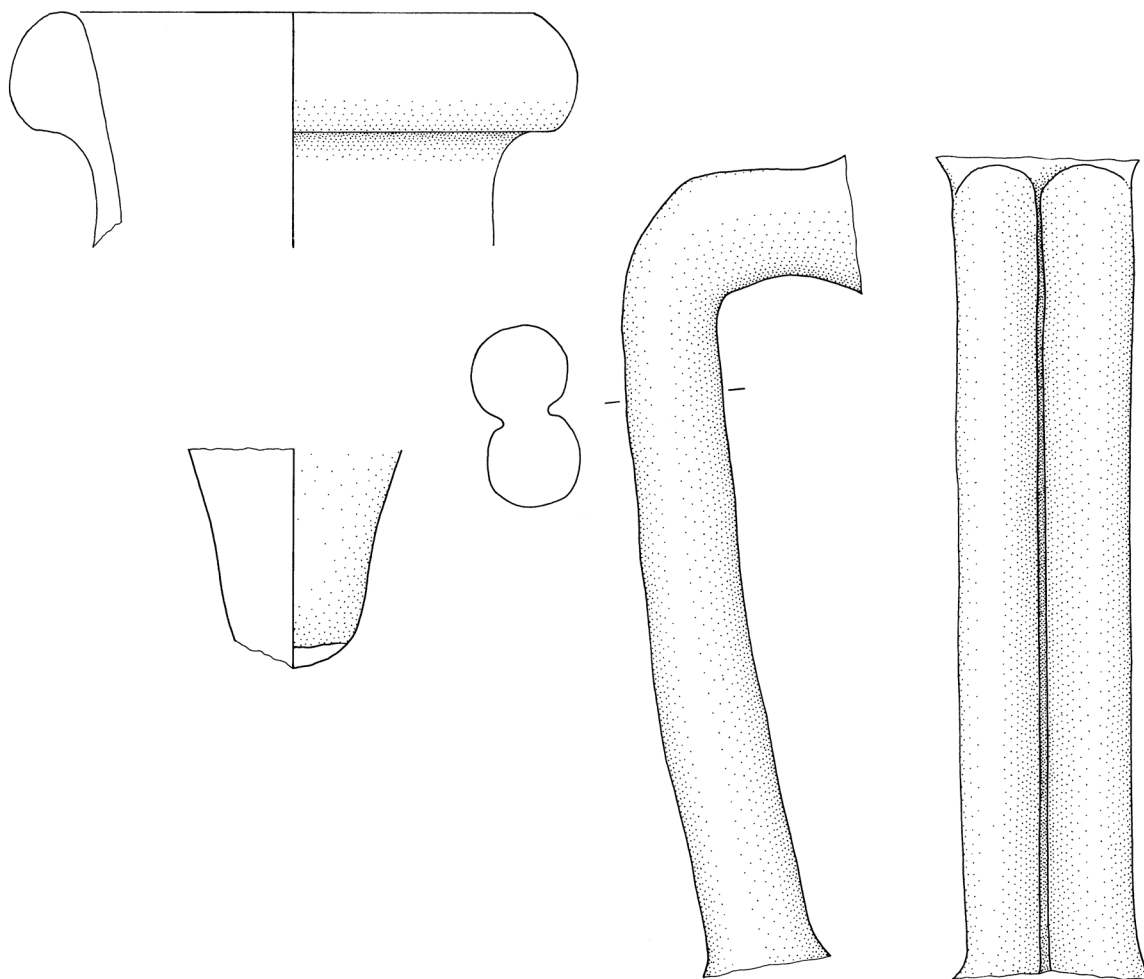




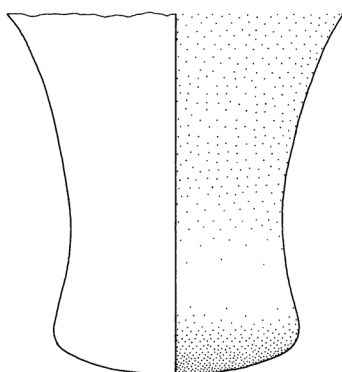
LAC 22



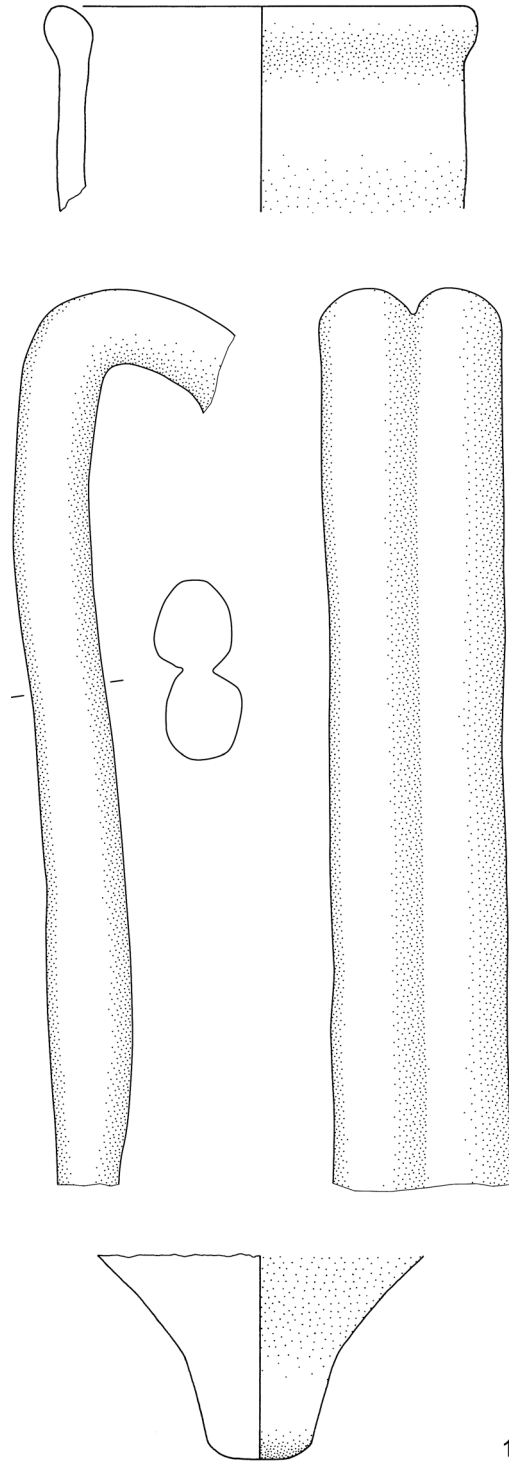


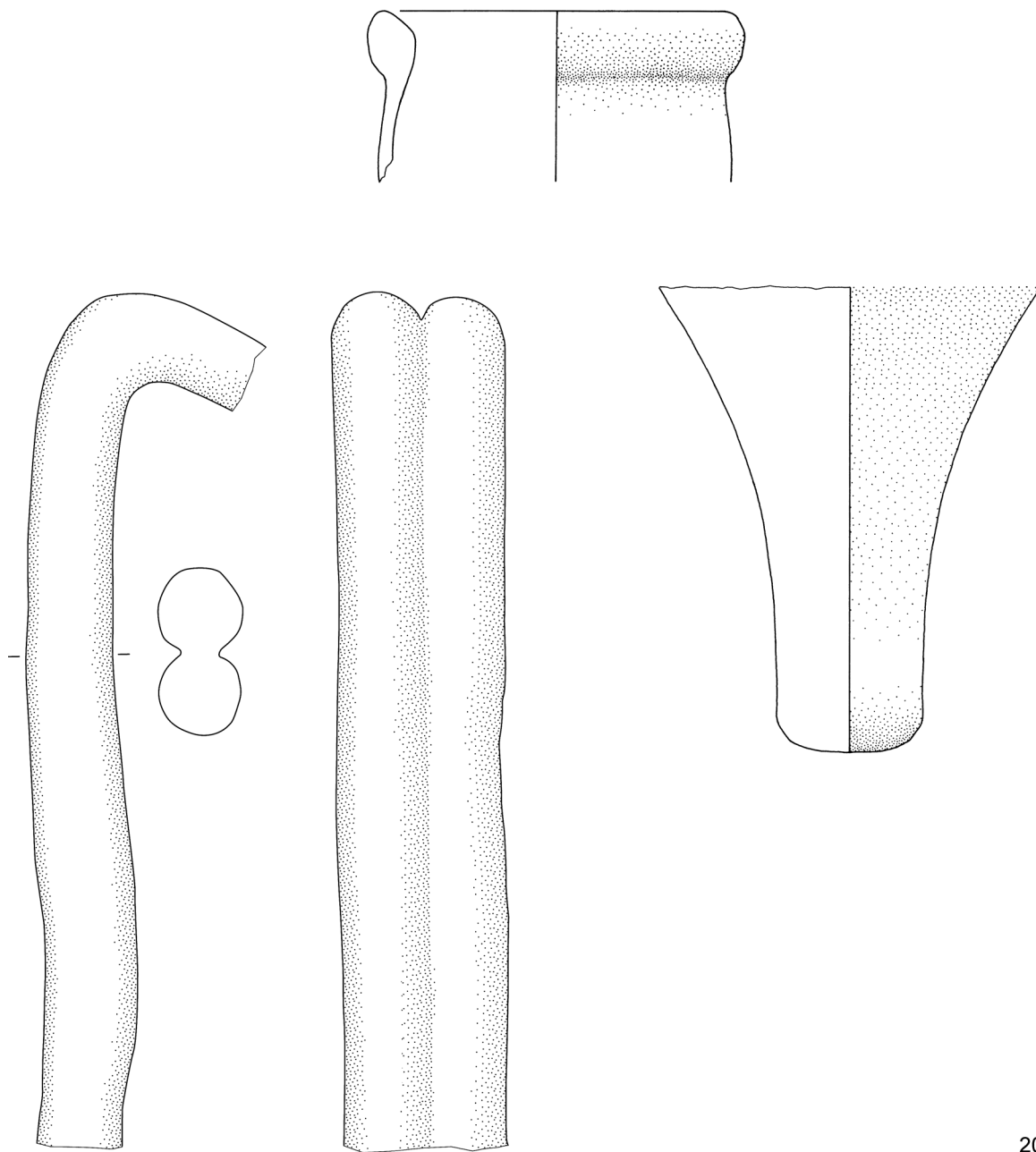


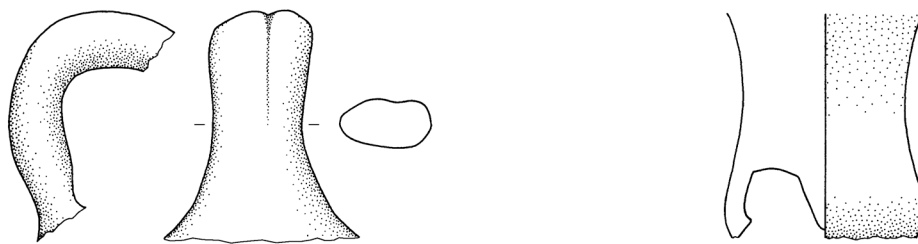
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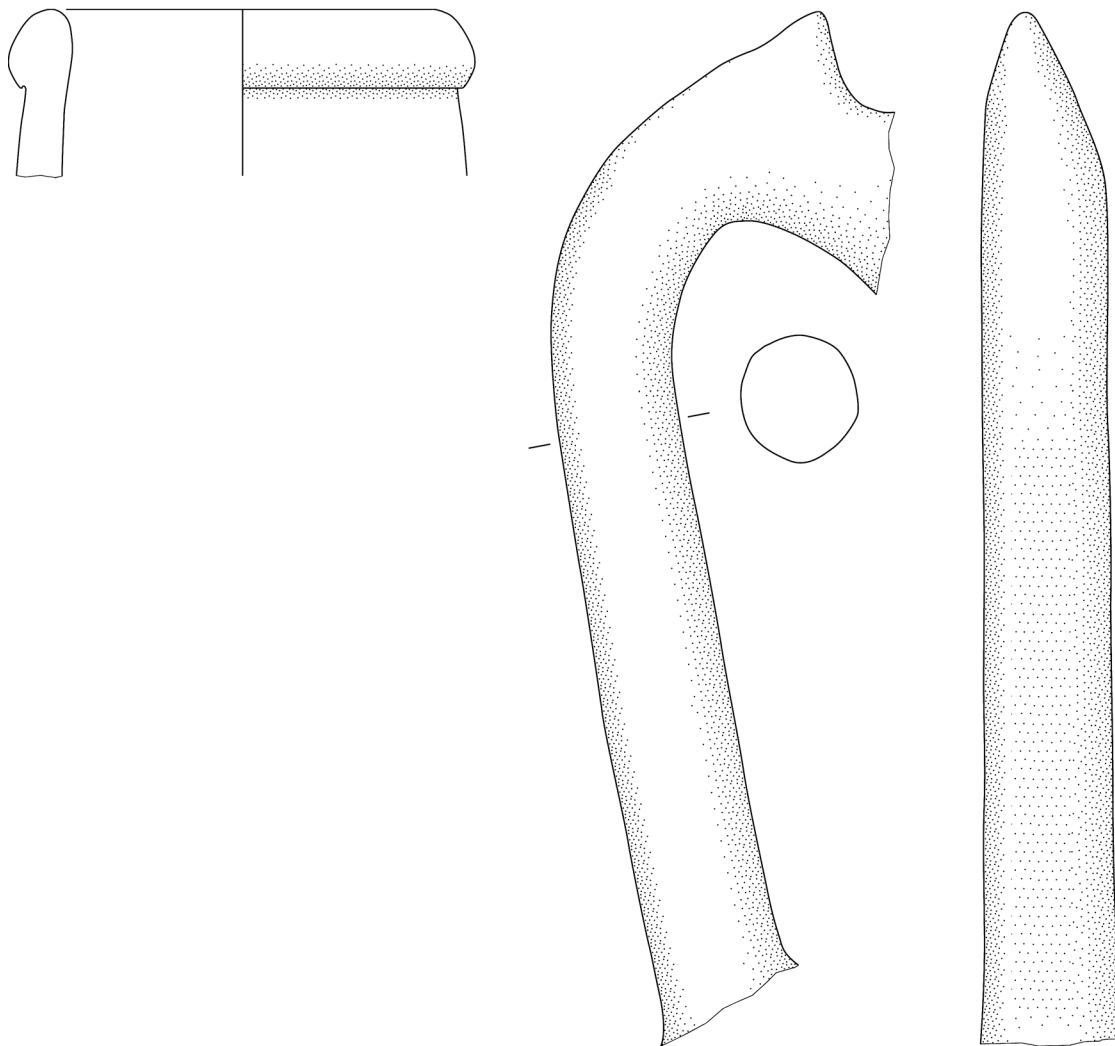
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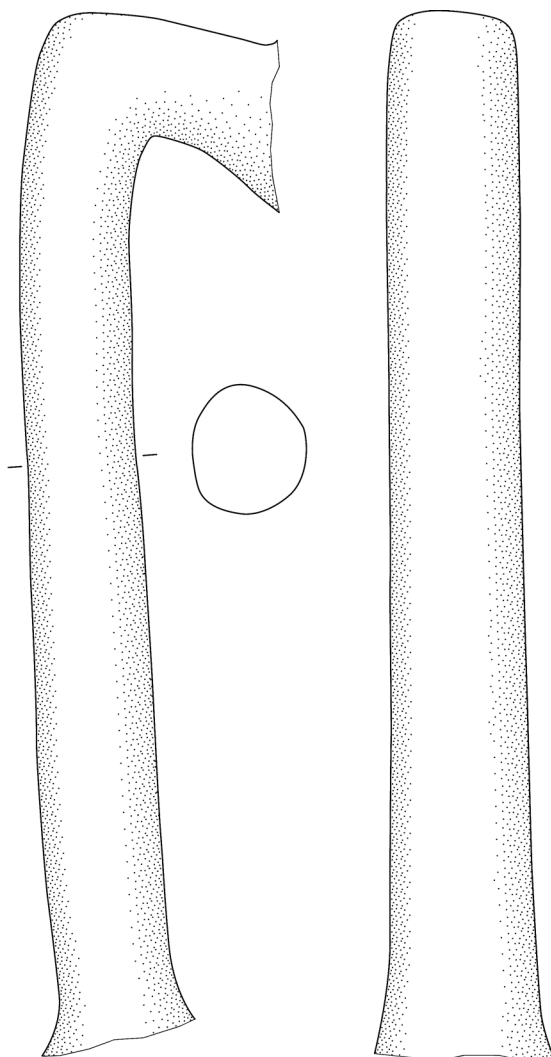
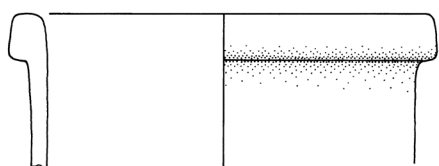




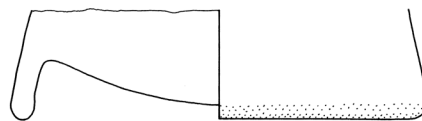
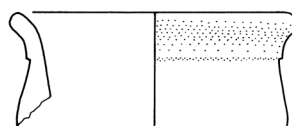
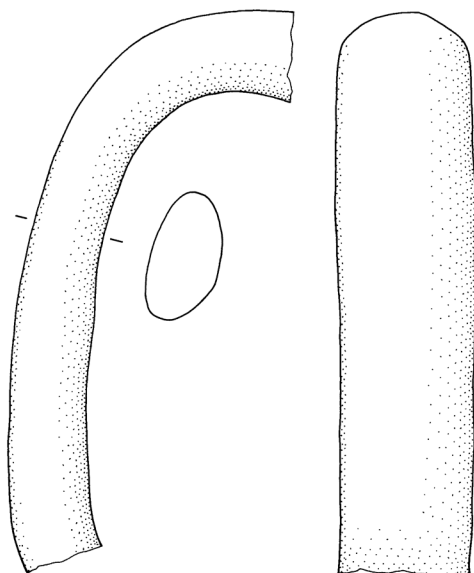
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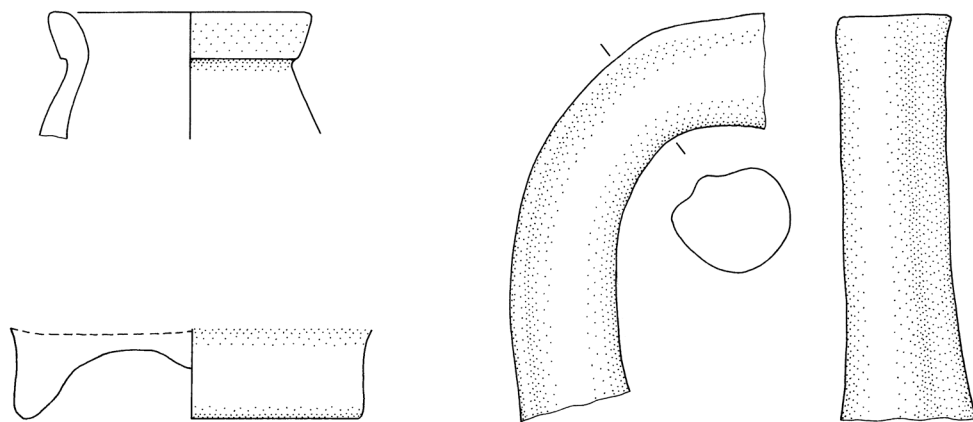
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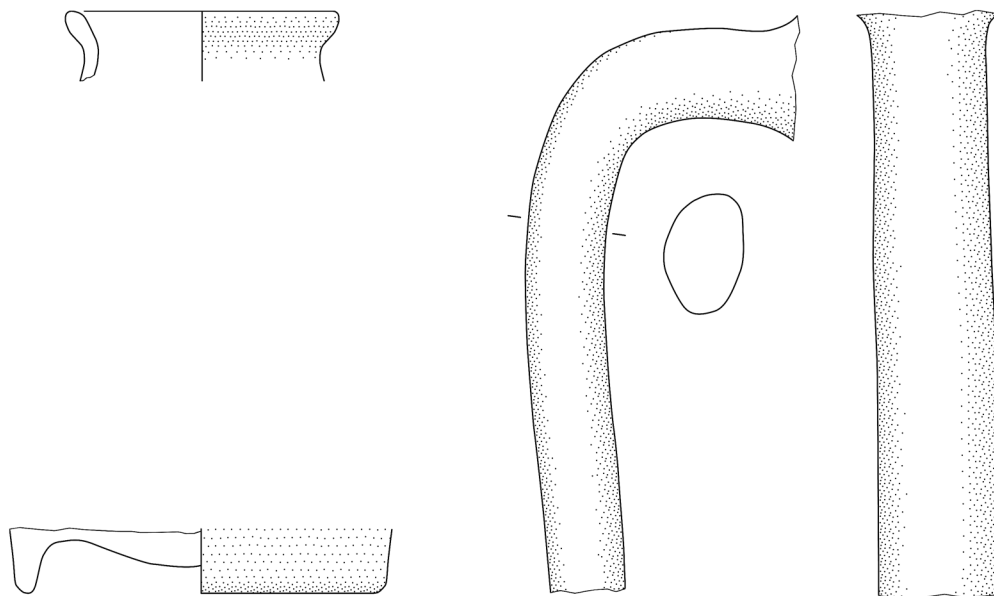
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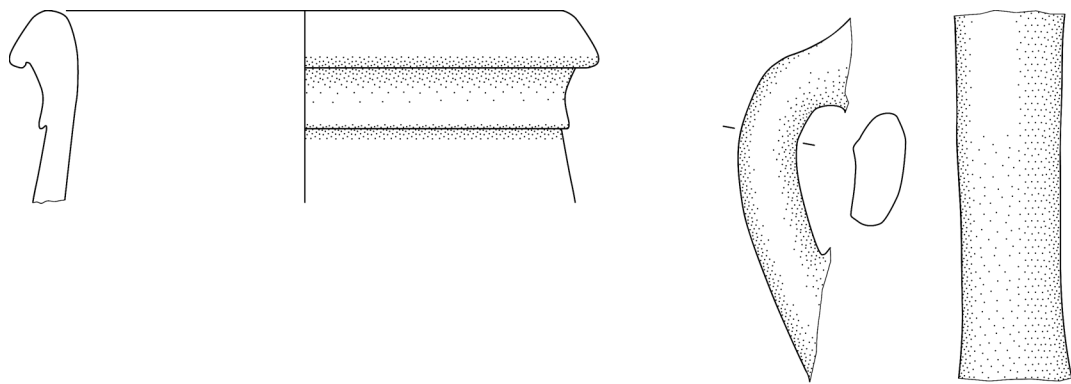
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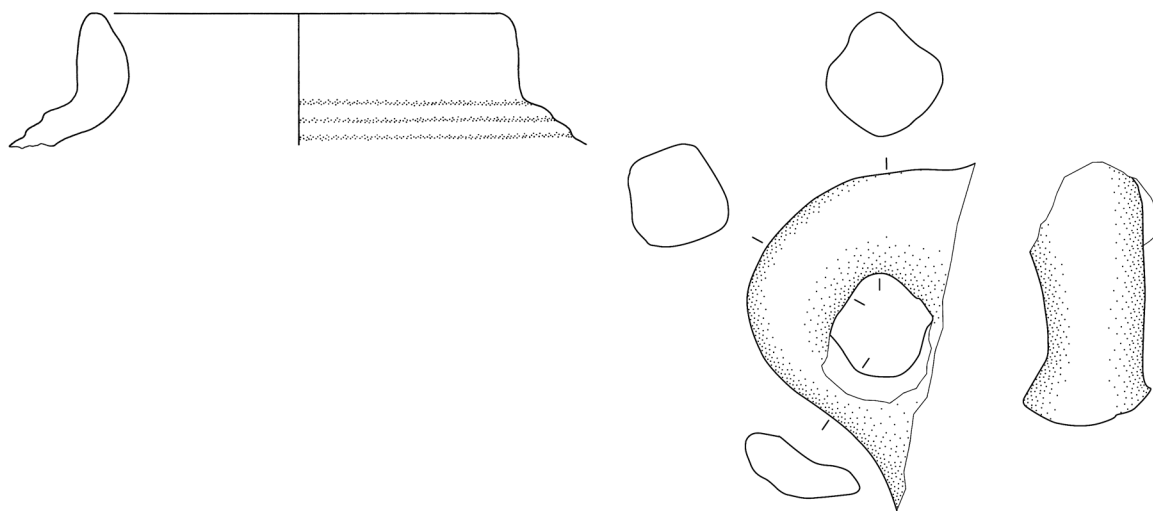
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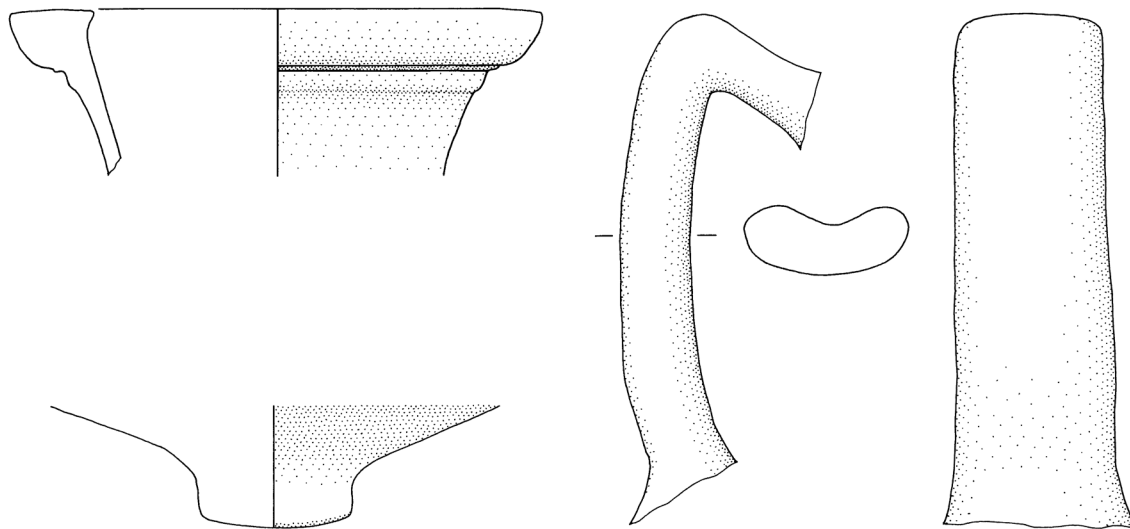
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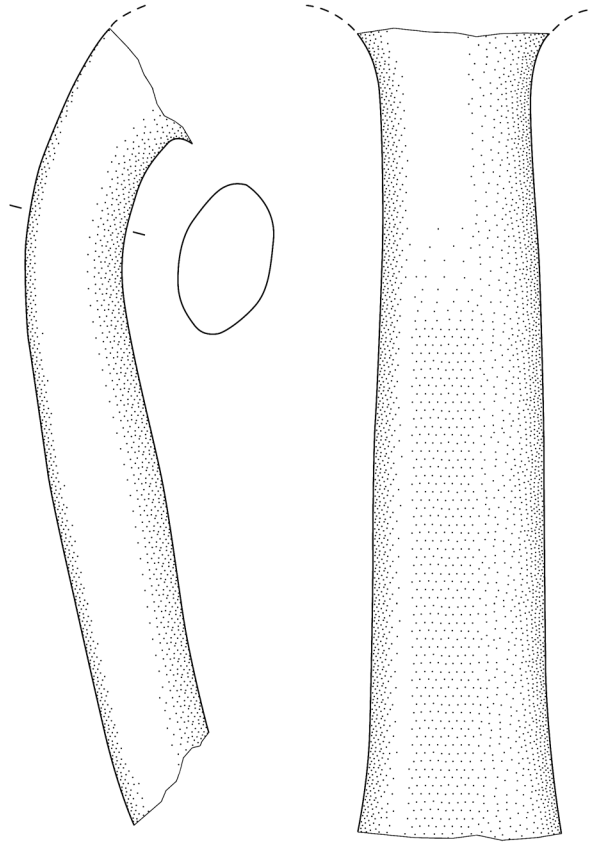
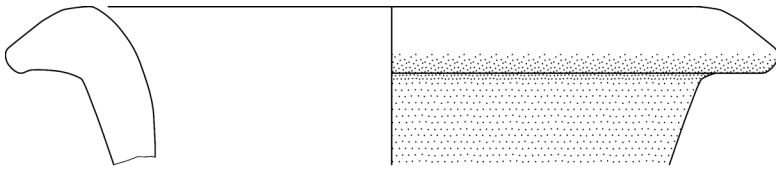
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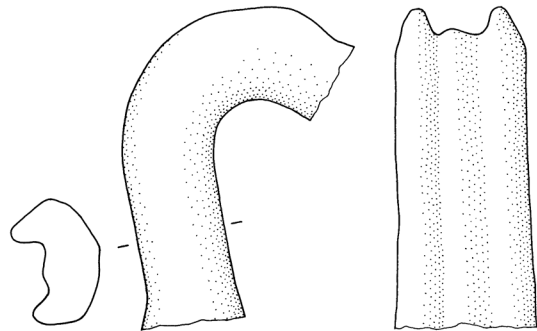
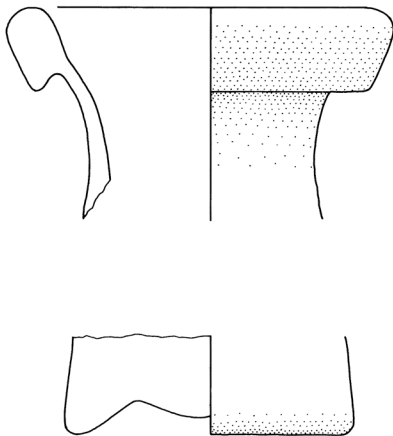
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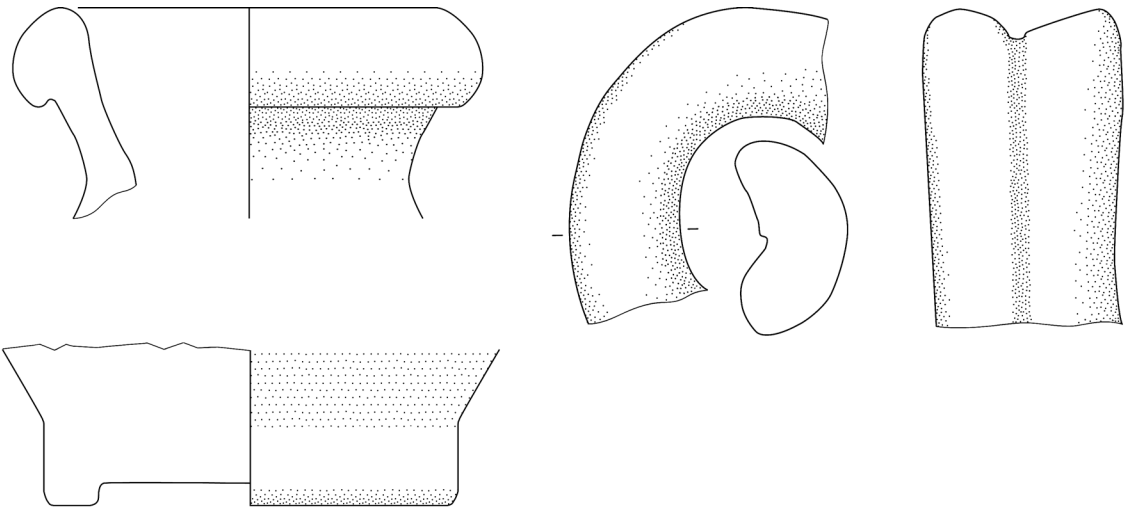
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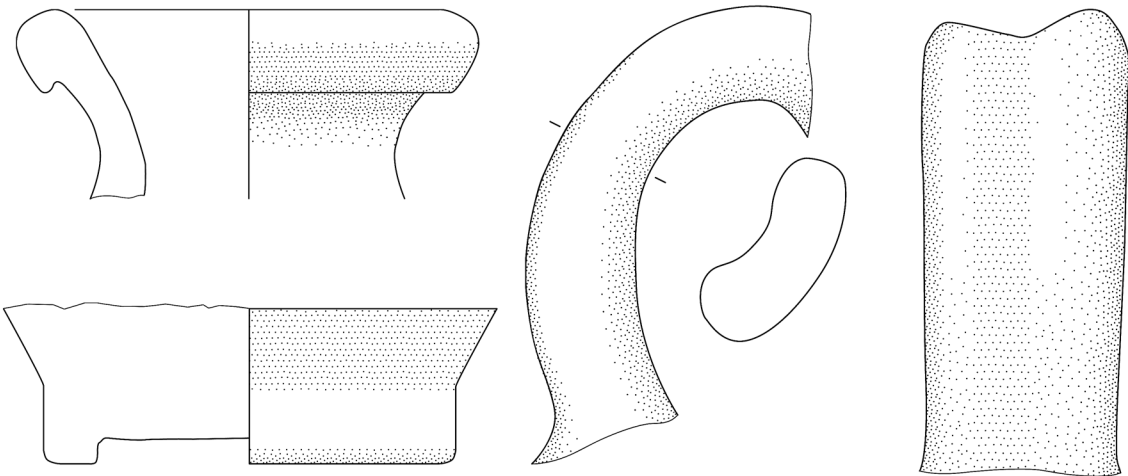
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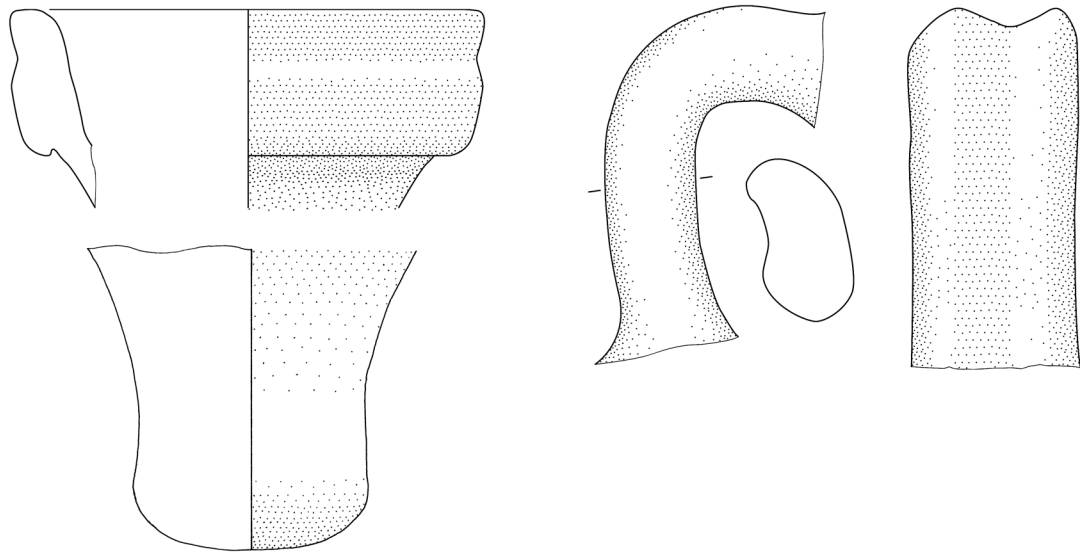
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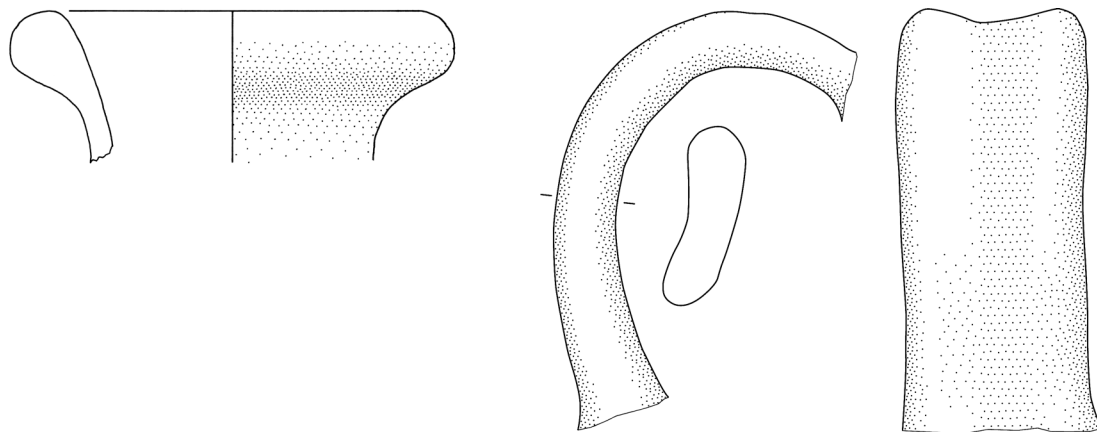
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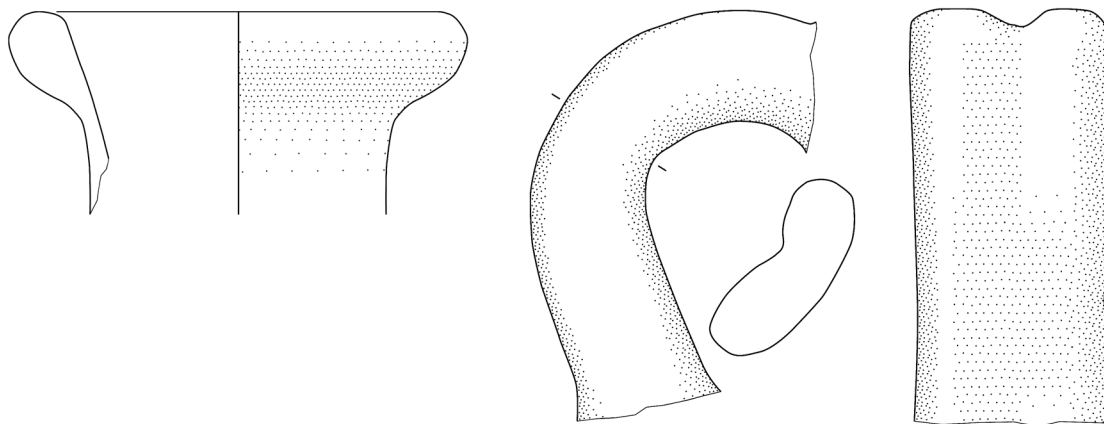
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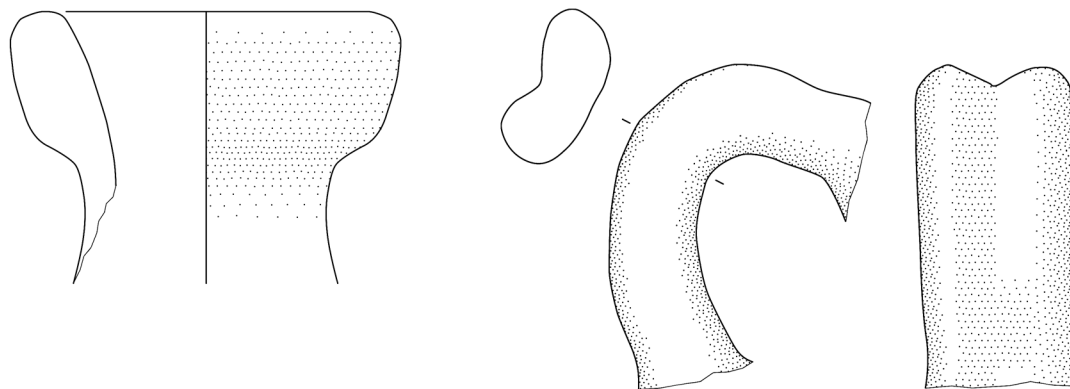
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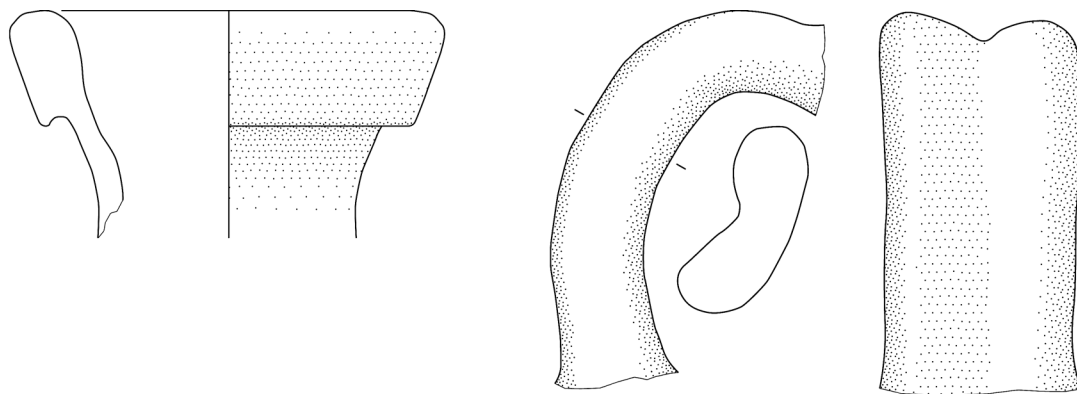
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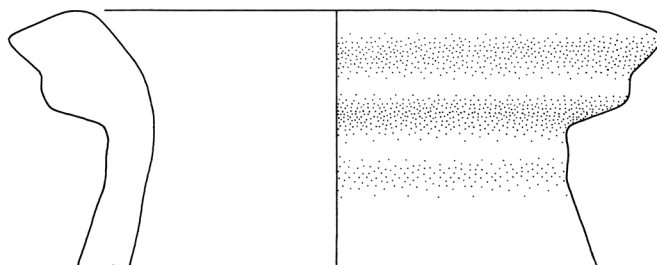
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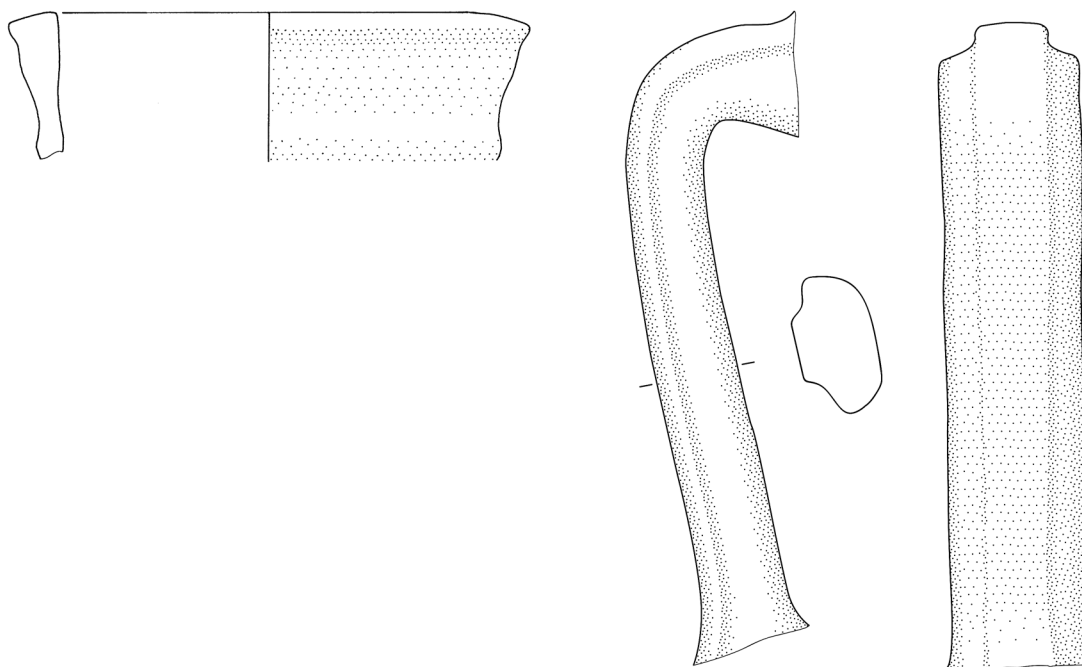
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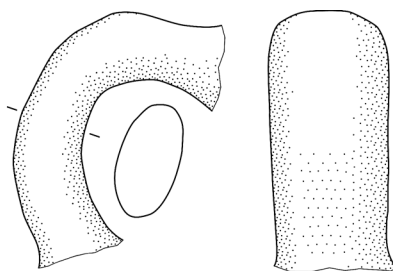
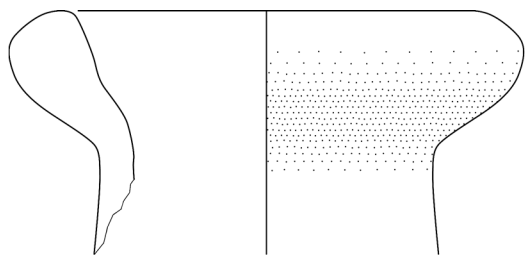
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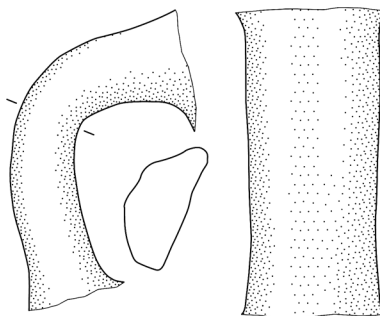
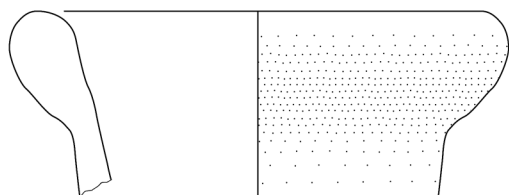
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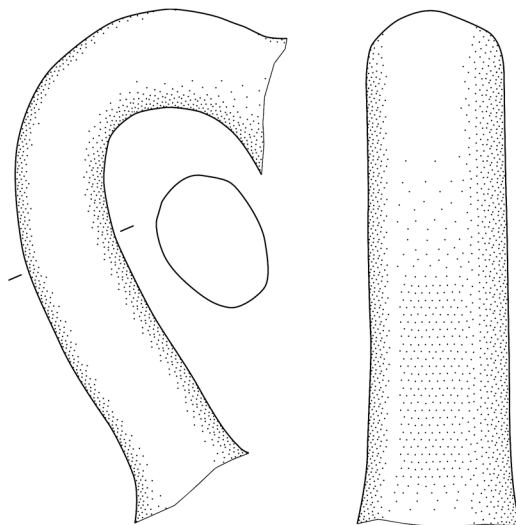
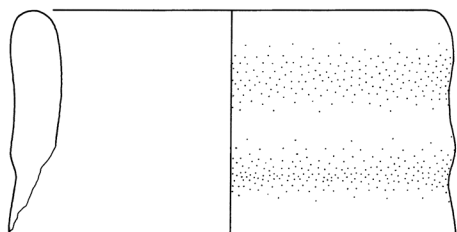
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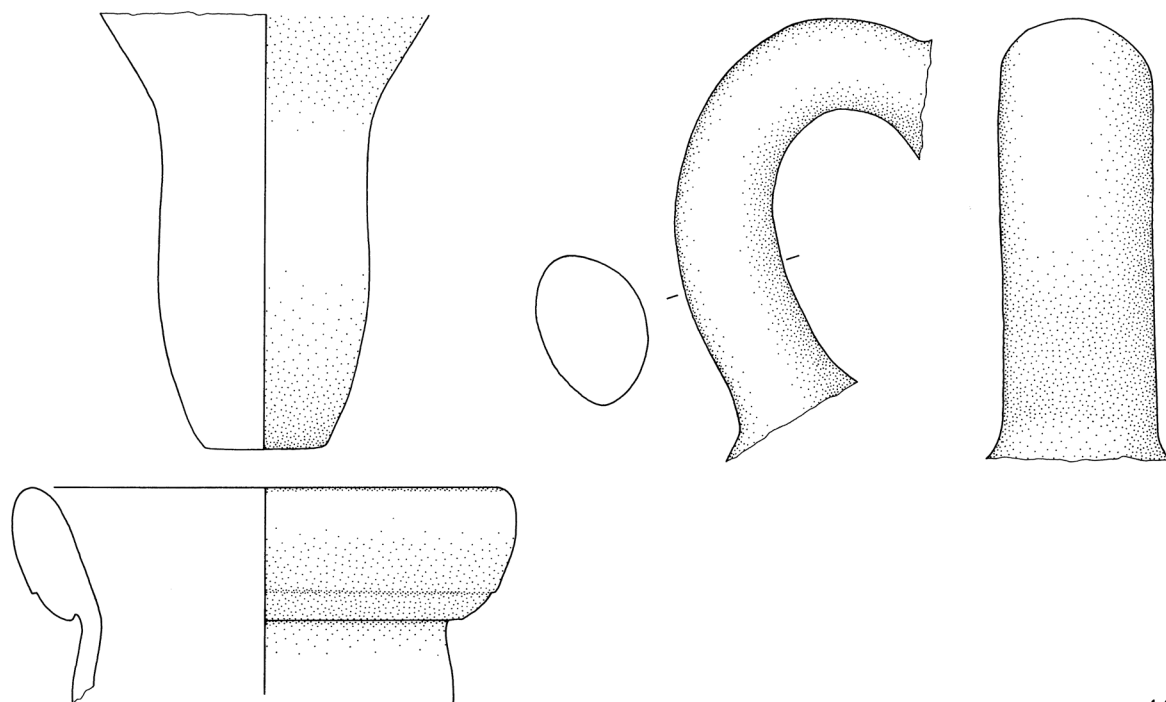
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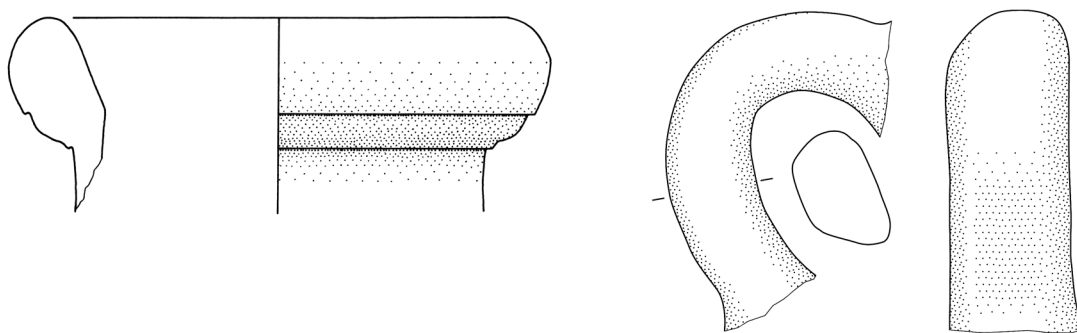
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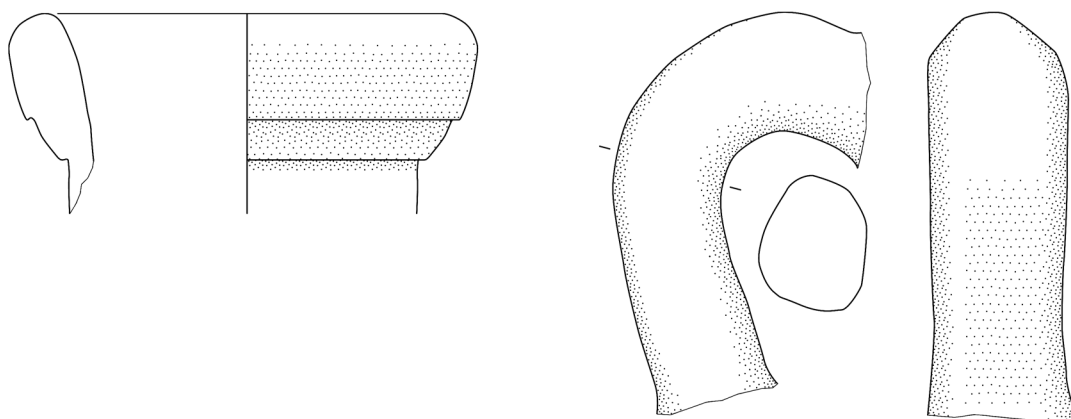
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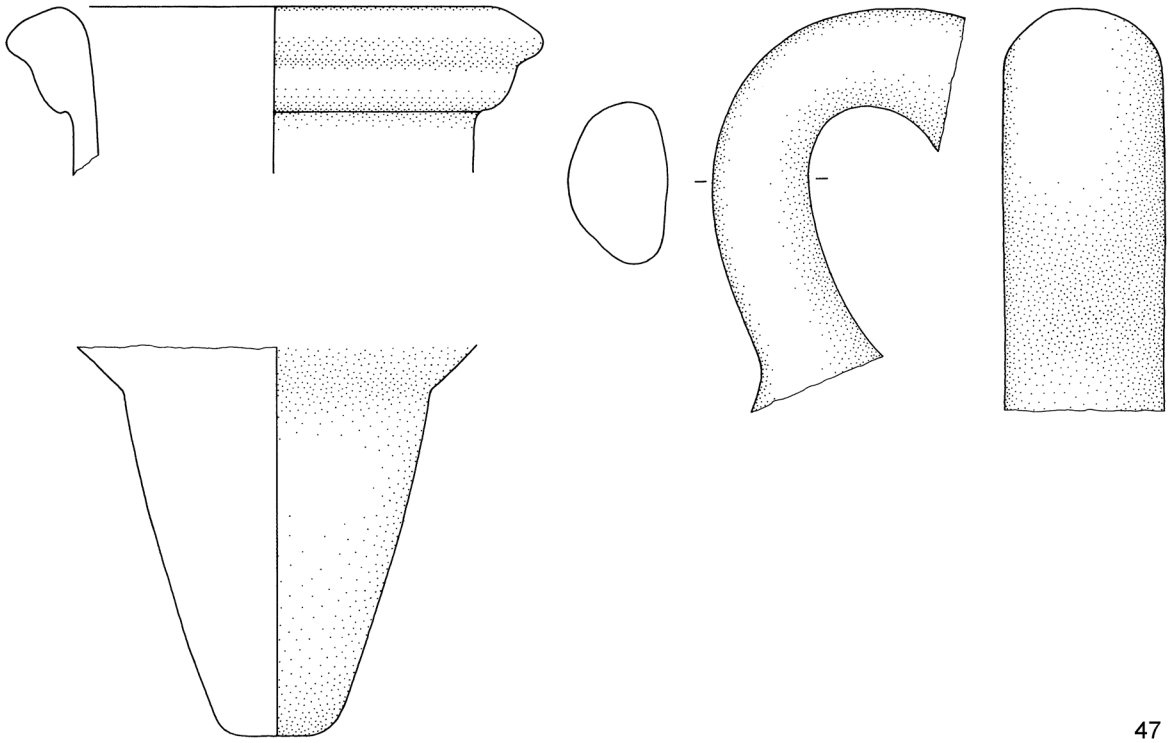
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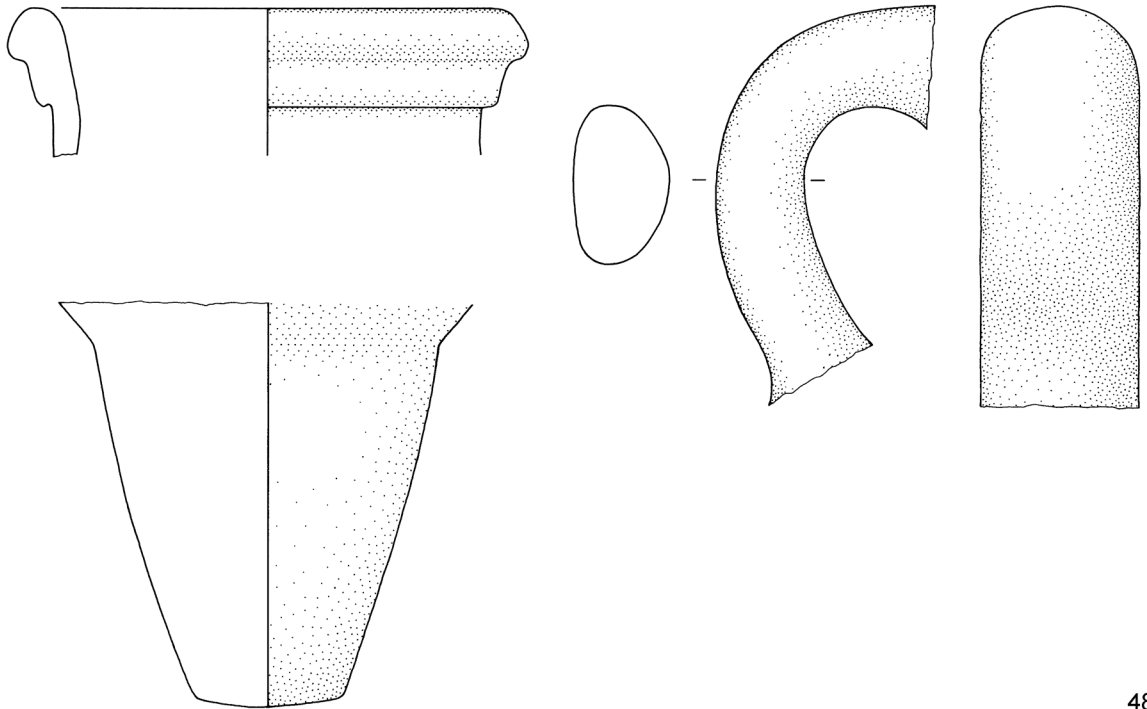
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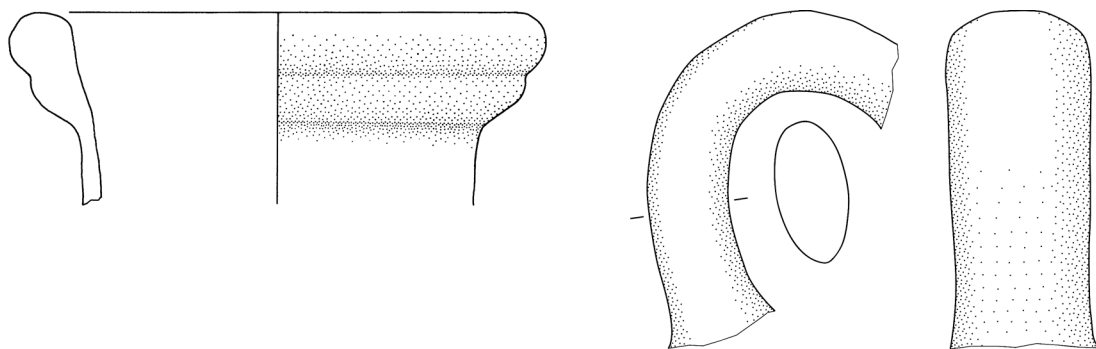
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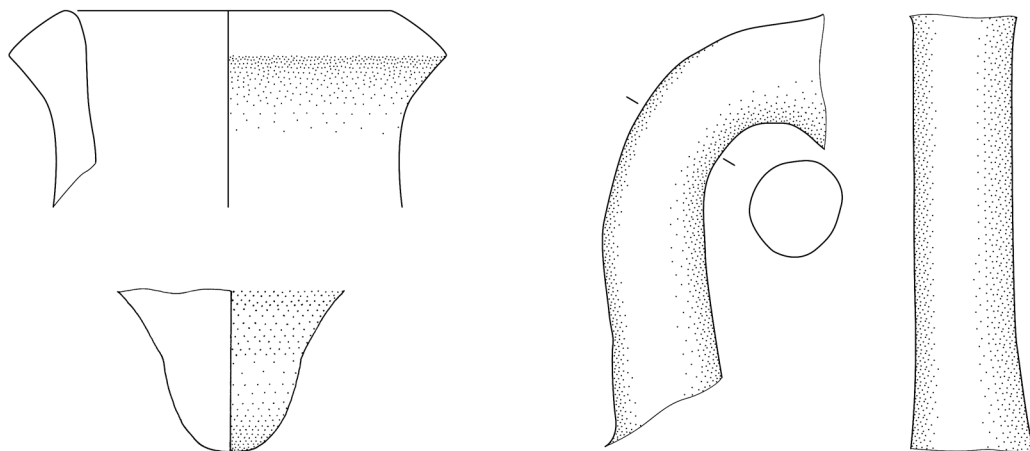
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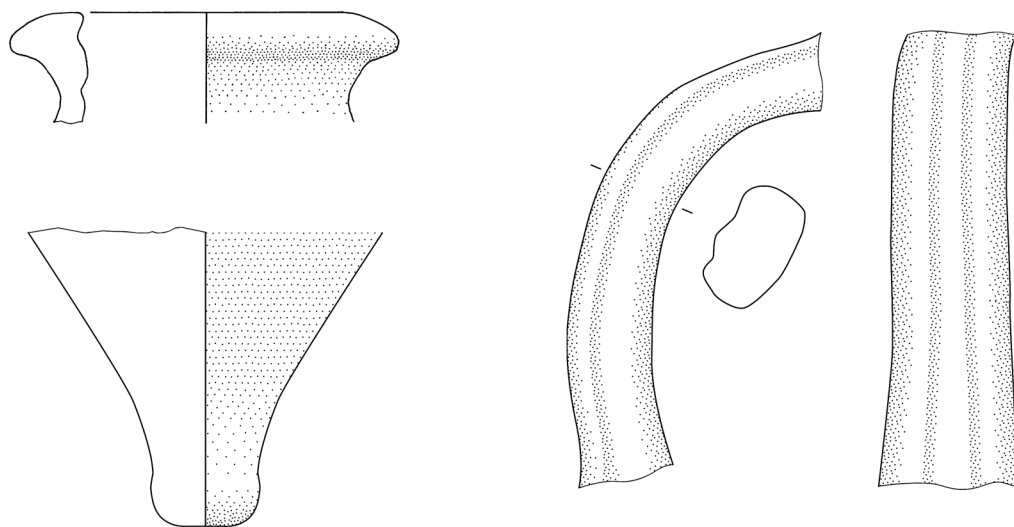
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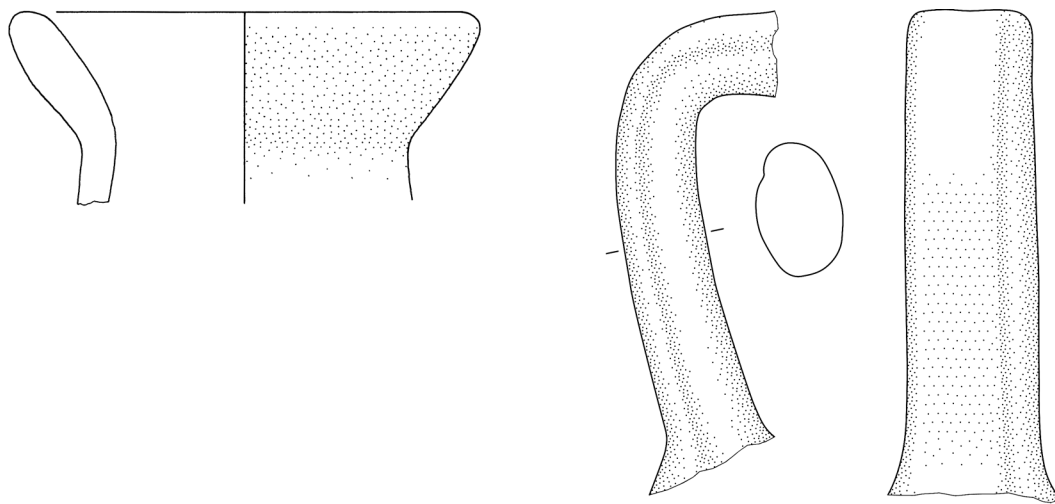
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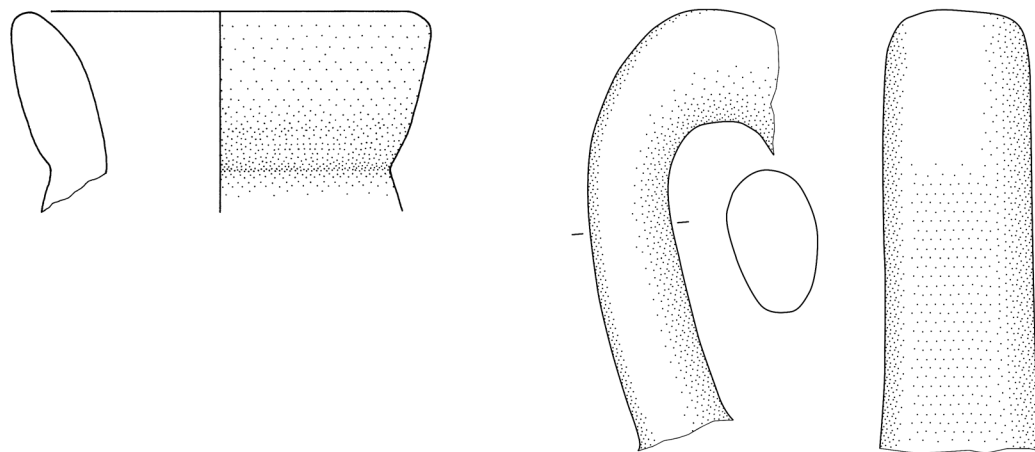
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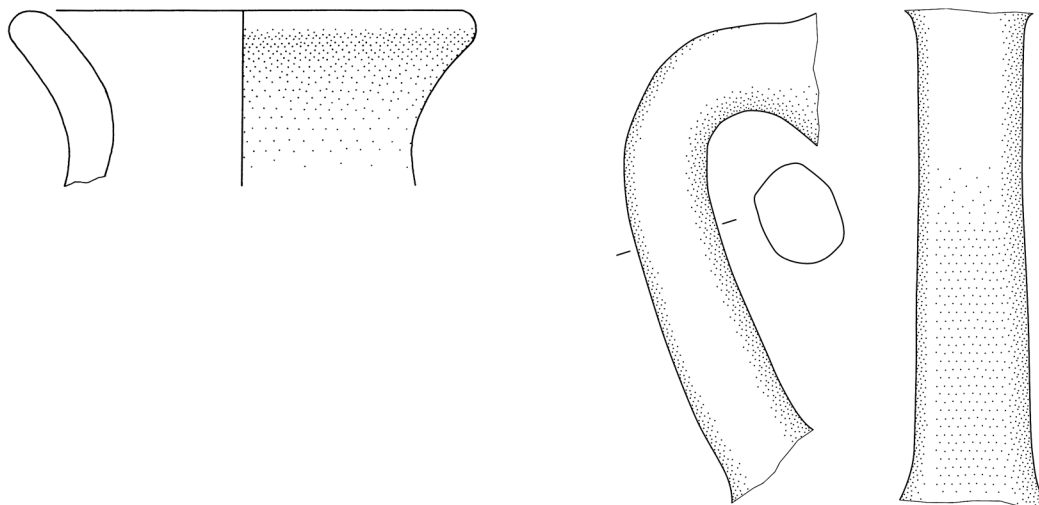
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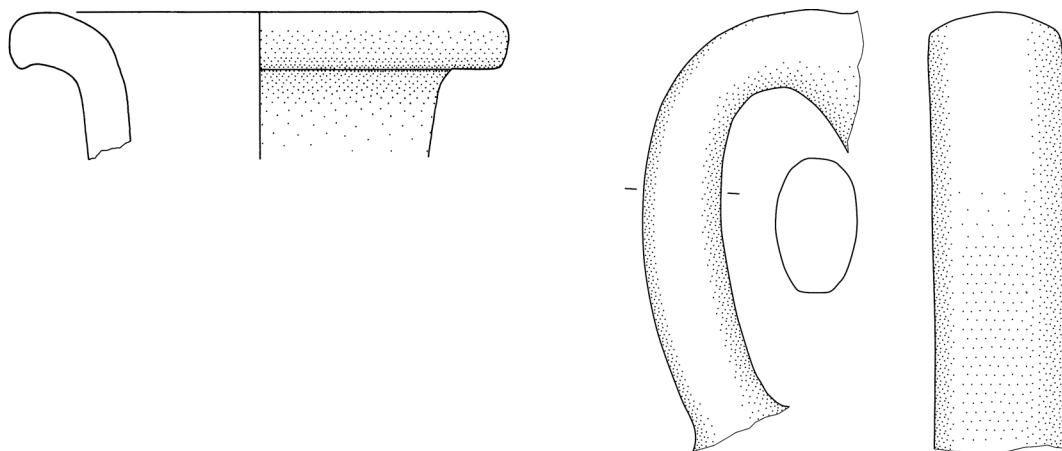
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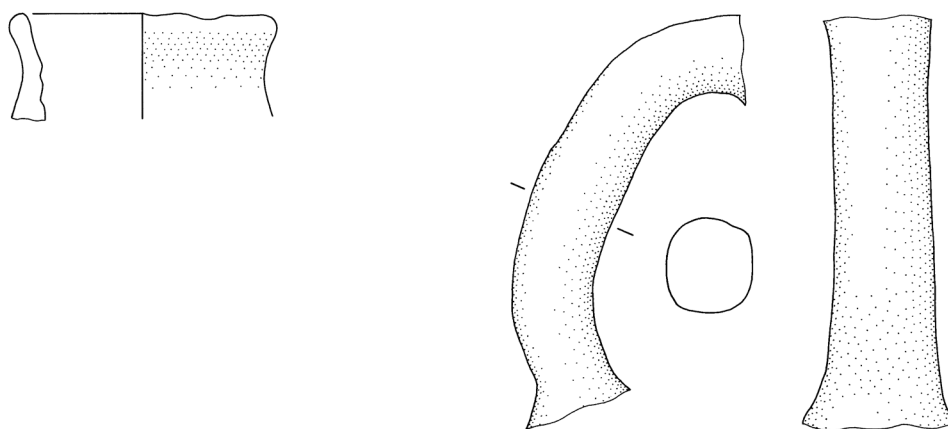
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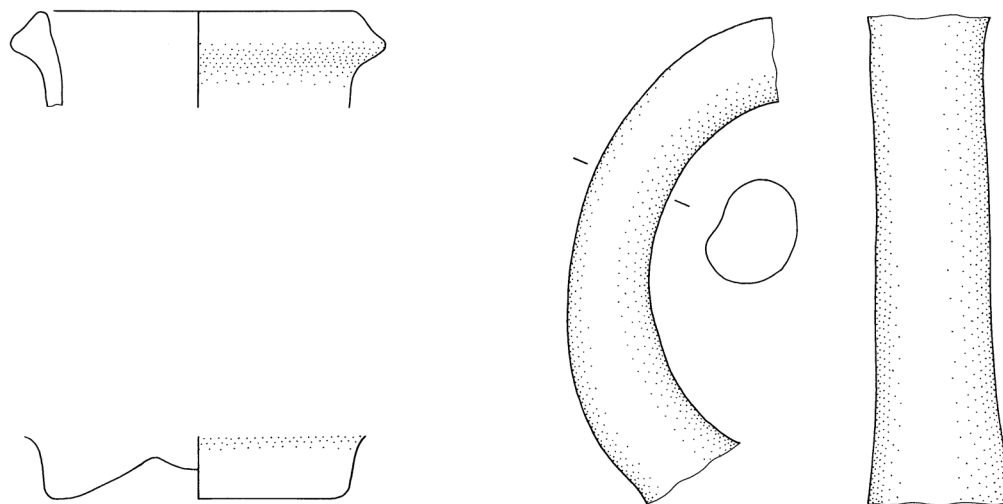
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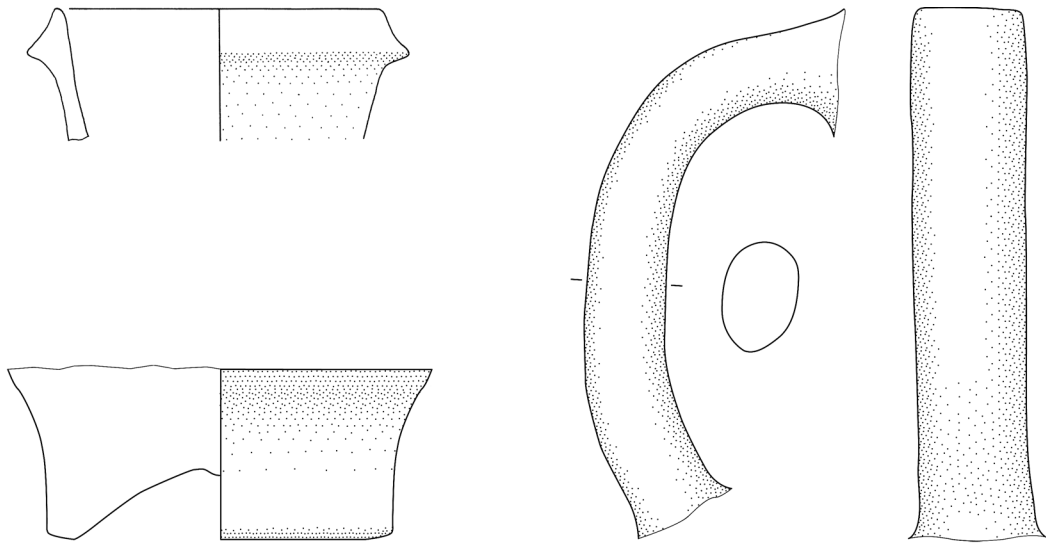
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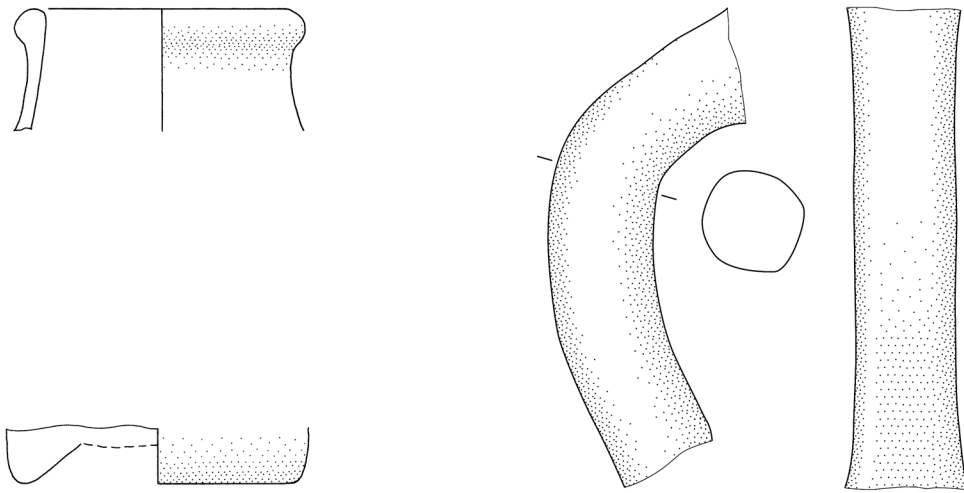
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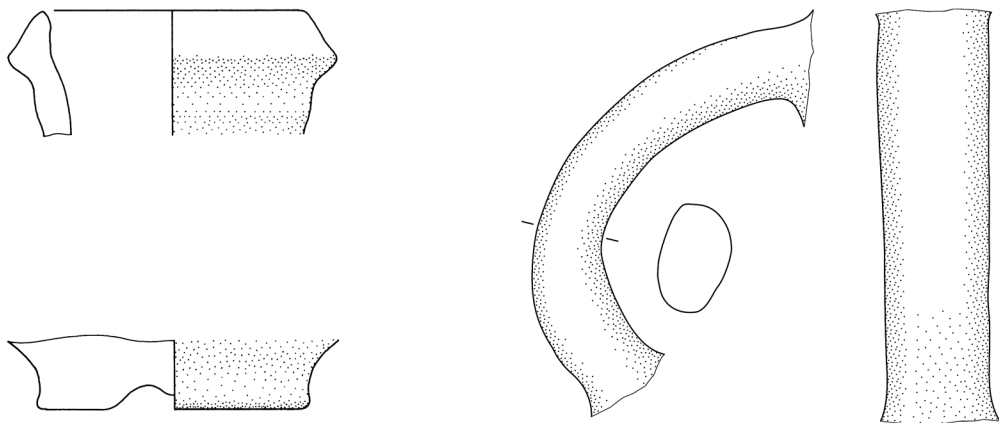
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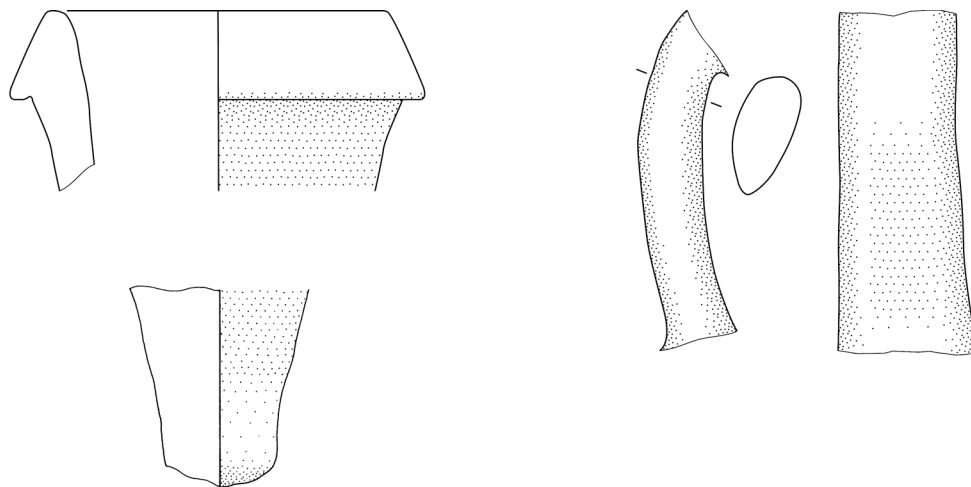
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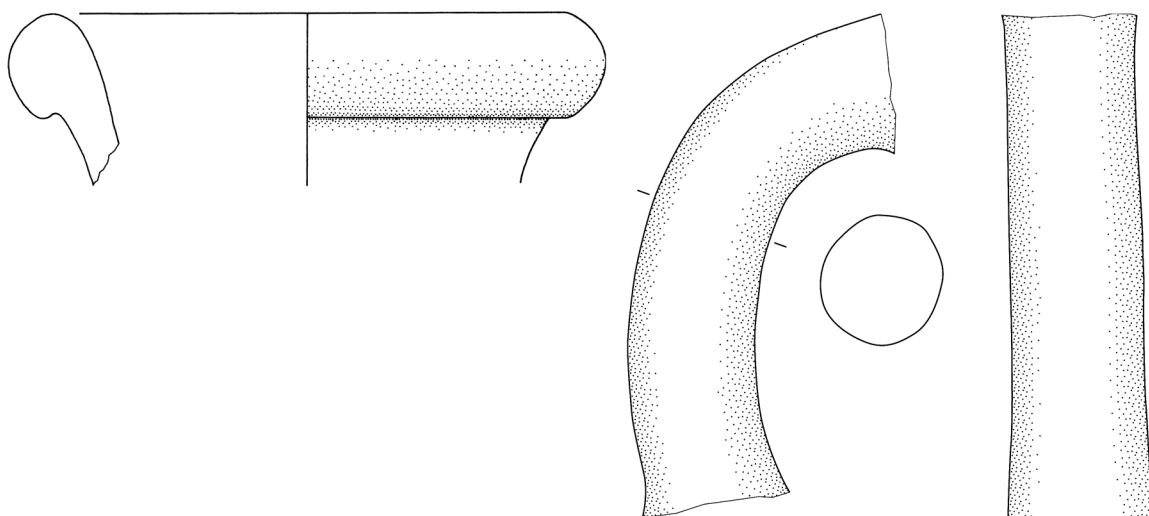
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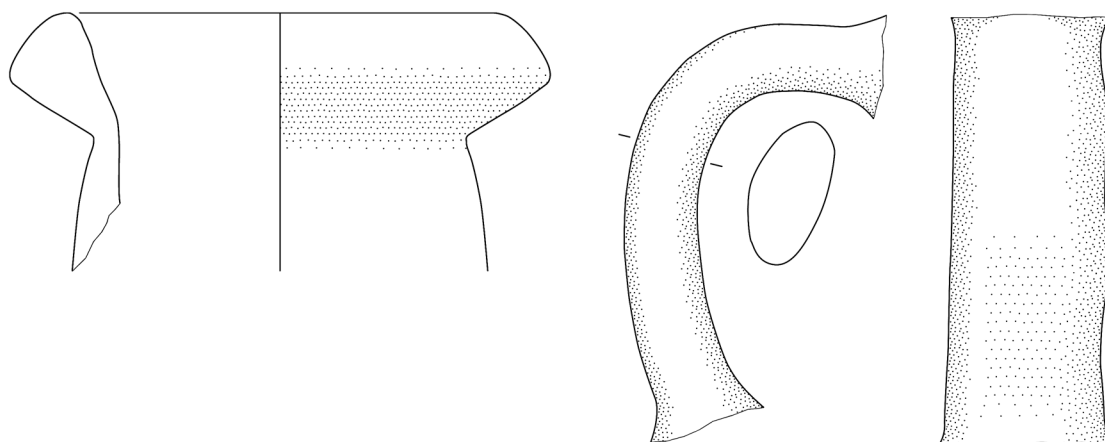
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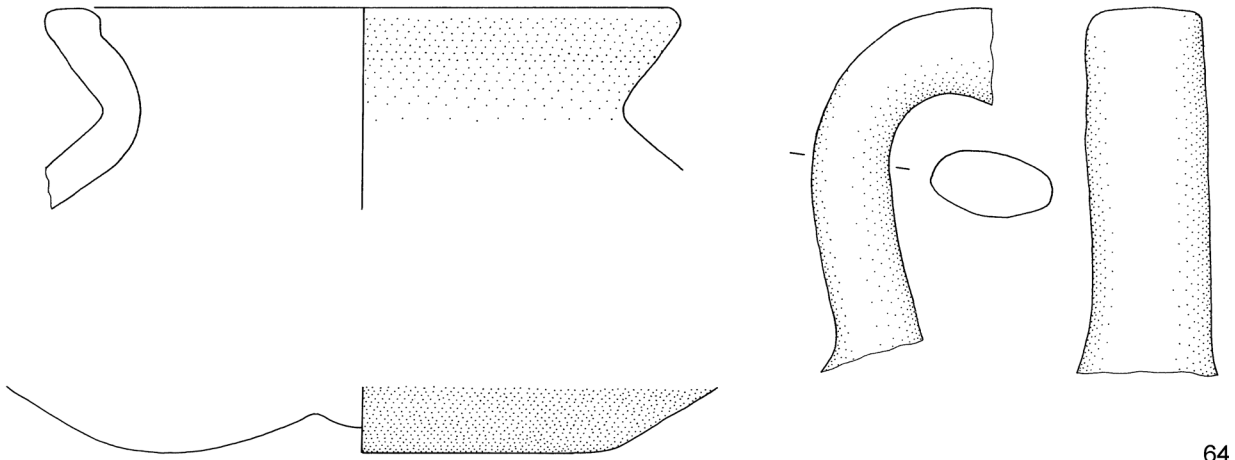
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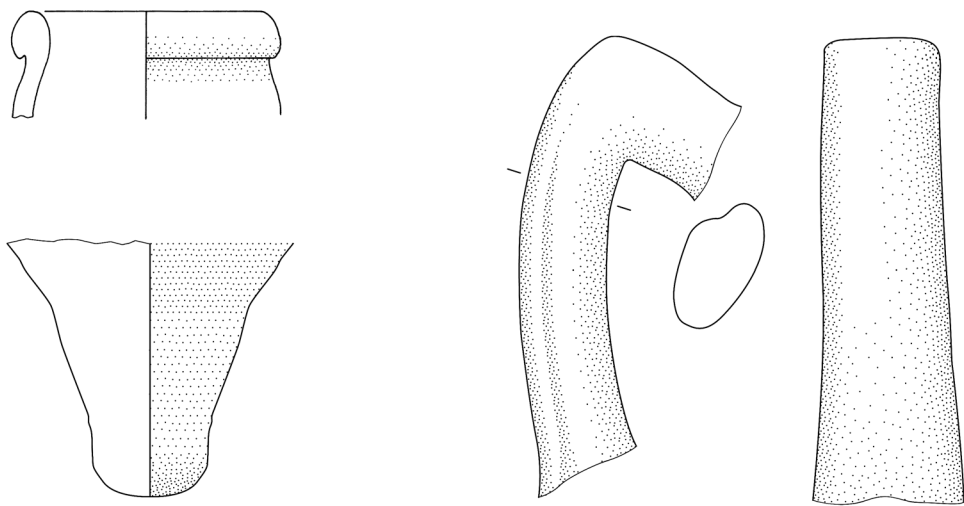
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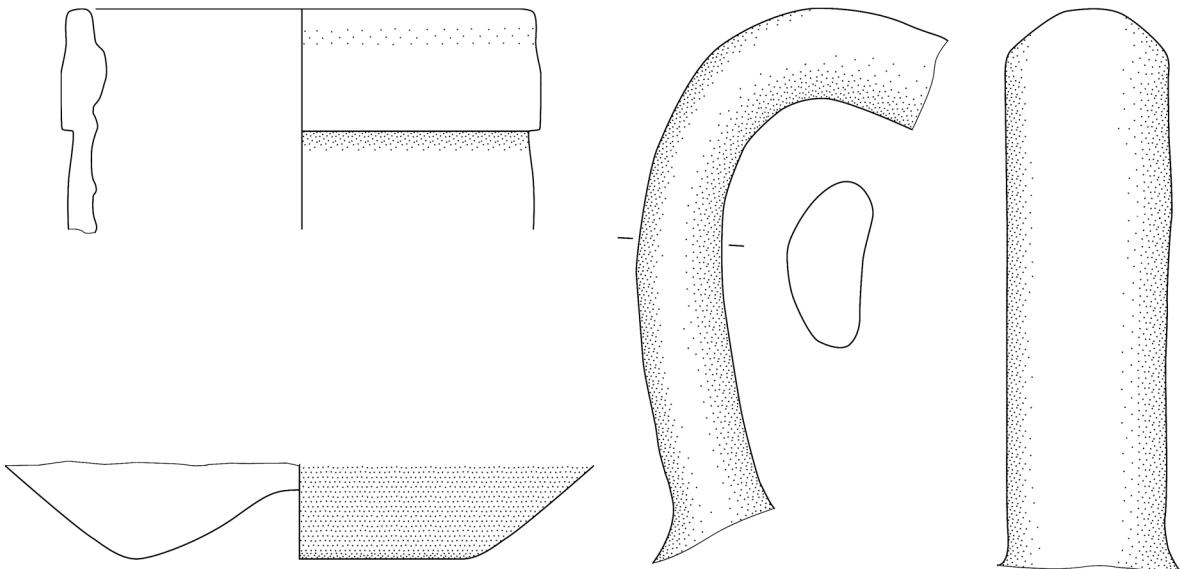
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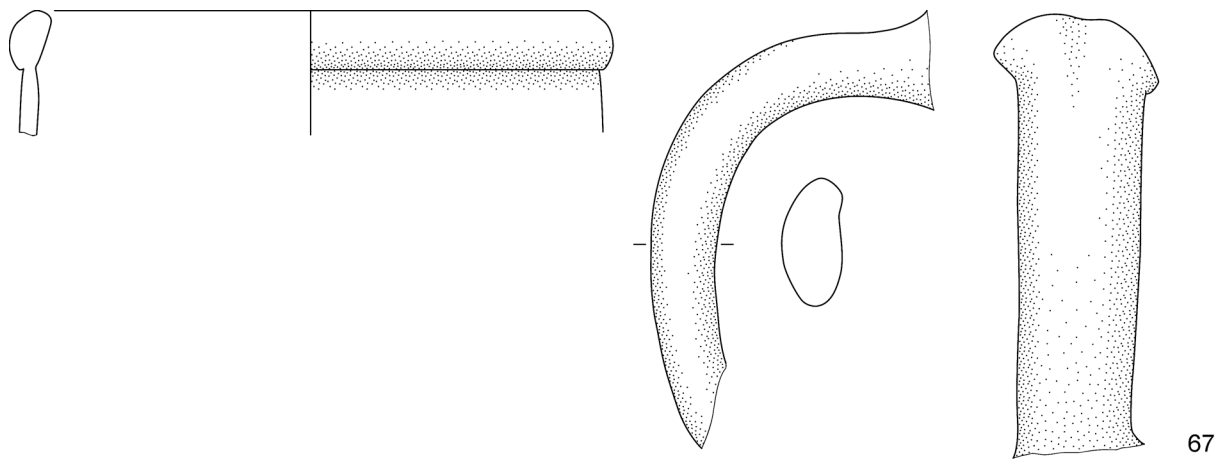
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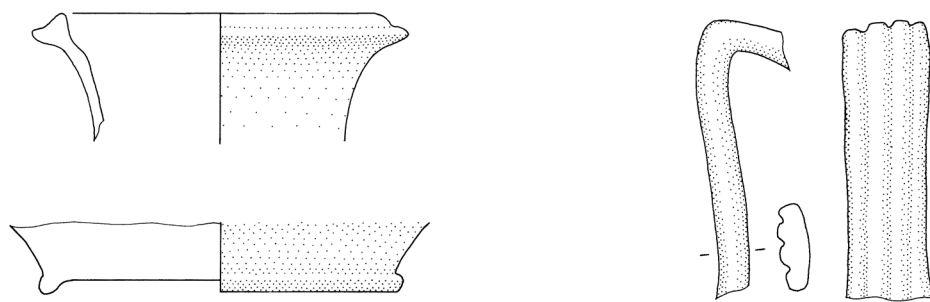
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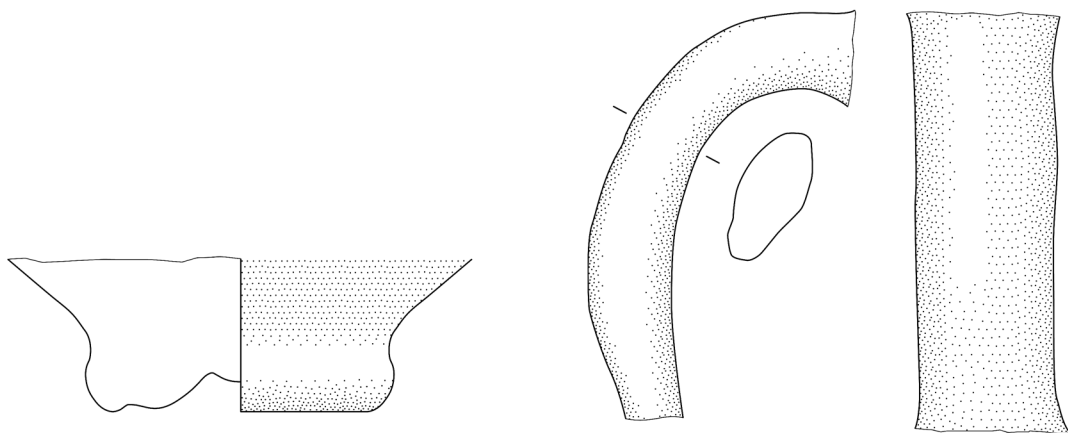
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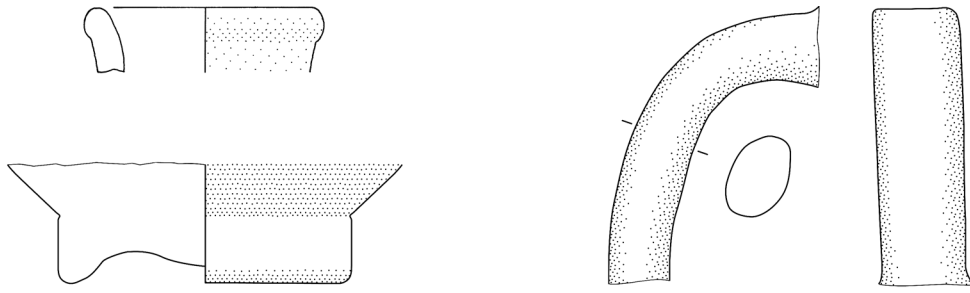
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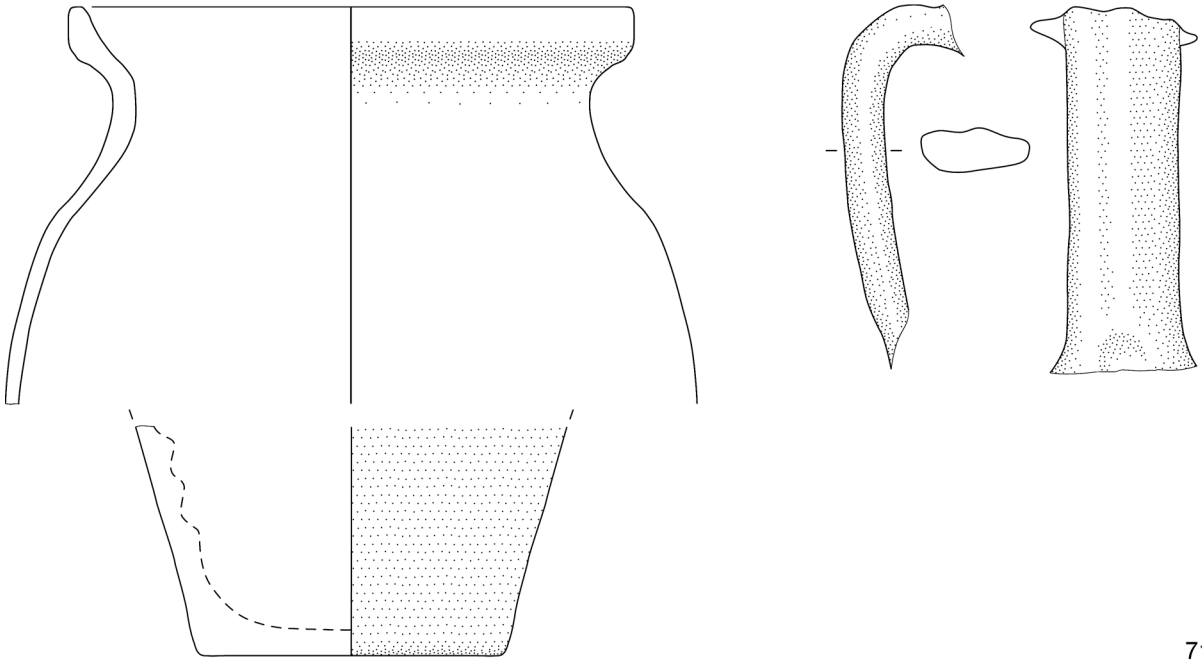
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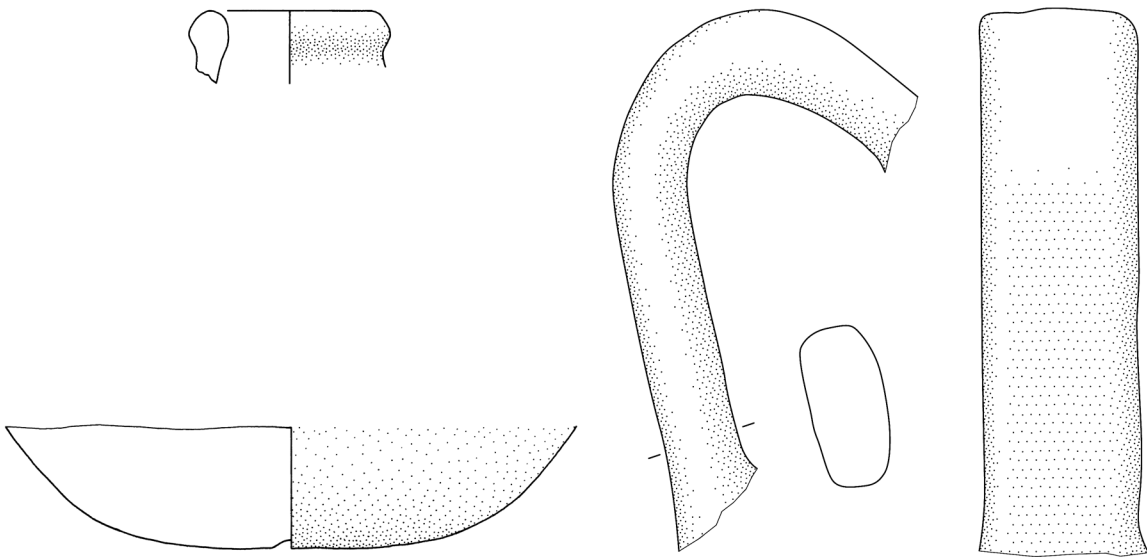
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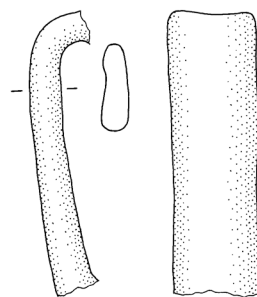
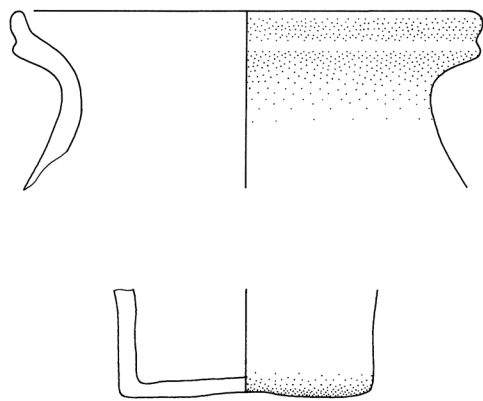
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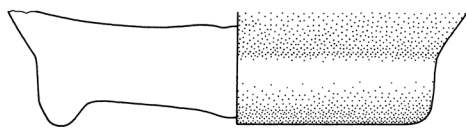
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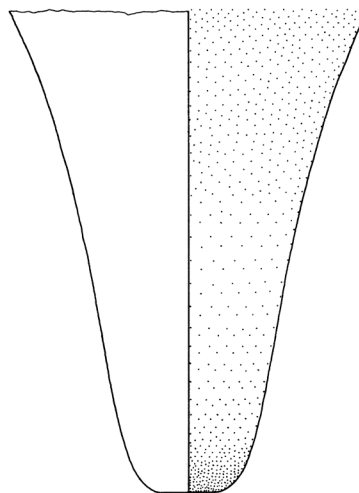
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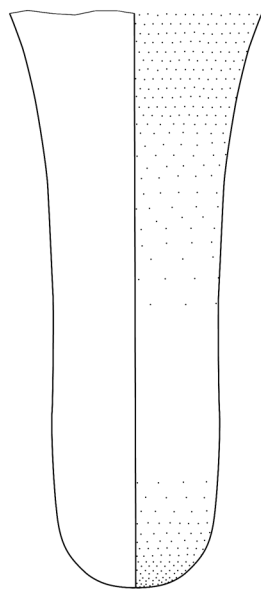
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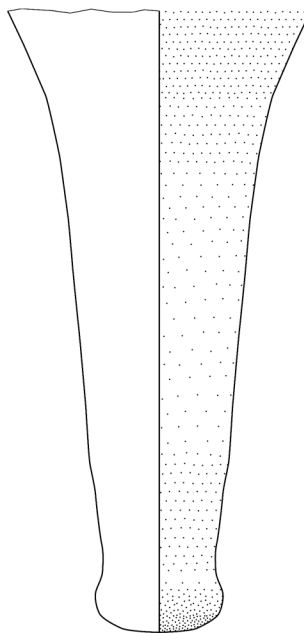
76



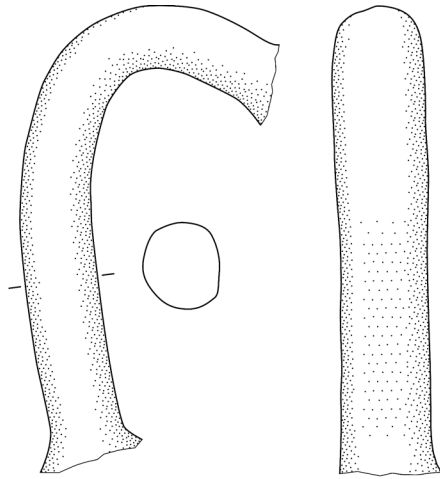
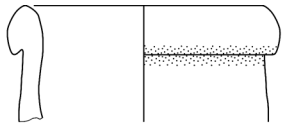
77



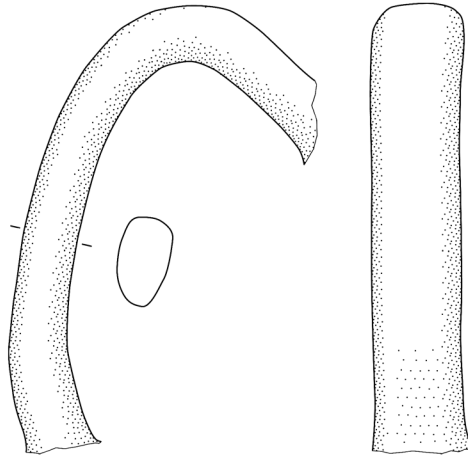
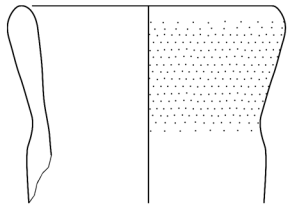
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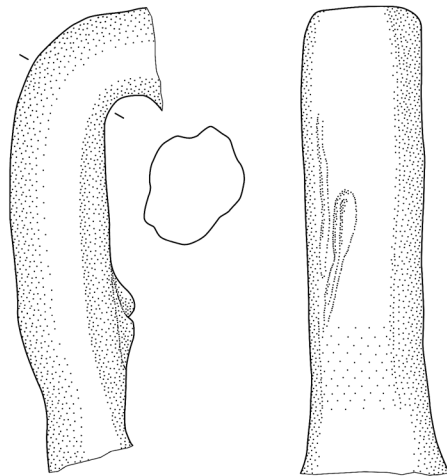
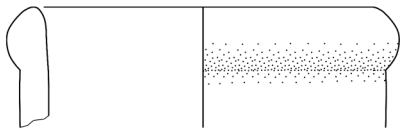
79



80



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82

